



Intrepid Potash – New Mexico, LLC  
Post Office Box 101  
Carlsbad, NM 88221  
575.234.3881

March 4, 2021

NMED Air Quality Bureau  
525 Camino de los Marquez, Suite 1  
Santa Fe, NM 87505  
Attn: Ms. Vanessa Springer

Re: Significant Revision for Engines and Generators  
Intrepid Potash-New Mexico LLC, East Plant – AI#208  
Title V Operating Permit No. P009R3 / NSR Permit No. 0755M13R3

Dear Ms. Springer:

Intrepid Potash - New Mexico, LLC ("Intrepid") is submitting a permit modification for our East Plant:

- Significant Revision to add equipment - Engines and Generator.

In accordance with the submittal requirements, we are submitting the following:

- For Significant Revision:
  - One original, signed, and notarized application package; printed double-sided, head-to-toe, 2-hole punched, and using numbered tab separators.
  - One double-sided working copy.
  - Two compact disks containing the permit application:
    - PDF of the entire application
    - Microsoft Word document files for Universal Application Forms 1, 3, and 4, as appropriate
    - Microsoft Excel files for Universal Application Form 2, and calculations
    - Modeling input and output files
  - A check for \$500 to cover the application fee.
  - Upon Air Quality Bureau's Completion Ruling, Intrepid will provide an electronic copy of the Significant Revision to EPA, Region 6.

Please contact me if you have any questions ([ken.faulkner@intrepidpotash.com](mailto:ken.faulkner@intrepidpotash.com) / 601-259-5217).

Sincerely,

Ken Faulkner  
Environmental Manager

<b>Mail Application To:</b>  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		<b>For Department use only:</b>          AIRS No.:
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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. [See Section 1-I for submittal instructions for other permits.](#)

**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:  a 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.: 812274 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.
- This facility qualifies to receive assistance from the Small Business Environmental Assistance program (SBEAP) and qualifies for 50% of the normal application and permit fees. Enclosed is a check for 50% of the normal application fee which will be verified with the Small Business Certification Form for your company.
- This facility qualifies to receive assistance from the Small Business Environmental Assistance Program (SBEAP) but does not qualify for 50% of the normal application and permit fees. To see if you qualify for SBEAP assistance and for the small business certification form go to [https://www.env.nm.gov/aqb/sbap/small\\_business\\_criteria.html](https://www.env.nm.gov/aqb/sbap/small_business_criteria.html) ).

**Citation:** Please provide the **low level citation** under which this application is being submitted: **20.2.72.200.A.(2) 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

		AI # if known (see 1 <sup>st</sup> 3 to 5 #s of permit IDEA ID No.): 208	Updating Permit/NOI #: 0755M13
1	Facility Name: <b>EAST Plant</b>	Plant primary SIC Code (4 digits): 1400	
		Plant NAIC code (6 digits): 212391	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 210 Red Cloud Road, Carlsbad, NM 88220		
2	Plant Operator Company Name: Intrepid Potash – New Mexico, LLC	Phone/Fax: (575) 234-3881	
a	Plant Operator Address: P.O. Box 101, Carlsbad, NM 88221		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 26-1501877	
3	Plant Owner(s) name(s): Intrepid Potash – New Mexico, LLC	Phone/Fax: (575) 234-3881
a	Plant Owner(s) Mailing Address(s): P.O. Box 101, Carlsbad, NM 88221	
4	Bill To (Company): Intrepid Potash – New Mexico, LLC	Phone/Fax: (575) 234-3881
a	Mailing Address: P.O. Box 101, Carlsbad, NM 88221	E-mail: ken.faulkner@intrepidpotash.com
5	<input checked="" type="checkbox"/> Preparer: <input type="checkbox"/> Consultant:	Phone/Fax: (575) 234-3881
a	Mailing Address: P.O. Box 101, Carlsbad, NM 88221	E-mail: ken.faulkner@intrepidpotash.com
6	Plant Operator Contact: Robert Baldrige, Sr. VP-New Mexico Operations	Phone/Fax: (575) 234-3600
a	Address: P.O. Box 101, Carlsbad, NM 88221	E-mail: robert.baldrige@intrepidpotash.com
7	Air Permit Contact: Ken Faulkner	Title: Environmental Engineer
a	E-mail: ken.faulkner@intrepidpotash.com	Phone/Fax: (575) 234-3881
b	Mailing Address: P.O. Box 101, Carlsbad, NM 88221	
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1.b If yes to question 1.a, is it currently operating in New Mexico? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3	Is the facility currently shut down? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, give month and year of shut down (MM/YY):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, the permit No. is: P009R3
7	Has this facility been issued a No Permit Required (NPR)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, the permit No. is: 0755M13
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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: 450 Tons Ore Feed	Daily: 10,800 Tons Ore Feed	Annually: 3.942 MM Tons Ore Feed
b	Proposed	Hourly: No change	Daily: No change	Annually: No change
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: 75 TPH Lang; 80 TPH Potash	Daily: 1920 dry tons of product	Annually: 700,800 dry tons of product

b	Proposed	Hourly: No change	Daily: No change	Annually: No change
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### Section 1-D: Facility Location Information

1	Section: 4	Range: 31E	Township: 21S	County: Eddy	Elevation (ft): 3,650
2	UTM Zone: <input type="checkbox"/> 12 or <input checked="" type="checkbox"/> 13			Datum: <input checked="" type="checkbox"/> NAD 27 <input type="checkbox"/> NAD 83 <input type="checkbox"/> WGS 84	
a	UTM E (in meters, to nearest 10 meters): 614,386			UTM N (in meters, to nearest 10 meters): 3,596,934	
b	AND Latitude (deg., min., sec.): 32°30'19.88"N			Longitude (deg., min., sec.): 103°46'57.0633"W	
3	Name and zip code of nearest New Mexico town: Carlsbad 88220				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From Carlsbad, New Mexico, take US Highway 62 /180 East for approximately 30 miles. The EAST facility is on the right hand side, 2 miles SE of US Hwy 62/180.				
5	The facility is 32 (distance) miles ENE (direction) of Carlsbad, NM (nearest town).				
6	Status of land at facility (check one): <input checked="" type="checkbox"/> Private <input type="checkbox"/> Indian/Pueblo <input type="checkbox"/> Federal BLM <input type="checkbox"/> Federal Forest Service <input type="checkbox"/> Other (specify)				
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: N/A				
8	20.2.72 NMAC applications <b>only</b> : 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 <a href="http://www.env.nm.gov/aqb/modeling/classIareas.html">www.env.nm.gov/aqb/modeling/classIareas.html</a> )? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:				
9	Name nearest Class I area: Carlsbad Caverns National Park				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 52 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: 52 km				
12	Method(s) used to delineate the Restricted Area:  "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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 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? <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 <b>maximum</b> operating ( $\frac{\text{hours}}{\text{day}}$ ): 24	( $\frac{\text{days}}{\text{week}}$ ): 7	( $\frac{\text{weeks}}{\text{year}}$ ): 52	( $\frac{\text{hours}}{\text{year}}$ ): 8,760
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$ )? Start: N/A		<input type="checkbox"/> AM <input type="checkbox"/> PM	End: N/A <input type="checkbox"/> AM <input type="checkbox"/> PM
3	Month and year of anticipated start of construction: Plant is in operation			
4	Month and year of anticipated construction completion: N/A			
5	Month and year of anticipated startup of new or modified facility: Plant is an existing operation			
6	Will this facility operate at this site for more than one year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, specify:		
a	If yes, NOV date or description of issue: N/A	NOV Tracking No: N/A	
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, provide the 1c & 1d info below:		
c	Document Title: N/A	Date: N/A	Requirement # (or page # and paragraph #): N/A
d	Provide the required text to be inserted in this permit: N/A		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
a	If Yes, what type of source? <input type="checkbox"/> Major ( <input type="checkbox"/> $\geq 10$ tpy of any single HAP <b>OR</b> <input type="checkbox"/> $\geq 25$ tpy of any combination of HAPS) <b>OR</b> <input checked="" type="checkbox"/> Minor ( <input checked="" type="checkbox"/> $< 10$ tpy of any single HAP <b>AND</b> <input checked="" type="checkbox"/> $< 25$ tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
a	If yes, include the name of company providing commercial electric power to the facility: <u>Xcel Energy</u> 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	<input type="checkbox"/> I have filled out Section 18, "Addendum for Streamline Applications." <input checked="" type="checkbox"/> 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.) Robert Baldrige (20.2.70.300.D.2 NMAC):	Phone: (575) 234-3600
a	R.O. Title: Sr. VP-New Mexico Operations	R.O. e-mail: robert.baldrige@intrepidpotash.com
b	R. O. Address: P.O. Box 101, Carlsbad, NM 88221	
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): Roy Torres	Phone: 575-234-3701
a	A. R.O. Title: Operations Manager	A. R.O. e-mail: roy.torres@intrepidpotash.com
b	A. R. O. Address: P.O. Box 101, Carlsbad, NM 88221	
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): N/A	
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.): Intrepid Potash Inc.	
a	Address of Parent Company: 1001 17th Street, Suite 1050, Denver, CO 80202	
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.): N/A	
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: (575) 234-3881	
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: N/A	

## 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-toe 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 \_\_\_\_\_

Email \_\_\_\_\_

Phone number \_\_\_\_\_

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 <sup>1</sup>	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity <sup>3</sup> (Specify Units)	Requested Permitted Capacity <sup>3</sup> (Specify Units)	Date of Manufacture <sup>2</sup>	Controlled by Unit #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB) <sup>4</sup>	Replacing Unit No.
							Date of Construction/Reconstruction <sup>2</sup>	Emissions vented to Stack #				
ENG1	Mobile Salt Screen Engine	Caterpillar	CAT C4.4 AGERT		TBD	65 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
GEN3	Generator	TBD	TBD		TBD	49 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG2	Air Compressor	TBD	TBD		TBD	13 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG3	Light Tower	TBD	TBD		TBD	25 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG4	Diesel Pump	TBD	TBD		TBD	99 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG5	Diesel Pump	TBD	TBD		TBD	99 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG6	Diesel Pump	TBD	TBD		TBD	99 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG7	Diesel Pump	TBD	TBD		TBD	99 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG8	Various	TBD	TBD		TBD	825 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG9	Diesel Pump	TBD	TBD		TBD	99 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
ENG10	Diesel Pump	TBD	TBD		TBD	210 HP				<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input checked="" type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
										<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
										<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		
										<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced		

<sup>1</sup> 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.

<sup>2</sup> Specify dates required to determine regulatory applicability.

<sup>3</sup> 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.

<sup>4</sup> "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 Activities<sup>1</sup> (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 202.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](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 <sup>2</sup>	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 <sup>2</sup>	
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced
							<input type="checkbox"/> Existing (unchanged) <input type="checkbox"/> To be Removed <input type="checkbox"/> New/Additional <input type="checkbox"/> Replacement Unit <input type="checkbox"/> To Be Modified <input type="checkbox"/> To be Replaced

<sup>1</sup> 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.

<sup>2</sup> 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.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s) <sup>1</sup>	Efficiency (% Control by Weight)	Method used to Estimate Efficiency

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

**Table 2-D: Maximum Emissions** (under normal operating conditions)

▫ This Table was intentionally left blank because it would be identical to Table 2-E.

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table 2-I. 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 <sup>1</sup>		PM10 <sup>1</sup>		PM2.5 <sup>1</sup>		H <sub>2</sub> 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
ENG1	2.02	8.83	0.43	1.90	0.16	0.72	0.13	0.58	0.14	0.63	0.14	0.63	0.14	0.63				
GEN3	0.61	2.68	0.65	2.86	0.12	0.55	0.10	0.45	0.07	0.29	0.07	0.29	0.07	0.29				
ENG2	0.14	0.63	0.09	0.40	0.28	1.23	0.01	0.03	0.01	0.04	0.01	0.04	0.01	0.04				
ENG3	0.78	3.39	0.17	0.73	0.06	0.28	0.05	0.22	0.06	0.24	0.06	0.24	0.06	0.24				
ENG4	1.22	5.35	0.81	3.57	0.25	1.09	0.20	0.89	0.07	0.29	0.07	0.29	0.07	0.29				
ENG5	1.22	5.35	0.81	3.57	0.25	1.09	0.20	0.89	0.07	0.29	0.07	0.29	0.07	0.29				
ENG6	1.22	5.35	0.81	3.57	0.25	1.09	0.20	0.89	0.07	0.29	0.07	0.29	0.07	0.29				
ENG7	1.22	5.35	0.81	3.57	0.25	1.09	0.20	0.89	0.07	0.29	0.07	0.29	0.07	0.29				
ENG8	10.18	44.57	10.85	47.54	2.07	9.08	1.69	7.41	1.09	4.75	1.09	4.75	1.09	4.75				
ENG9	1.22	5.35	0.81	3.57	0.25	1.09	0.20	0.89	0.07	0.29	0.07	0.29	0.07	0.29				
ENG10	2.28	9.98	1.21	5.29	0.53	2.31	0.43	1.89	0.07	0.30	0.07	0.30	0.07	0.30				
<b>Totals</b>	<b>22.11</b>	<b>96.83</b>	<b>17.48</b>	<b>76.56</b>	<b>4.48</b>	<b>19.61</b>	<b>3.43</b>	<b>15.02</b>	<b>1.75</b>	<b>7.68</b>	<b>1.75</b>	<b>7.68</b>	<b>1.75</b>	<b>7.68</b>				

<sup>1</sup>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 PM is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

**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<sup>-4</sup>).

Unit No.	NOx		CO		VOC		SOx		PM <sup>1</sup>		PM10 <sup>1</sup>		PM2.5 <sup>1</sup>		H <sub>2</sub> 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
ENG1	2.02	2.52	0.43	0.54	0.16	0.20	0.13	0.17	0.14	0.18	0.14	0.18	0.14	0.18				
GEN3	0.61	0.76	0.65	0.82	0.12	0.16	0.10	0.13	0.07	0.08	0.07	0.08	0.07	0.08				
ENG2	0.14	0.18	0.09	0.11	0.28	0.35	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01				
ENG3	0.78	0.97	0.17	0.21	0.06	0.08	0.05	0.06	0.06	0.07	0.06	0.07	0.06	0.07				
ENG4	1.22	1.53	0.81	1.02	0.25	0.31	0.20	0.25	0.07	0.08	0.07	0.08	0.07	0.08				
ENG5	1.22	1.53	0.81	1.02	0.25	0.31	0.20	0.25	0.07	0.08	0.07	0.08	0.07	0.08				
ENG6	1.22	1.53	0.81	1.02	0.25	0.31	0.20	0.25	0.07	0.08	0.07	0.08	0.07	0.08				
ENG7	1.22	1.53	0.81	1.02	0.25	0.31	0.20	0.25	0.07	0.08	0.07	0.08	0.07	0.08				
ENG8	10.18	12.72	10.85	13.57	2.07	2.59	1.69	2.11	1.09	1.36	1.09	1.36	1.09	1.36				
ENG9	1.22	1.53	0.81	1.02	0.25	0.31	0.20	0.25	0.07	0.08	0.07	0.08	0.07	0.08				
ENG10	2.28	2.85	1.21	1.51	0.53	0.66	0.43	0.54	0.07	0.09	0.07	0.09	0.07	0.09				
<b>Totals</b>	22.11	27.63	17.48	21.85	4.48	5.60	3.43	4.29	1.75	2.19	1.75	2.19	1.75	2.19				

<sup>1</sup>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)

□ 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)<sup>1</sup>, 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/aqb/permit/aqb\_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).

Unit No.	NOx		CO		VOC		SOx		PM <sup>2</sup>		PM10 <sup>2</sup>		PM2.5 <sup>2</sup>		H <sub>2</sub> 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	
<b>Totals</b>																			

<sup>1</sup> 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.

<sup>2</sup> 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.

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		☐ H <sub>2</sub> S or ☐ 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
<b>Totals:</b>																	

### Table 2-H: Stack Exit Conditions

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:

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H=Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
ENG1	ENG1	H	No	3.3	900	7	6	~12%	276	0.18
GEN3	GEN3	H	No	3.3	900	5	5	~12%	276	0.15
ENG2	ENG2	H	No	3.3	1200	2	1	~12%	276	0.09
ENG3	ENG3	H	No	3.3	900	3	2	~12%	276	0.11
ENG4	ENG4	V	No	8.0	1085	11	10	~12%	127	0.33
ENG5	ENG5	V	No	8.0	1085	11	10	~12%	127	0.33
ENG6	ENG6	V	No	8.0	1085	11	10	~12%	127	0.33
ENG7	ENG7	V	No	8.0	1085	11	10	~12%	127	0.33
ENG8	ENG8	H	No	3.3	900	86.57	76	~12%	276	0.63
ENG9	ENG9	H	No	8.0	1085	11.05	9.724	~12%	127	0.33
ENG10	ENG10	V	No	3.3	900	22	19	~12%	276	0.32

**Table 2-I: Stack Exit and Fugitive Emission Rates for HAPs and TAPs**

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.

Stack No.	Unit No.(s)	Total HAPs		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP		Provide Pollutant Name Here <input type="checkbox"/> HAP or <input type="checkbox"/> TAP			
		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	lb/hr	ton/yr
<b>Totals:</b>																					



### Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, ...)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage* (gal)	Annual Usage (gal)	% Sulfur	% Ash
ENG1	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	4.0	9,978	N/A	N/A
GEN3	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	3.0	7,614	N/A	N/A
ENG2	Gasoline	Purchased commercial	115 MMBTU/1,000 Gallons	0.8	1,978	N/A	N/A
ENG3	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	1.5	3,838	N/A	N/A
ENG4	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	6.1	15,197	N/A	N/A
ENG5	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	6.1	15,197	N/A	N/A
ENG6	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	6.1	15,197	N/A	N/A
ENG7	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	6.1	15,197	N/A	N/A
ENG8	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	50.7	126,645	N/A	N/A
ENG9	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	6.1	15,197	N/A	N/A
ENG10	Diesel	Purchased commercial	140 MMBTU/1,000 Gallons	12.9	32,237	N/A	N/A
		* Fuel used based on and average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr	Annual use based on 2500 hours /yr				

**Table 2-K: Liquid Data for Tanks Listed in Table 2-L**

For each tank, list the liquid(s) to be stored in each tank. If it is expected that a tank may store a variety of hydrocarbon liquids, enter "mixed hydrocarbons" in the Composition column for that tank and enter the corresponding data of the most volatile liquid to be stored in the tank. If tank is to be used for storage of different materials, list all the materials in the "All Calculations" attachment, run the newest version of TANKS on each, and use the material with the highest emission rate to determine maximum uncontrolled and requested allowable emissions rate. The permit will specify the most volatile category of liquids that may be stored in each tank. Include appropriate tank-flashing modeling input data. Use additional sheets if necessary. Unit and stack numbering must correspond throughout the application package.

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)

**Table 2-L: Tank Data**

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

Tank No.	Date Installed	Materials Stored	Seal Type <small>(refer to Table 2-LR below)</small>	Roof Type <small>(refer to Table 2-LR below)</small>	Capacity		Diameter (M)	Vapor Space (M)	Color <small>(from Table VI-C)</small>		Paint Condition <small>(from Table VI-C)</small>	Annual Throughput <small>(gal/yr)</small>	Turn-overs <small>(per year)</small>
					(bbl)	(M <sup>3</sup> )			Roof	Shell			

**Table 2-L2: Liquid Storage Tank Data Codes Reference Table**

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	
					MG: Medium Gray	
					BL: Black	
					OT: Other (specify)	

Note: 1.00 bbl = 0.159 M<sup>3</sup> = 42.0 gal

**Table 2-M: Materials Processed and Produced** (Use additional sheets as necessary.)

Material Processed				Material Produced			
Description	Chemical Composition	Phase (Gas, Liquid, or Solid)	Quantity (specify units)	Description	Chemical Composition	Phase	Quantity (specify units)

**Table 2-N: CEM Equipment**

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.

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy

**Table 2-O: Parametric Emissions Measurement Equipment**

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

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time

### 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 CO<sub>2</sub>e emissions are less than 75,000 tons per year.

		CO <sub>2</sub> ton/yr	N <sub>2</sub> O ton/yr	CH <sub>4</sub> ton/yr	SF <sub>6</sub> ton/yr	PFC/HFC ton/yr <sup>2</sup>									Total GHG Mass Basis ton/yr <sup>4</sup>	Total CO <sub>2</sub> e ton/yr <sup>5</sup>
<b>Unit No.</b>	<b>GWPs<sup>1</sup></b>	<b>1</b>	<b>298</b>	<b>25</b>	<b>22,800</b>	<b>footnote 3</b>										
ENG1	mass GHG	93.44	0.0008	0.0038											93.44	
	CO <sub>2</sub> e	93.44	0.2237	0.0938											93.76	
GEN3	mass GHG	71.30	0.0006	0.0029											71.30	
	CO <sub>2</sub> e	71.30	0.1707	0.0716											71.54	
ENG2	mass GHG	17.55	0.0002	0.0008											17.55	
	CO <sub>2</sub> e	17.55	0.0447	0.0188											17.61	
ENG3	mass GHG	35.94	0.0003	0.0014											35.94	
	CO <sub>2</sub> e	35.94	0.0860	0.0361											36.06	
ENG4	mass GHG	142.31	0.0011	0.0057											142.32	
	CO <sub>2</sub> e	142.31	0.3407	0.1429											142.80	
ENG5	mass GHG	142.31	0.0011	0.0057											142.32	
	CO <sub>2</sub> e	142.31	0.3407	0.1429											142.80	
ENG6	mass GHG	142.31	0.0011	0.0057											142.32	
	CO <sub>2</sub> e	142.31	0.3407	0.1429											142.80	
ENG7	mass GHG	142.31	0.0011	0.0057											142.32	
	CO <sub>2</sub> e	142.31	0.3407	0.1429											142.80	
ENG8	mass GHG	1185.94	0.0095	0.0476											1185.99	
	CO <sub>2</sub> e	1185.94	2.8396	1.1911											1189.97	
ENG9	mass GHG	142.31	0.0011	0.0057											142.32	
	CO <sub>2</sub> e	142.31	0.3407	0.1429											142.80	
ENG10	mass GHG	301.88	0.0024	0.0121											301.89	
	CO <sub>2</sub> e	301.88	0.7228	0.3032											302.90	
	mass GHG															
	CO <sub>2</sub> e															
	mass GHG															
	CO <sub>2</sub> e															
<b>Total</b>	mass GHG														2417.71	
	CO <sub>2</sub> e														2425.82	

<sup>1</sup> 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.

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

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

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

<sup>5</sup> CO<sub>2</sub>e 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

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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](http://www.env.nm.gov/aqb/permit/app_form.html)) for more detailed instructions on SSM emissions.

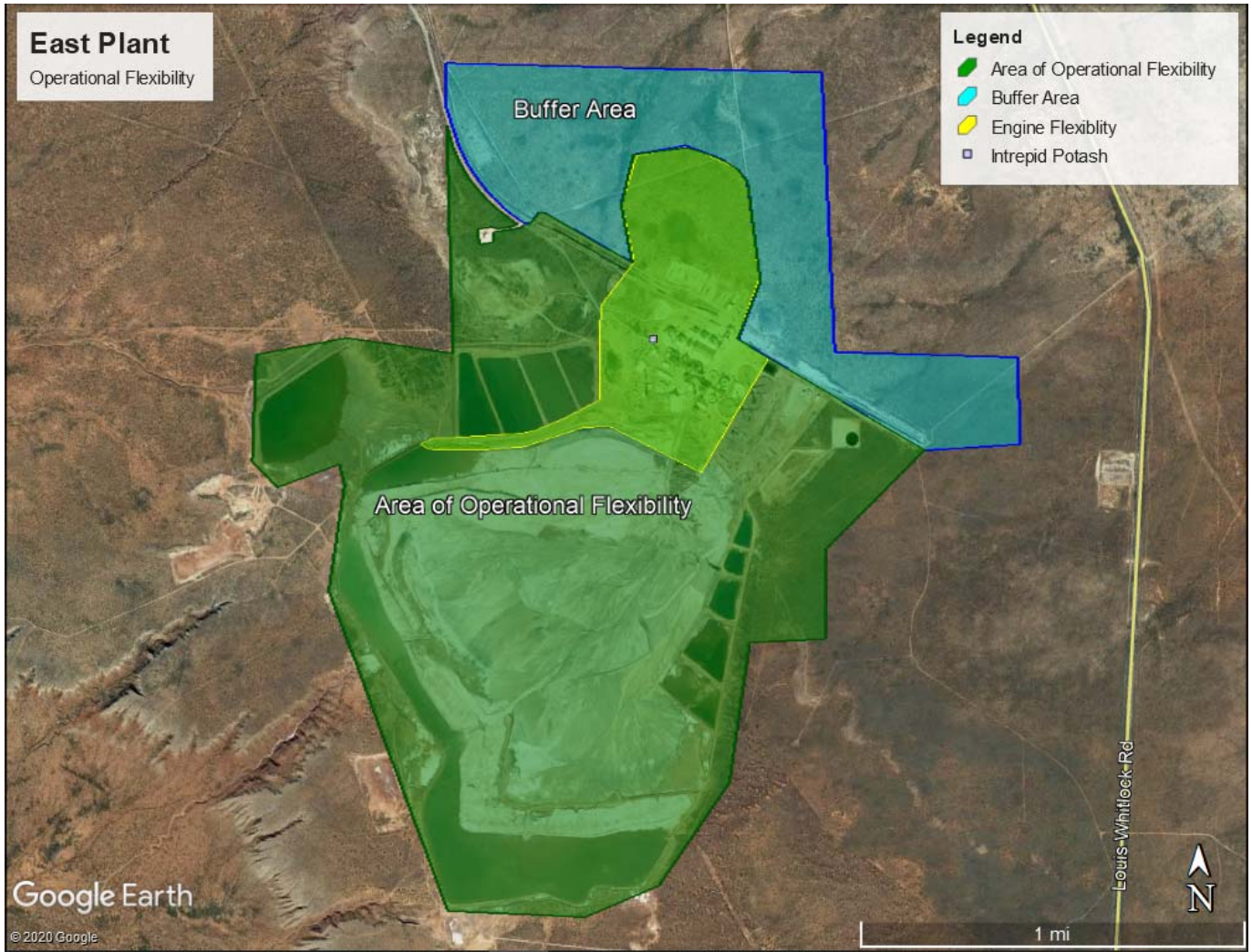
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Intrepid Potash – New Mexico, LLC (“Intrepid”) is submitting this application per 20.2.72.200.A.(2) to include portable non-road engines in the facility permit. Four of the engines (ENG4 – ENG7) will be rental diesel pump engines and will be required by contract to meet one of the tiered exhaust standards of 40 CFR 89.112. As an inherent part of the mining process, tailings are produced and are pumped as a slurry to the tailings pile. Water draining from the tailings pile is managed in a pond which on occasion has seeps through the levees. The rental pump engines are to be used to manage water that seeps through the tailings pond dams as needed. Additionally, two other water pump engines are proposed for use. One engine (ENG9) will be located near Intrepid's Pond C area to facilitate as needed pumping for water management; and another engine (ENG10) will be located near the fresh water pond pump area to provide critical backup pump capability should our existing electric pumps go out.

In the salt drying area, Intrepid is proposing to permit portable non-road engines for a generator (GEN3), mobile salt screen (ENG1), light tower (ENG2), and air compressor (ENG3).

Additionally, Intrepid is requesting the flexibility to bring non-road engines (Noted in this application as ENG8) on-site totaling no more than 825 HP to perform various tasks that may be required around the plant area. The requested flexibility area for the non-road engines is highlighted in yellow in the figure below. Intrepid's consultant has performed ambient air quality monitoring to define the area of flexibility as represented by this figure.





# Section 4

## Process Flow Sheet

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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.

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The equipment to be permitted are portable non-road engines, a process flow is not applicable.

# 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.



- ENG1 – Mobile Salt Screen Engine
- ENG2 – Air Compressor
- ENG3 – Light Tower
- GEN3 – Generator
- ENG 4 – Gas Area Diesel Pump
- ENG5 – WIPP Diesel Pump
- ENG6 - New Pond Diesel Pump
- ENG7 - South Seep Diesel Pump
- ENG9 – C Pond Diesel Pump
- ENG10 – Fresh Water Pond Diesel Pump

# Section 6

## All Calculations

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**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 rationale 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](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.

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Portable Non-road Engines

Capacity (HP):	65	49.6	13	25	99	99	99	99	825	99	210
Capacity (KW):	48.5	37	9.7	19	74	74	74	74	615.45	74	157
Fuel:	Diesel	Diesel	Gas	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Emission Point:	ENG1	GEN3	ENG2	ENG3	ENG4	ENG5	ENG6	ENG7	ENG8	ENG9	ENG10

AP-42 Table 3.3-1. Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines					EPA-420-B-16-022 Diesel Fuel Emissions																				Total										
	Gasoline Fuel		Diesel Fuel		EMISSION FACTOR RATING	Emissions																				lb/hr	TPY								
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)		Max Tier 2 Engine (g/kw-hr)	Max Tier 2 Engine 75skw (g/kw-hr)	Emission Standard 56 ≤ kw <75 (g/kw-hr)	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr			TPY							
NOx	0.011	1.63	0.031	4.41	D	7.5	6.6	7.5	2.02	2.52	0.61	0.76	0.14	0.18	0.78	0.97	1.22	1.53	1.22	1.53	1.22	1.53	1.22	1.53	1.22	1.53	10.18	12.72	1.22	1.53	2.28	2.85	22.11	27.63	
CO	0.007	0.99	0.007	0.95	D	8	3.5	5	0.43	0.54	0.65	0.82	0.09	0.11	0.17	0.21	0.81	1.02	0.81	1.02	0.81	1.02	0.81	1.02	0.81	1.02	10.85	13.57	0.81	1.02	1.21	1.51	17.48	21.85	
SOx	0.001	0.08	0.002	0.29	D				0.13	0.17	0.10	0.13	0.01	0.01	0.05	0.06	0.20	0.25	0.20	0.25	0.20	0.25	0.20	0.25	0.20	0.25	1.69	2.11	0.20	0.25	0.43	0.54	3.43	4.47	
PM10	0.001	0.10	0.002	0.31	D	0.8	0.2	0.4	0.14	0.18	0.07	0.08	0.01	0.01	0.06	0.07	0.07	0.08	0.07	0.08	0.07	0.08	0.07	0.08	0.07	0.08	1.09	1.36	0.07	0.08	0.07	0.09	1.75	2.19	
CO2	1.080	154.00	1.150	164					74.75	93.44	57.04	71.30	14.04	17.55	28.75	35.94	113.85	142.31	113.85	142.31	113.85	142.31	113.85	142.31	113.85	142.31	948.75	1185.94	113.85	142.31	241.50	301.88	1,934.08	2,417.60	
CH4		0.0066		0.0066	EPA 2014 GHG factors				0.0030	0.0038	0.0023	0.0029	0.0006	0.0008	0.0012	0.0014	0.0046	0.0057	0.0046	0.0057	0.0046	0.0057	0.0046	0.0057	0.0046	0.0057	0.0381	0.0476	0.0046	0.0057	0.0097	0.0121			
N2O		0.0013		0.0013						0.0006	0.0008	0.0005	0.0006	0.0001	0.0002	0.0002	0.0003	0.0009	0.0011	0.0009	0.0011	0.0009	0.0011	0.0009	0.0011	0.0009	0.0011	0.0076	0.0095	0.0009	0.0011	0.0019	0.0024		
Total CO2e (short tons)										---	93.76	---	71.54	---	17.61	---	36.06	---	142.80	---	142.80	---	142.80	---	142.80	---	142.80	---	1189.97	---	142.80	---	302.90		
Total CO2e (metric tons)										---	85.05	---	64.90	---	15.98	---	32.71	---	129.54	---	129.54	---	129.54	---	129.54	---	129.54	---	1079.54	---	129.54	---	274.79		
Aldehydes	0.000	0.07	0.000	0.07	D				0.03	0.04	0.02	0.03	0.01	0.01	0.01	0.01	0.05	0.06	0.05	0.06	0.05	0.06	0.05	0.06	0.05	0.06	0.38	0.48	0.05	0.06	0.10	0.12	0.78	0.97	
TOC									0.16	0.20	0.12	0.16	0.28	0.35	0.06	0.08	0.25	0.31	0.25	0.31	0.25	0.31	0.25	0.31	0.25	0.31	2.07	2.59	0.25	0.31	0.53	0.66	4.48	5.60	
Exhaust	0.015	2.10	0.002	0.35	D				0.16	0.20	0.12	0.15	0.20	0.24	0.06	0.08	0.24	0.31	0.24	0.31	0.24	0.31	0.24	0.31	0.24	0.31	2.04	2.55	0.24	0.31	0.52	0.65	4.32	5.40	
Evaporative	0.001	0.09	0.000	0.00	E				0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
Crankcase	0.005	0.69	0.000	0.01	E				0.00	0.00	0.00	0.00	0.06	0.08	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.04	0.05	0.00	0.01	0.01	0.01	0.14	0.17	
Refueling	0.001	0.15	0.000	0.00	E				0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	

- Emissions based on AP-42 factor for gasoline
  - Emissions based on AP-42 factor for diesel (GHG CO2e emissions are shown with GWP of 25 for CH4 and 298 for N2O included in calc)
  - Emissions based on Tiered Compression Engine 56 ≤ kw <75
  - Emissions based on maximum Tier 2 emission rates
  - Emissions based on maximum emission standard for a Tiered Compression Engine greater than or equal to 75 kw
- Annual operation limited to 2,500 hrs per engine

Hourly Emissions

lb/hr = (EF lb/hp-hr) x (Capacity hp) or  
 lb/hr = (EF g/kw-hr) x (Capacity kw) x (lb/453.59 g)

TPY = (lb/hr) x (2000 hr/yr) x (ton/2000 lb)

# Section 6.a

## Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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**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 (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), methane (CH<sub>4</sub>), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>).

### Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO<sub>2</sub>e 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e 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 CO<sub>2</sub> 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

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**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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See attached AP-42, EPA GHG emission factors, EPA Engine Standards



### 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.<sup>1</sup>

#### 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

atmosphere from the exhaust. Evaporative losses are insignificant in diesel engines due to the low volatility of diesel fuels.

The primary pollutants from internal combustion engines are oxides of nitrogen ( $\text{NO}_x$ ), total organic compounds (TOC), carbon monoxide (CO), and particulates, which include both visible (smoke) and nonvisible emissions. Nitrogen oxide formation is directly related to high pressures and temperatures during the combustion process and to the nitrogen content, if any, of the fuel. The other pollutants, HC, CO, and smoke, are primarily the result of incomplete combustion. Ash and metallic additives in the fuel also contribute to the particulate content of the exhaust. Sulfur oxides ( $\text{SO}_x$ ) also appear in the exhaust from IC engines. The sulfur compounds, mainly sulfur dioxide ( $\text{SO}_2$ ), are directly related to the sulfur content of the fuel.<sup>2</sup>

#### 3.3.3.1 Nitrogen Oxides -

Nitrogen oxide formation occurs by two fundamentally different mechanisms. The predominant mechanism with internal combustion engines is thermal  $\text{NO}_x$  which arises from the thermal dissociation and subsequent reaction of nitrogen ( $\text{N}_2$ ) and oxygen ( $\text{O}_2$ ) molecules in the combustion air. Most thermal  $\text{NO}_x$  is formed in the high-temperature region of the flame from dissociated molecular nitrogen in the combustion air. Some  $\text{NO}_x$ , called prompt  $\text{NO}_x$ , is formed in the early part of the flame from reaction of nitrogen intermediary species, and HC radicals in the flame. The second mechanism, fuel  $\text{NO}_x$ , stems from the evolution and reaction of fuel-bound nitrogen compounds with oxygen. Gasoline, and most distillate oils have no chemically-bound fuel  $\text{N}_2$  and essentially all  $\text{NO}_x$  formed is thermal  $\text{NO}_x$ .

#### 3.3.3.2 Total Organic Compounds -

The pollutants commonly classified as hydrocarbons are composed of a wide variety of organic compounds and are discharged into the atmosphere when some of the fuel remains unburned or is only partially burned during the combustion process. Most unburned hydrocarbon emissions result from fuel droplets that were transported or injected into the quench layer during combustion. This is the region immediately adjacent to the combustion chamber surfaces, where heat transfer outward through the cylinder walls causes the mixture temperatures to be too low to support combustion.

Partially burned hydrocarbons can occur because of poor air and fuel homogeneity due to incomplete mixing, before or during combustion; incorrect air/fuel ratios in the cylinder during combustion due to maladjustment of the engine fuel system; excessively large fuel droplets (diesel engines); and low cylinder temperature due to excessive cooling (quenching) through the walls or early cooling of the gases by expansion of the combustion volume caused by piston motion before combustion is completed.<sup>2</sup>

#### 3.3.3.3 Carbon Monoxide -

Carbon monoxide is a colorless, odorless, relatively inert gas formed as an intermediate combustion product that appears in the exhaust when the reaction of CO to  $\text{CO}_2$  cannot proceed to completion. This situation occurs if there is a lack of available oxygen near the hydrocarbon (fuel) molecule during combustion, if the gas temperature is too low, or if the residence time in the cylinder is too short. The oxidation rate of CO is limited by reaction kinetics and, as a consequence, can be accelerated only to a certain extent by improvements in air and fuel mixing during the combustion process.<sup>2-3</sup>

#### 3.3.3.4 Smoke and Particulate Matter -

White, blue, and black smoke may be emitted from IC engines. Liquid particulates appear as white smoke in the exhaust during an engine cold start, idling, or low load operation. These are formed in the quench layer adjacent to the cylinder walls, where the temperature is not high enough to ignite the fuel. Blue smoke is emitted when lubricating oil leaks, often past worn piston rings, into the combustion chamber and is partially burned. Proper maintenance is the most effective method of preventing blue smoke emissions from all types of IC engines. The primary constituent of black smoke is agglomerated carbon particles (soot) formed in regions of the combustion mixtures that are oxygen deficient.<sup>2</sup>

#### 3.3.3.5 Sulfur Oxides -

Sulfur oxides emissions are a function of only the sulfur content in the fuel rather than any combustion variables. In fact, during the combustion process, essentially all the sulfur in the fuel is oxidized to  $\text{SO}_2$ . The oxidation of  $\text{SO}_2$  gives sulfur trioxide ( $\text{SO}_3$ ), which reacts with water to give sulfuric acid ( $\text{H}_2\text{SO}_4$ ), a contributor to acid precipitation. Sulfuric acid reacts with basic substances to give sulfates, which are fine particulates that contribute to PM-10 and visibility reduction. Sulfur oxide emissions also contribute to corrosion of the engine parts.<sup>2-3</sup>

### 3.3.4 Control Technologies

Control measures to date are primarily directed at limiting  $\text{NO}_x$  and CO emissions since they are the primary pollutants from these engines. From a  $\text{NO}_x$  control viewpoint, the most important distinction between different engine models and types of reciprocating engines is whether they are rich-burn or lean-burn. Rich-burn engines have an air-to-fuel ratio operating range that is near stoichiometric or fuel-rich of stoichiometric and as a result the exhaust gas has little or no excess oxygen. A lean-burn engine has an air-to-fuel operating range that is fuel-lean of stoichiometric; therefore, the exhaust from these engines is characterized by medium to high levels of  $\text{O}_2$ . The most common  $\text{NO}_x$  control technique for diesel and dual-fuel engines focuses on modifying the combustion process. However, selective catalytic reduction (SCR) and nonselective catalytic reduction (NSCR) which are post-combustion techniques are becoming available. Controls for CO have been partly adapted from mobile sources.<sup>4</sup>

Combustion modifications include injection timing retard (ITR), preignition chamber combustion (PCC), air-to-fuel ratio adjustments, and derating. Injection of fuel into the cylinder of a CI engine initiates the combustion process. Retarding the timing of the diesel fuel injection causes the combustion process to occur later in the power stroke when the piston is in the downward motion and combustion chamber volume is increasing. By increasing the volume, the combustion temperature and pressure are lowered, thereby lowering  $\text{NO}_x$  formation. ITR reduces  $\text{NO}_x$  from all diesel engines; however, the effectiveness is specific to each engine model. The amount of  $\text{NO}_x$  reduction with ITR diminishes with increasing levels of retard.<sup>4</sup>

Improved swirl patterns promote thorough air and fuel mixing and may include a precombustion chamber (PCC). A PCC is an antechamber that ignites a fuel-rich mixture that propagates to the main combustion chamber. The high exit velocity from the PCC results in improved mixing and complete combustion of the lean air/fuel mixture which lowers combustion temperature, thereby reducing  $\text{NO}_x$  emissions.<sup>4</sup>

The air-to-fuel ratio for each cylinder can be adjusted by controlling the amount of fuel that enters each cylinder. At air-to-fuel ratios less than stoichiometric (fuel-rich), combustion occurs under conditions of insufficient oxygen which causes  $\text{NO}_x$  to decrease because of lower oxygen and lower temperatures. Derating involves restricting the engine operation to lower than normal levels of power production for the given application. Derating reduces cylinder pressures and temperatures, thereby lowering  $\text{NO}_x$  formation rates.<sup>4</sup>

SCR is an add-on  $\text{NO}_x$  control placed in the exhaust stream following the engine and involves injecting ammonia ( $\text{NH}_3$ ) into the flue gas. The  $\text{NH}_3$  reacts with  $\text{NO}_x$  in the presence of a catalyst to form water and nitrogen. The effectiveness of SCR depends on fuel quality and engine duty cycle (load fluctuations). Contaminants in the fuel may poison or mask the catalyst surface causing a reduction or termination in catalyst activity. Load fluctuations can cause variations in exhaust temperature and  $\text{NO}_x$  concentration which can create problems with the effectiveness of the SCR system.<sup>4</sup>

NSCR is often referred to as a three-way conversion catalyst system because the catalyst reactor simultaneously reduces  $\text{NO}_x$ , CO, and HC and involves placing a catalyst in the exhaust stream of the engine. The reaction requires that the  $\text{O}_2$  levels be kept low and that the engine be operated at fuel-rich air-to-fuel ratios.<sup>4</sup>

The most accurate method for calculating such emissions is on the basis of "brake-specific" emission factors (pounds per horsepower-hour [lb/hp-hr]). Emissions are the product of the brake-specific emission factor, the usage in hours, the rated power available, and the load factor (the power actually used divided by the power available). However, for emission inventory purposes, it is often easier to assess this activity on the basis of fuel used.

Once reasonable usage and duty cycles for this category were ascertained, emission values were aggregated to arrive at the factors for criteria and organic pollutants presented. Factors in Table 3.3-1 are in pounds per million British thermal unit (lb/MMBtu). Emission data for a specific design type were weighted according to estimated material share for industrial engines. The emission factors in these tables, because of their aggregate nature, are most appropriately applied to a population of industrial engines rather than to an individual power plant. Table 3.3-2 shows unweighted speciated organic compound and air toxic emission factors based upon only 2 engines. Their inclusion in this section is intended for rough order-of-magnitude estimates only.

Table 3.3-3 summarizes whether the various diesel emission reduction technologies (some of which may be applicable to gasoline engines) will generally increase or decrease the selected parameter. These technologies are categorized into fuel modifications, engine modifications, and exhaust after-treatments. Current data are insufficient to quantify the results of the modifications. Table 3.3-3 provides general information on the trends of changes on selected parameters.

### 3.3.5 Updates Since the Fifth Edition

The Fifth Edition was released in January 1995. Revisions to this section since that date are summarized below. For further detail, consult the memoranda describing each supplement or the background report for this section.

#### Supplement A, February 1996

No changes.

#### Supplement B, October 1996

- Text was revised concerning emissions and controls.
- The CO<sub>2</sub> emission factor was adjusted to reflect 98.5 percent conversion efficiency.

Table 3.3-1. EMISSION FACTORS FOR UNCONTROLLED GASOLINE AND DIESEL INDUSTRIAL ENGINES<sup>a</sup>

Pollutant	Gasoline Fuel (SCC 2-02-003-01, 2-03-003-01)		Diesel Fuel (SCC 2-02-001-02, 2-03-001-01)		EMISSION FACTOR RATING
	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	Emission Factor (lb/hp-hr) (power output)	Emission Factor (lb/MMBtu) (fuel input)	
NO <sub>x</sub>	0.011	1.63	0.031	4.41	D
CO	6.96 E-03 <sup>d</sup>	0.99 <sup>d</sup>	6.68 E-03	0.95	D
SO <sub>x</sub>	5.91 E-04	0.084	2.05 E-03	0.29	D
PM-10 <sup>b</sup>	7.21 E-04	0.10	2.20 E-03	0.31	D
CO <sub>2</sub> <sup>c</sup>	1.08	154	1.15	164	B
Aldehydes	4.85 E-04	0.07	4.63 E-04	0.07	D
TOC					
Exhaust	0.015	2.10	2.47 E-03	0.35	D
Evaporative	6.61 E-04	0.09	0.00	0.00	E
Crankcase	4.85 E-03	0.69	4.41 E-05	0.01	E
Refueling	1.08 E-03	0.15	0.00	0.00	E

<sup>a</sup> References 2,5-6,9-14. When necessary, an average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr was used to convert from lb/MMBtu to lb/hp-hr. To convert from lb/hp-hr to kg/kw-hr, multiply by 0.608. To convert from lb/MMBtu to ng/J, multiply by 430. SCC = Source Classification Code. TOC = total organic compounds.


<sup>b</sup> PM-10 = particulate matter less than or equal to 10 µm aerodynamic diameter. All particulate is assumed to be ≤ 1 µm in size.

<sup>c</sup> Assumes 99% conversion of carbon in fuel to CO<sub>2</sub> with 87 weight % carbon in diesel, 86 weight % carbon in gasoline, average BSFC of 7,000 Btu/hp-hr, diesel heating value of 19,300 Btu/lb, and gasoline heating value of 20,300 Btu/lb.

<sup>d</sup> Instead of 0.439 lb/hp-hr (power output) and 62.7 lb/mmBtu (fuel input), the correct emissions factors values are 6.96 E-03 lb/hp-hr (power output) and 0.99 lb/mmBtu (fuel input), respectively. This is an editorial correction. March 24, 2009

Table 3.3-2. SPECIATED ORGANIC COMPOUND EMISSION FACTORS FOR UNCONTROLLED DIESEL ENGINES<sup>a</sup>

EMISSION FACTOR RATING: E

Pollutant	Emission Factor (Fuel Input) (lb/MMBtu)
Benzene <sup>b</sup>	9.33 E-04
Toluene <sup>b</sup>	4.09 E-04
Xylenes <sup>b</sup>	2.85 E-04
Propylene 	2.58 E-03
1,3-Butadiene <sup>b,c</sup>	<3.91 E-05
Formaldehyde <sup>b</sup>	1.18 E-03
Acetaldehyde <sup>b</sup>	7.67 E-04
Acrolein <sup>b</sup>	<9.25 E-05
Polycyclic aromatic hydrocarbons (PAH)	
Naphthalene <sup>b</sup>	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,l)perylene	<4.89 E-07
TOTAL PAH	1.68 E-04

<sup>a</sup> 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.

<sup>b</sup> Hazardous air pollutant listed in the *Clean Air Act*.

<sup>c</sup> Based on data from 1 engine.

Table 3.3-3. EFFECT OF VARIOUS EMISSION CONTROL TECHNOLOGIES ON DIESEL ENGINES<sup>a</sup>

Technology	Affected Parameter	
	Increase	Decrease
Fuel modifications		
Sulfur content increase	PM, wear	
Aromatic content increase	PM, NO <sub>x</sub>	
Cetane number		PM, NO <sub>x</sub>
10% and 90% boiling point		PM
Fuel additives		PM, NO <sub>x</sub>
Water/Fuel emulsions		NO <sub>x</sub>
Engine modifications		
Injection timing retard	PM, BSFC	NO <sub>x</sub> , power
Fuel injection pressure	PM, NO <sub>x</sub>	
Injection rate control		NO <sub>x</sub> , PM
Rapid spill nozzles		PM
Electronic timing & metering		NO <sub>x</sub> , PM
Injector nozzle geometry		PM
Combustion chamber modifications		NO <sub>x</sub> , PM
Turbocharging	PM, power	NO <sub>x</sub>
Charge cooling		NO <sub>x</sub>
Exhaust gas recirculation	PM, power, wear	NO <sub>x</sub>
Oil consumption control		PM, wear
Exhaust after-treatment		
Particulate traps		PM
Selective catalytic reduction		NO <sub>x</sub>
Oxidation catalysts		TOC, CO, PM

<sup>a</sup> Reference 8. PM = particulate matter. BSFC = brake-specific fuel consumption.



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## Emission Factors for Greenhouse Gas Inventories

Last Modified: 4 April 2014

Red text indicates an update from the 2011 version of this document.

Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO<sub>2</sub>e). Gases are converted to CO<sub>2</sub>e by multiplying by their global warming potential (GWP). The emission factors listed in this document have not been converted to CO<sub>2</sub>e. To do so, multiply the emissions by the corresponding GWP listed in the table below.

Gas	100-year GWP
CH <sub>4</sub>	25
N <sub>2</sub> O	298

Source: Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report (AR4), 2007. See the source note to Table 9 for further explanation.

**Table 1 Stationary Combustion Emission Factors**

Fuel Type	Heating Value mmBtu per short ton	CO <sub>2</sub> Factor kg CO <sub>2</sub> per mmBtu	CH <sub>4</sub> Factor g CH <sub>4</sub> per mmBtu	N <sub>2</sub> O Factor g N <sub>2</sub> O per mmBtu	CO <sub>2</sub> Factor kg CO <sub>2</sub> per short ton	CH <sub>4</sub> Factor g CH <sub>4</sub> per short ton	N <sub>2</sub> O Factor g N <sub>2</sub> O per short ton	Unit
<b>Coal and Coke</b>								
Anthracite Coal	25.09	103.69	11	1.6	2,602	276	40	short tons
Bituminous Coal	24.93	93.28	11	1.6	2,325	274	40	short tons
Sub-bituminous Coal	17.25	97.17	11	1.6	1,676	190	28	short tons
Lignite Coal	14.21	97.72	11	1.6	1,389	156	23	short tons
Mixed (Commercial Sector)	21.39	94.27	11	1.6	2,016	235	34	short tons
Mixed (Electric Power Sector)	19.73	95.52	11	1.6	1,885	217	32	short tons
Mixed (Industrial Coking)	26.28	93.90	11	1.6	2,468	289	42	short tons
Mixed (Industrial Sector)	22.35	94.67	11	1.6	2,116	246	36	short tons
Coal Coke	24.80	113.67	11	1.6	2,819	273	40	short tons
<b>Fossil Fuel-derived Fuels (Solid)</b>								
Municipal Solid Waste	9.95	90.70	32	4.2	902	318	42	short tons
Petroleum Coke (Solid)	30.00	102.41	32	4.2	3,072	960	126	short tons
Plastics	38.00	75.00	32	4.2	2,850	1,216	160	short tons
Tires	28.00	85.97	32	4.2	2,407	896	118	short tons
<b>Biomass Fuels (Solid)</b>								
Agricultural Byproducts	8.25	118.17	32	4.2	975	264	35	short tons
Peat	8.00	111.84	32	4.2	895	256	34	short tons
Solid Byproducts	10.39	105.51	32	4.2	1,096	332	44	short tons
Wood and Wood Residuals	17.48	93.80	7.2	3.6	1,640	126	63	short tons
	mmBtu per scf	kg CO <sub>2</sub> per mmBtu	g CH <sub>4</sub> per mmBtu	g N <sub>2</sub> O per mmBtu	kg CO <sub>2</sub> per scf	g CH <sub>4</sub> per scf	g N <sub>2</sub> O per scf	
<b>Natural Gas</b>								
Natural Gas (per scf)	0.001026	53.06	1.0	0.10	0.05444	0.00103	0.00010	scf
<b>Fossil-derived Fuels (Gaseous)</b>								
Blast Furnace Gas	0.000092	274.32	0.022	0.10	0.02524	0.000002	0.000009	scf
Coke Oven Gas	0.000599	46.85	0.48	0.10	0.02806	0.000288	0.000060	scf
Fuel Gas	0.001388	59.00	3.0	0.60	0.08189	0.004164	0.000833	scf
Propane Gas	0.002516	61.46	0.022	0.10	0.15463	0.000055	0.000252	scf
<b>Biomass Fuels (Gaseous)</b>								
Landfill Gas	0.000485	52.07	3.2	0.63	0.025254	0.001552	0.000306	scf
Other Biomass Gases	0.000655	52.07	3.2	0.63	0.034106	0.002096	0.000413	scf
	mmBtu per gallon	kg CO <sub>2</sub> per mmBtu	g CH <sub>4</sub> per mmBtu	g N <sub>2</sub> O per mmBtu	kg CO <sub>2</sub> per gallon	g CH <sub>4</sub> per gallon	g N <sub>2</sub> O per gallon	
<b>Petroleum Products</b>								
Asphalt and Road Oil	0.158	75.36	3.0	0.60	11.91	0.47	0.09	gallon
Aviation Gasoline	0.120	69.25	3.0	0.60	8.31	0.36	0.07	gallon
Butane	0.103	64.77	3.0	0.60	6.67	0.31	0.06	gallon
Butylene	0.105	68.72	3.0	0.60	7.22	0.32	0.06	gallon
Crude Oil	0.138	74.54	3.0	0.60	10.29	0.41	0.08	gallon
Distillate Fuel Oil No. 1	0.139	73.25	3.0	0.60	10.18	0.42	0.08	gallon
Distillate Fuel Oil No. 2	0.138	73.96	3.0	0.60	10.21	0.41	0.08	gallon
Distillate Fuel Oil No. 4	0.146	75.04	3.0	0.60	10.96	0.44	0.09	gallon
Ethane	0.068	59.60	3.0	0.60	4.05	0.20	0.04	gallon
Ethylene	0.058	65.96	3.0	0.60	3.83	0.17	0.03	gallon
Heavy Gas Oils	0.148	74.92	3.0	0.60	11.09	0.44	0.09	gallon
Isobutane	0.099	64.94	3.0	0.60	6.43	0.30	0.06	gallon
Isobutylene	0.103	68.86	3.0	0.60	7.09	0.31	0.06	gallon
Kerosene	0.135	75.20	3.0	0.60	10.15	0.41	0.08	gallon
Kerosene-type Jet Fuel	0.135	72.22	3.0	0.60	9.75	0.41	0.08	gallon
Liquefied Petroleum Gases (LPG)	0.092	61.71	3.0	0.60	5.68	0.28	0.06	gallon
Lubricants	0.144	74.27	3.0	0.60	10.69	0.43	0.09	gallon
Motor Gasoline	0.125	70.22	3.0	0.60	8.78	0.38	0.08	gallon
Naphtha (<401 deg F)	0.125	68.02	3.0	0.60	8.50	0.38	0.08	gallon
Natural Gasoline	0.110	66.88	3.0	0.60	7.36	0.33	0.07	gallon
Other Oil (>401 deg F)	0.139	76.22	3.0	0.60	10.59	0.42	0.08	gallon
Pentanes Plus	0.110	70.02	3.0	0.60	7.70	0.33	0.07	gallon
Petrochemical Feedstocks	0.125	71.02	3.0	0.60	8.88	0.38	0.08	gallon
Petroleum Coke	0.143	102.41	3.0	0.60	14.64	0.43	0.09	gallon
Propane	0.091	62.87	3.0	0.60	5.72	0.27	0.05	gallon
Propylene	0.091	65.95	3.0	0.60	6.00	0.27	0.05	gallon
Residual Fuel Oil No. 5	0.140	72.93	3.0	0.60	10.21	0.42	0.08	gallon
Residual Fuel Oil No. 6	0.150	75.10	3.0	0.60	11.27	0.45	0.09	gallon
Special Naphtha	0.125	72.34	3.0	0.60	9.04	0.38	0.08	gallon
Still Gas	0.143	66.72	3.0	0.60	9.54	0.43	0.09	gallon
Unfinished Oils	0.139	74.54	3.0	0.60	10.36	0.42	0.08	gallon
Used Oil	0.138	74.00	3.0	0.60	10.21	0.41	0.08	gallon
<b>Biomass Fuels (Liquid)</b>								
Biodiesel (100%)	0.128	73.84	1.1	0.11	9.45	0.14	0.01	gallon
Ethanol (100%)	0.084	68.44	1.1	0.11	5.75	0.09	0.01	gallon
Rendered Animal Fat	0.125	71.06	1.1	0.11	8.88	0.14	0.01	gallon
Vegetable Oil	0.120	81.55	1.1	0.11	9.79	0.13	0.01	gallon
	mmBtu per gallon	kg CO <sub>2</sub> per mmBtu	g CH <sub>4</sub> per mmBtu	g N <sub>2</sub> O per mmBtu				
<b>Steam and Hot Water</b>								
Steam and Hot Water		66.33	1,250	0.125				mmBtu

Source:

Solid, gaseous, liquid and biomass fuels: Federal Register (2009) EPA: 40 CFR Parts 86, 87, 89 et al. Mandatory Reporting of Greenhouse Gases; Final Rule. 30Oct09, 261 pp. Tables C-1 and C-2 at FR pp. 56409-56410. Revised emission factors for selected fuels: Federal Register (2010) EPA: 40 CFR Part 98; Mandatory Reporting of Greenhouse Gases; Final Rule. 17Dec10, 81 pp. With Amendments from Memo: Table of Final 2013 Revisions to the Greenhouse Gas Reporting Rule (PDF) to 40 CFR part 98, subpart C; Table C-1 to Subpart C—Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 to Subpart C—Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel.

Steam and Hot Water: EPA (2008) Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance - Indirect Emissions from Purchases/Sales of Electricity and Steam. Assumption: 80% boiler efficiency and fuel type assumed natural gas. Factors are per mmBtu of steam or hot water purchased.

<http://www.epa.gov/ghgrreporting/documents/pdf/2013documents/memo-2013-technical-revisions.pdf>  
<http://www.epa.gov/ghgrreporting/reporters/subpart/c.html>

**Table 2 Mobile Combustion CO<sub>2</sub> Emission Factors**

Fuel Type	kg CO <sub>2</sub> per unit	Unit
Aviation Gasoline	8.31	gallon
Biodiesel (100%)	9.45	gallon
Compressed Natural Gas (CNG)	0.0545	scf
Diesel Fuel	10.21	gallon
Ethane	4.05	gallon
Ethanol (100%)	5.75	gallon
Jet Fuel (kerosene type)	9.75	gallon
Liquefied Natural Gas (LNG)	4.46	gallon
Liquefied Petroleum Gases (LPG)	5.68	gallon
Methanol	4.10	gallon
Motor Gasoline	8.78	gallon
Propane	5.72	gallon
Residual Fuel Oil	11.27	gallon

Source:

Federal Register (2009) EPA; 40 CFR Parts 86, 89 et al; Mandatory Reporting of Greenhouse Gases; Final Rule, 30Oct09, 261 pp. Tables C-1 and C-2. Table of Final 2013 Revisions to the Greenhouse Gas LNG sourced from: EPA (2008) Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance - Direct Emissions from Mobile Combustion Sources, Table B-5. Methanol sourced from: The Climate Registry (2013); General Reporting Protocol for the Voluntary Reporting Program Version 2.0, Default Emission Factors, Table 13.1 US Default CO<sub>2</sub> Emission Factors for Transport Fuels.

**Table 3 Mobile Combustion CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for On-road Gasoline Vehicles**

Vehicle Type	Year	CH <sub>4</sub> Factor (g / mile)	N <sub>2</sub> O Factor (g / mile)
Gasoline Passenger Cars	1973-74	0.1696	0.0197
	1975	0.1423	0.0443
	1976-77	0.1406	0.0458
	1978-79	0.1389	0.0473
	1980	0.1326	0.0499
	1981	0.0802	0.0626
	1982	0.0795	0.0627
	1983	0.0782	0.0630
	1984-93	0.0704	0.0647
	1994	0.0531	0.0560
	1995	0.0358	0.0473
	1996	0.0272	0.0426
	1997	0.0268	0.0422
	1998	0.0249	0.0393
	1999	0.0216	0.0337
	2000	0.0178	0.0273
	2001	0.0110	0.0158
	2002	0.0107	0.0153
	2003	0.0114	0.0135
	2004	0.0145	0.0083
	2005	0.0147	0.0079
2006	0.0161	0.0057	
2007	0.0170	0.0041	
2008	0.0172	0.0038	
2009-present	0.0173	0.0036	
Gasoline Light-duty Trucks (Vans, Pickup Trucks, SUVs)	1973-74	0.1908	0.0218
	1975	0.1634	0.0513
	1976	0.1594	0.0555
	1977-78	0.1614	0.0534
	1979-80	0.1594	0.0555
	1981	0.1479	0.0660
	1982	0.1442	0.0681
	1983	0.1368	0.0722
	1984	0.1294	0.0764
	1985	0.1220	0.0806
	1986	0.1146	0.0848
	1987-93	0.0813	0.1035
	1994	0.0646	0.0982
	1995	0.0517	0.0908
	1996	0.0452	0.0871
	1997	0.0452	0.0871
	1998	0.0391	0.0728
	1999	0.0321	0.0564
	2000	0.0346	0.0621
	2001	0.0151	0.0164
	2002	0.0178	0.0228
2003	0.0155	0.0114	
2004	0.0152	0.0132	
2005	0.0157	0.0101	
2006	0.0159	0.0089	
2007	0.0161	0.0079	
2008-present	0.0163	0.0066	
Gasoline Heavy-duty Vehicles	<1981	0.4604	0.0497
	1982-84	0.4492	0.0538
	1985-86	0.4090	0.0515
	1987	0.3675	0.0849
	1988-1989	0.3492	0.0933
	1990-1995	0.3246	0.1142
	1996	0.1278	0.1680
	1997	0.0924	0.1726
	1998	0.0641	0.1693
	1999	0.0578	0.1435
	2000	0.0493	0.1092
	2001	0.0528	0.1235
	2002	0.0546	0.1307
	2003	0.0533	0.1240
	2004	0.0341	0.0285
2005	0.0326	0.0177	
2006	0.0327	0.0171	
2007	0.0330	0.0153	
2008-present	0.0333	0.0134	

Source: EPA (2014) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012. All values are calculated from Tables A-101 through A-105.

**Table 4 Mobile Combustion CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for On-road Diesel and Alternative Fuel Vehicles**

Vehicle Type	Vehicle Year	CH <sub>4</sub> Factor (g / mile)	N <sub>2</sub> O Factor (g / mile)
Diesel Passenger Cars	1960-1982	0.0006	0.0012
	1983-1995	0.0005	0.0010
	1996-present	0.0005	0.0010
Diesel Light-duty Trucks	1960-1982	0.0011	0.0017
	1983-1995	0.0009	0.0014
	1996-present	0.0010	0.0015
Diesel Medium- and Heavy-duty Vehicles	1960-present	0.0051	0.0048
Gasoline Motorcycles	1960-1995	0.0899	0.0087
	1996-present	0.0672	0.0069
CNG Light-duty Vehicles		0.7370	0.0500
CNG Heavy-duty Vehicles		1.9660	0.1750
CNG Buses		1.9660	0.1750
LPG Light-duty Vehicles		0.0370	0.0670
LPG Heavy-duty Vehicles		0.0660	0.1750
LNG Heavy-duty Vehicles		1.9660	0.1750
Ethanol Light-duty Vehicles		0.0550	0.0670
Ethanol Heavy-duty Vehicles		0.1970	0.1750
Ethanol Buses		0.1970	0.1750

Source: EPA (2014) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012. All values are calculated from Tables A-104 through A-106.

**Table 5 Mobile Combustion CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Non-road Vehicles**

Vehicle Type	CH <sub>4</sub> Factor (g / gallon)	N <sub>2</sub> O Factor (g / gallon)
LPG Non-Highway Vehicles	0.50	0.22
Residual Oil Ships and Boats	0.11	0.57
Diesel Ships and Boats	0.06	0.45
Gasoline Ships and Boats	0.64	0.22
Diesel Locomotives	0.80	0.26
Gasoline Agricultural Equip.	1.26	0.22
Diesel Agricultural Equip.	1.44	0.26
Gasoline Construction Equip.	0.50	0.22
Diesel Construction Equip.	0.57	0.26
Jet Fuel Aircraft	0.00	0.30
Aviation Gasoline Aircraft	7.06	0.11
Biodiesel Vehicles	0.57	0.26
Other Diesel Sources	0.57	0.26
Other Gasoline Sources	0.50	0.22

Source: EPA (2014) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2012. All values are calculated from Table A-107.  
Note: LPG non-highway vehicles assumed equal to other gasoline sources. Biodiesel vehicles assumed equal to other diesel sources.

**Table 6 Electricity Emission Factors**

eGRID Subregion	Total output emission factors			Non-baseload emission factors		
	CO <sub>2</sub> Factor (lb CO <sub>2</sub> /MWh)	CH <sub>4</sub> Factor (lb CH <sub>4</sub> /MWh)	N <sub>2</sub> O Factor (lb N <sub>2</sub> O/MWh)	CO <sub>2</sub> Factor (lb CO <sub>2</sub> /MWh)	CH <sub>4</sub> Factor (lb CH <sub>4</sub> /MWh)	N <sub>2</sub> O Factor (lb N <sub>2</sub> O/MWh)
AKGD (ASCC Alaska Grid)	1,256.87	0.02608	0.00718	1,387.37	0.03405	0.00693
AKMS (ASCC Miscellaneous)	448.57	0.01974	0.00368	1,427.76	0.05997	0.01180
AZNM (WECC Southwest)	1,177.61	0.01921	0.01572	1,210.44	0.02188	0.00986
CAMX (WECC California)	610.82	0.02849	0.00603	932.82	0.03591	0.00455
ERCT (ERCOT All)	1,218.17	0.01685	0.01407	1,181.70	0.02012	0.00763
FRCC (FRCC All)	1,196.71	0.03891	0.01375	1,277.42	0.03873	0.01083
HIMS (HICC Miscellaneous)	1,330.16	0.07398	0.01388	1,690.72	0.10405	0.01912
HIOA (HICC Oahu)	1,621.86	0.09930	0.02241	1,588.23	0.11948	0.02010
MROE (MRO East)	1,610.80	0.02429	0.02752	1,755.66	0.03153	0.02799
MROW (MRO West)	1,536.36	0.02853	0.02629	2,054.55	0.05986	0.03553
NEWE (NPCC New England)	722.07	0.07176	0.01298	1,106.82	0.06155	0.01207
NWPP (WECC Northwest)	842.58	0.01605	0.01307	1,340.34	0.04138	0.01784
NYCWI (NPCC NYC/Westchester)	622.42	0.02381	0.00280	1,131.63	0.02358	0.00244
NYLI (NPCC Long Island)	1,336.11	0.08149	0.01028	1,445.94	0.03403	0.00391
NYUP (NPCC Upstate NY)	545.79	0.01630	0.00724	1,253.77	0.03683	0.01367
RFCE (RFC East)	1,001.72	0.02707	0.01533	1,562.72	0.03593	0.02002
RFCM (RFC Michigan)	1,629.38	0.03046	0.02684	1,744.52	0.03231	0.02600
RFCW (RFC West)	1,503.47	0.01820	0.02475	1,982.87	0.02450	0.03107
RMPA (WECC Rockies)	1,896.74	0.02266	0.02921	1,808.03	0.02456	0.02289
SPNO (SPP North)	1,799.45	0.02081	0.02862	1,951.83	0.02515	0.02690
SFPO (SPP South)	1,580.60	0.02320	0.02085	1,436.29	0.02794	0.01210
SRMV (SERC Mississippi Valley)	1,029.82	0.02066	0.01076	1,222.40	0.02771	0.00663
SRMW (SERC Midwest)	1,810.83	0.02048	0.02957	1,964.98	0.02393	0.02965
SRSO (SERC South)	1,354.09	0.02282	0.02089	1,574.37	0.02652	0.02149
SRTV (SERC Tennessee Valley)	1,389.20	0.01770	0.02241	1,873.83	0.02499	0.02888
SRVC (SERC Virginia/Carolina)	1,073.65	0.02169	0.01764	1,624.71	0.03642	0.02306
US Average	1,232.35	0.02414	0.01826	1,520.20	0.03127	0.01834

Source: EPA Year 2010 eGRID 9th edition Version 1.0 February 2014.

Note: Total output emission factors are used for quantifying emissions from purchased electricity. Non-baseload emission factors are used for quantifying the emission reductions from purchased green power.



This is a representational map; many of the boundaries shown on this map are approximate because they are based on companies, not on strictly geographical boundaries.  
Source: EPA Year 2010 eGRID 9th edition Version 1.0 February 2014.

**Table 7 Business Travel Emission Factors**

Vehicle Type	CO <sub>2</sub> Factor (kg / unit)	CH <sub>4</sub> Factor (g / unit)	N <sub>2</sub> O Factor (g / unit)	Units
Passenger Car <sup>A</sup>	0.368	0.018	0.013	vehicle-mile
Light-duty Truck <sup>B</sup>	0.501	0.024	0.019	vehicle-mile
Motorcycle	0.197	0.070	0.007	vehicle-mile
Intercity Rail (i.e. Amtrak) <sup>C</sup>	0.144	0.0085	0.0032	passenger-mile
Commuter Rail <sup>D</sup>	0.174	0.0084	0.0035	passenger-mile
Transit Rail (i.e. Subway, Tram) <sup>E</sup>	0.133	0.0026	0.0020	passenger-mile
Bus	0.058	0.0007	0.0004	passenger-mile
Air Travel - Short Haul (< 300 miles)	0.275	0.0091	0.0087	passenger-mile
Air Travel - Medium Haul (>= 300 miles, < 2300 miles)	0.162	0.0008	0.0052	passenger-mile
Air Travel - Long Haul (>= 2300 miles)	0.191	0.0008	0.0060	passenger-mile

**Source:**

CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions data for highway vehicles are from Table 2-15 of the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2012. Vehicle-miles and passenger-miles data for highway vehicles are from Table VM-1 of the Federal Highway Administration Highway Statistics 2012.

Fuel consumption data and passenger-miles data for rail are from Tables A.14 to A.16 and 9.10 to 9.12 of the Transportation Energy Data Book: Edition 32. Fuel consumption was converted to emissions by using fuel and electricity emission factors presented in the tables above.

**Notes:**

<sup>A</sup> Passenger car: includes passenger cars, minivans, SUVs, and small pickup trucks (vehicles with wheelbase less than 121 inches).

<sup>B</sup> Light-duty truck: includes full-size pickup trucks, full-size vans, and extended-length SUVs (vehicles with wheelbase greater than 121 inches).

<sup>C</sup> Intercity rail: long-distance rail between major cities, such as Amtrak

<sup>D</sup> Commuter rail: rail service between a central city and adjacent suburbs (also called regional rail or suburban rail)

<sup>E</sup> Transit rail: rail typically within an urban center, such as subways, elevated railways, metropolitan railways (metro), streetcars, trolley cars, and tramways.

**Table 8 Product Transport Emission Factors**

Vehicle Type	CO <sub>2</sub> Factor (kg / unit)	CH <sub>4</sub> Factor (g / unit)	N <sub>2</sub> O Factor (g / unit)	Units
Medium- and Heavy-duty Truck	1.456	0.018	0.011	vehicle-mile
Passenger Car <sup>A</sup>	0.368	0.018	0.013	vehicle-mile
Light-duty Truck <sup>B</sup>	0.501	0.024	0.019	vehicle-mile
Medium- and Heavy-duty Truck	0.296	0.0036	0.0022	ton-mile
Rail	0.026	0.0020	0.0007	ton-mile
Waterborne Craft	0.042	0.0004	0.0027	ton-mile
Aircraft	1.301	0.0000	0.0400	ton-mile

**Source:**

CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions data for highway vehicles are from Table 2-15 of the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2012. Vehicle-miles and passenger-miles data for highway vehicles are from Table VM-1 of the Federal Highway Administration Highway Statistics 2012.

CO<sub>2</sub>e emissions data for non-highway vehicles are based on Table A-116 of the U.S. Greenhouse Gas Emissions and Sinks: 1990–2012, which are distributed into CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions based on fuel/vehicle emission factors.

Freight ton-mile data for non-highway vehicles are from Table 1-50 of the Bureau of Transportation Statistics, National Transportation Statistics for 2012.

**Notes:**

Vehicle-mile factors are appropriate to use when the entire vehicle is dedicated to transporting the reporting company's product. Ton-mile factors are appropriate when the vehicle is shared with products from other companies.

<sup>A</sup> Passenger car: includes passenger cars, minivans, SUVs, and small pickup trucks (vehicles with wheelbase less than 121 inches).

<sup>B</sup> Light-duty truck: includes full-size pickup trucks, full-size vans, and extended-length SUVs (vehicles with wheelbase greater than 121 inches).

**Table 9 Global Warming Potentials (GWPs)**

Gas	100-year GWP
CO <sub>2</sub>	1
CH <sub>4</sub>	25
N <sub>2</sub> O	298
HFC-23	14,800
HFC-32	675
HFC-41	92
HFC-125	3,500
HFC-134	1,100
HFC-134a	1,430
HFC-143	353
HFC-143a	4,470
HFC-152	53
HFC-152a	124
HFC-161	12
HFC-227ea	3,220
HFC-236cb	1,340
HFC-236ea	1,370
HFC-236fa	9,810
HFC-245ca	693
HFC-245fa	1,030
HFC-365mfc	794
HFC-43-10mee	1,640
SF <sub>6</sub>	22,800
NF <sub>3</sub>	17,200
CF <sub>3</sub>	7,390
CF <sub>4</sub>	7,390
C <sub>2</sub> F <sub>6</sub>	12,200
C <sub>3</sub> F <sub>8</sub>	8,830
c-C <sub>4</sub> F <sub>8</sub>	10,300
C <sub>4</sub> F <sub>10</sub>	8,860
C <sub>5</sub> F <sub>12</sub>	9,160
C <sub>6</sub> F <sub>14</sub>	9,300
C <sub>10</sub> F <sub>18</sub>	>7,500

**Source:**

100-year GWPs from IPCC Fourth Assessment Report (AR4), 2007. IPCC AR4 was published in 2007 and is among the most current and comprehensive peer-reviewed assessments of climate change. AR4 provides revised GWPs of several GHGs relative to the values provided in previous assessment reports, following advances in scientific knowledge on the radiative efficiencies and atmospheric lifetimes of these GHGs and of CO<sub>2</sub>. Because the GWPs provided in AR4 reflect an improved scientific understanding of the radiative effects of these gases in the atmosphere, the values provided are more appropriate for supporting the overall goal of organizational GHG reporting than the Second Assessment Report (SAR) GWP values previously used in the Emission Factors Hub.

While EPA recognizes that Fifth Assessment Report (AR5) GWPs have been published, in an effort to ensure consistency and comparability of GHG data between EPA's voluntary and non-voluntary GHG reporting programs (e.g. GHG Reporting Program and National Inventory), EPA recommends the use of AR4 GWPs. The United States and other developed countries to the UNFCCC have agreed to submit annual inventories in 2015 and future years to the UNFCCC using GWP values from AR4, which will replace the current use of SAR GWP values. Utilizing AR4 GWPs improves EPA's ability to analyze corporate, national, and sub-national GHG data consistently, enhances communication of GHG information between programs, and gives outside stakeholders a consistent, predictable set of GWPs to avoid confusion and additional burden.

**Table 9b GWPs for Blended Refrigerants**

ASHRAE #	100-year GWP	Blend Composition
R-401A	16	53% HCFC-22, 34% HCFC-124, 13% HFC-152a
R-401B	14	61% HCFC-22, 28% HCFC-124, 11% HFC-152a
R-401C	19	33% HCFC-22, 52% HCFC-124, 15% HFC-152a
R-402A	2,100	38% HCFC-22, 6% HFC-125, 2% propane
R-402B	1,330	6% HCFC-22, 38% HFC-125, 2% propane
R-403B	3,444	56% HCFC-22, 39% PFC-218, 5% propane
R-404A	3,922	44% HFC-125, 4% HFC-134a, 52% HFC-143a
R-406A	0	56% HCFC-22, 41% HCFC-142b, 4% isobutane
R-407A	2,107	20% HFC-32, 40% HFC-125, 40% HFC-134a
R-407B	2,804	10% HFC-32, 70% HFC-125, 20% HFC-134a
R-407C	1,774	23% HFC-32, 25% HFC-125, 52% HFC-134a
R-407D	1,627	15% HFC-32, 15% HFC-125, 70% HFC-134a
R-407E	1,552	25% HFC-32, 15% HFC-125, 60% HFC-134a
R-408A	2,301	47% HCFC-22, 7% HFC-125, 46% HFC-143a
R-409A	0	60% HCFC-22, 25% HCFC-124, 15% HCFC-142b
R-410A	2,088	50% HFC-32, 50% HFC-125
R-410B	2,229	45% HFC-32, 55% HFC-125
R-411A	14	87.5% HCFC-22, 11% HFC-152a, 1.5% propylene
R-411B	4	94% HCFC-22, 3% HFC-152a, 3% propylene
R-413A	2,053	88% HFC-134a, 9% PFC-218, 3% isobutane
R-414A	0	51% HCFC-22, 28.5% HCFC-124, 16.5% HCFC-142b
R-414B	0	5% HCFC-22, 39% HCFC-124, 9.5% HCFC-142b
R-417A	2,346	46.6% HFC-125, 5% HFC-134a, 3.4% butane
R-422A	3,143	85.1% HFC-125, 11.5% HFC-134a, 3.4% isobutane
R-422D	2,729	65.1% HFC-125, 31.5% HFC-134a, 3.4% isobutane
R-423A	2,280	47.5% HFC-227ea, 52.5% HFC-134a
R-424A	2,440	50.5% HFC-125, 47% HFC-134a, 2.5% butane/pentane
R-426A	1,508	5.1% HFC-125, 93% HFC-134a, 1.9% butane/pentane
R-428A	3,607	77.5% HFC-125, 2% HFC-143a, 1.9% isobutane
R-434A	3,245	63.2% HFC-125, 16% HFC-134a, 18% HFC-143a, 2.8% isobutane
R-500	32	73.8% CFC-12, 26.2% HFC-152a, 48.8% HCFC-22
R-502	0	48.8% HCFC-22, 51.2% CFC-115
R-504	325	48.2% HFC-32, 51.8% CFC-115
R-507	3,985	5% HFC-125, 5% HFC-143a
R-508A	13,214	39% HFC-23, 61% PFC-116
R-508B	13,396	46% HFC-23, 54% PFC-116

**Source:**

100-year GWPs from IPCC Fourth Assessment Report (AR4), 2007. See the source note to Table 9 for further explanation. GWPs of blended refrigerants are based on their HFC and PFC constituents, which are based on data from <http://www.epa.gov/ozone/snap/refrigerants/refblend.html>.

### Nonroad Compression-Ignition Engines: Exhaust Emission Standards

	Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr)	NOx (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)	Smoke <sup>a</sup> (Percentage)	Useful Life (hours /years) <sup>b</sup>	Warranty Period (hours /years) <sup>b</sup>
Federal	kW < 8	1	2000-2004	-	10.5	-	1.0	8.0	20/15/50	3,000/5	1,500/2
		2	2005-2007	-	7.5	-	0.80	8.0			
		4	2008+	-	7.5	-	0.40 <sup>c</sup>	8.0			
	8 ≤ kW < 19	1	2000-2004	-	9.5	-	0.80	6.6		3,000/5	1,500/2
		2	2005-2007	-	7.5	-	0.80	6.6			
		4	2008+	-	7.5	-	0.40	6.6			
	19 ≤ kW < 37	1	1999-2003	-	9.5	-	0.80	5.5		5,000/7 <sup>d</sup>	3,000/5 <sup>e</sup>
		2	2004-2007	-	7.5	-	0.60	5.5			
		4	2008-2012	-	7.5	-	0.30	5.5			
			2013+	-	4.7	-	0.03	5.5			
	37 ≤ kW < 56	1	1998-2003	-	-	9.2	-	-		8,000/10	3,000/5
		2	2004-2007	-	7.5	-	0.40	5.0			
		3 <sup>f</sup>	2008-2011	-	4.7	-	0.40	5.0			
		4 (Option 1) <sup>g</sup>	2008-2012	-	4.7	-	0.30	5.0			
		4 (Option 2) <sup>g</sup>	2012	-	4.7	-	0.03	5.0			
		4	2013+	-	4.7	-	0.03	5.0			
	56 ≤ kW < 75	1	1998-2003	-	-	9.2	-	-		8,000/10	3,000/5
		2	2004-2007	-	7.5	-	0.40	5.0			
		3	2008-2011	-	4.7	-	0.40	5.0			
		4	2012-2013 <sup>h</sup>	-	4.7	-	0.02	5.0			
			2014+ <sup>i</sup>	0.19	-	0.40	0.02	5.0			
75 ≤ kW < 130	1	1997-2002	-	-	9.2	-	-	8,000/10	3,000/5		
	2	2003-2006	-	6.6	-	0.30	5.0				
	3	2007-2011	-	4.0	-	0.30	5.0				
	4	2012-2013 <sup>h</sup>	-	4.0	-	0.02	5.0				
		2014+	0.19	-	0.40	0.02	5.0				

Continued

	Rated Power (kW)	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr)	NOx (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)	Smoke <sup>a</sup> (Percentage)	Useful Life (hours /years) <sup>b</sup>	Warranty Period (hours /years) <sup>b</sup>
<b>Federal</b>	130 ≤ kW < 225	1	1996-2002	1.3 <sup>j</sup>	-	9.2	0.54	11.4	20/15/50	8,000/10	3,000/5
		2	2003-2005	-	6.6	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 <sup>h</sup>	-	4.0	-	0.02	3.5			
			2014+ <sup>i</sup>	0.19	-	0.40	0.02	3.5			
	225 ≤ kW < 450	1	1996-2000	1.3 <sup>j</sup>	-	9.2	0.54	11.4			
		2	2001-2005	-	6.4	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 <sup>h</sup>	-	4.0	-	0.02	3.5			
			2014+ <sup>i</sup>	0.19	-	0.40	0.02	3.5			
	450 ≤ kW < 560	1	1996-2001	1.3 <sup>j</sup>	-	9.2	0.54	11.4			
		2	2002-2005	-	6.4	-	0.20	3.5			
		3	2006-2010	-	4.0	-	0.20	3.5			
		4	2011-2013 <sup>h</sup>	-	4.0	-	0.02	3.5			
			2014+ <sup>i</sup>	0.19	-	0.40	0.02	3.5			
	560 ≤ kW < 900	1	2000-2005	1.3 <sup>j</sup>	-	9.2	0.54	11.4			
		2	2006-2010	-	6.4	-	0.20	3.5			
		4	2011-2014	0.40	-	3.5	0.10	3.5			
			2015+ <sup>i</sup>	0.19	-	3.5 <sup>k</sup>	0.04 <sup>l</sup>	3.5			
	kW > 900	1	2000-2005	1.3 <sup>j</sup>	-	9.2	0.54	11.4			
2		2006-2010	-	6.4	-	0.20	3.5				
4		2011-2014	0.40	-	3.5 <sup>k</sup>	0.10	3.5				
		2015+ <sup>i</sup>	0.19	-	3.5 <sup>k</sup>	0.04 <sup>l</sup>	3.5				

Notes on following page.



**Notes:**

- For Tier 1, 2, and 3 standards, exhaust emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), hydrocarbons (HC), and non-methane hydrocarbons (NMHC) are measured using the procedures in 40 Code of Federal Regulations (CFR) Part 89 Subpart E. For Tier 1, 2, and 3 standards, particulate matter (PM) exhaust emissions are measured using the California Regulations for New 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines.
- For Tier 4 standards, engines are tested for transient and steady-state exhaust emissions using the procedures in 40 CFR Part 1039 Subpart F. Transient standards do not apply to engines below 37 kilowatts (kW) before the 2013 model year, constant-speed engines, engines certified to Option 1, and engines above 560 kW.
- Tier 2 and later model naturally aspirated nonroad engines shall not discharge crankcase emissions into the atmosphere unless these emissions are permanently routed into the exhaust. This prohibition does not apply to engines using turbochargers, pumps, blowers, or superchargers.
- In lieu of the Tier 1, 2, and 3 standards for NO<sub>x</sub>, NMHC + NO<sub>x</sub>, and PM, manufacturers may elect to participate in the averaging, banking, and trading (ABT) program described in 40 CFR Part 89 Subpart C.
- a** Smoke emissions may not exceed 20 percent during the acceleration mode, 15 percent during the lugging mode, and 50 percent during the peaks in either mode. Smoke emission standards do not apply to single-cylinder engines, constant-speed engines, or engines certified to a PM emission standard of 0.07 grams per kilowatt-hour (g/kW-hr) or lower. Smoke emissions are measured using procedures in 40 CFR Part 86 Subpart I.
- b** Useful life and warranty period are expressed hours and years, whichever comes first.
- c** Hand-startable air-cooled direct injection engines may optionally meet a PM standard of 0.60 g/kW-hr. These engines may optionally meet Tier 2 standards through the 2009 model years. In 2010 these engines are required to meet a PM standard of 0.60 g/kW-hr.
- d** Useful life for constant speed engines with rated speed 3,000 revolutions per minute (rpm) or higher is 5 years or 3,000 hours, whichever comes first.
- e** Warranty period for constant speed engines with rated speed 3,000 rpm or higher is 2 years or 1,500 hours, whichever comes first.
- f** These Tier 3 standards apply only to manufacturers selecting Tier 4 Option 2. Manufacturers selecting Tier 4 Option 1 will be meeting those standards in lieu of Tier 3 standards.
- g** A manufacturer may certify all their engines to either Option 1 or Option 2 sets of standards starting in the indicated model year. Manufacturers selecting Option 2 must meet Tier 3 standards in the 2008-2011 model years.
- h** These standards are phase-out standards. Not more than 50 percent of a manufacturer's engine production is allowed to meet these standards in each model year of the phase out period. Engines not meeting these standards must meet the final Tier 4 standards.
- i** These standards are phased in during the indicated years. At least 50 percent of a manufacturer's engine production must meet these standards during each year of the phase in. Engines not meeting these standards must meet the applicable phase-out standards.
- j** For Tier 1 engines the standard is for total hydrocarbons.
- k** The NO<sub>x</sub> standard for generator sets is 0.67 g/kW-hr.
- l** The PM standard for generator sets is 0.03 g/kW-hr.

**Citations: Code of Federal Regulations (CFR) citations:**

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

# 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	

---

See figure on next page.

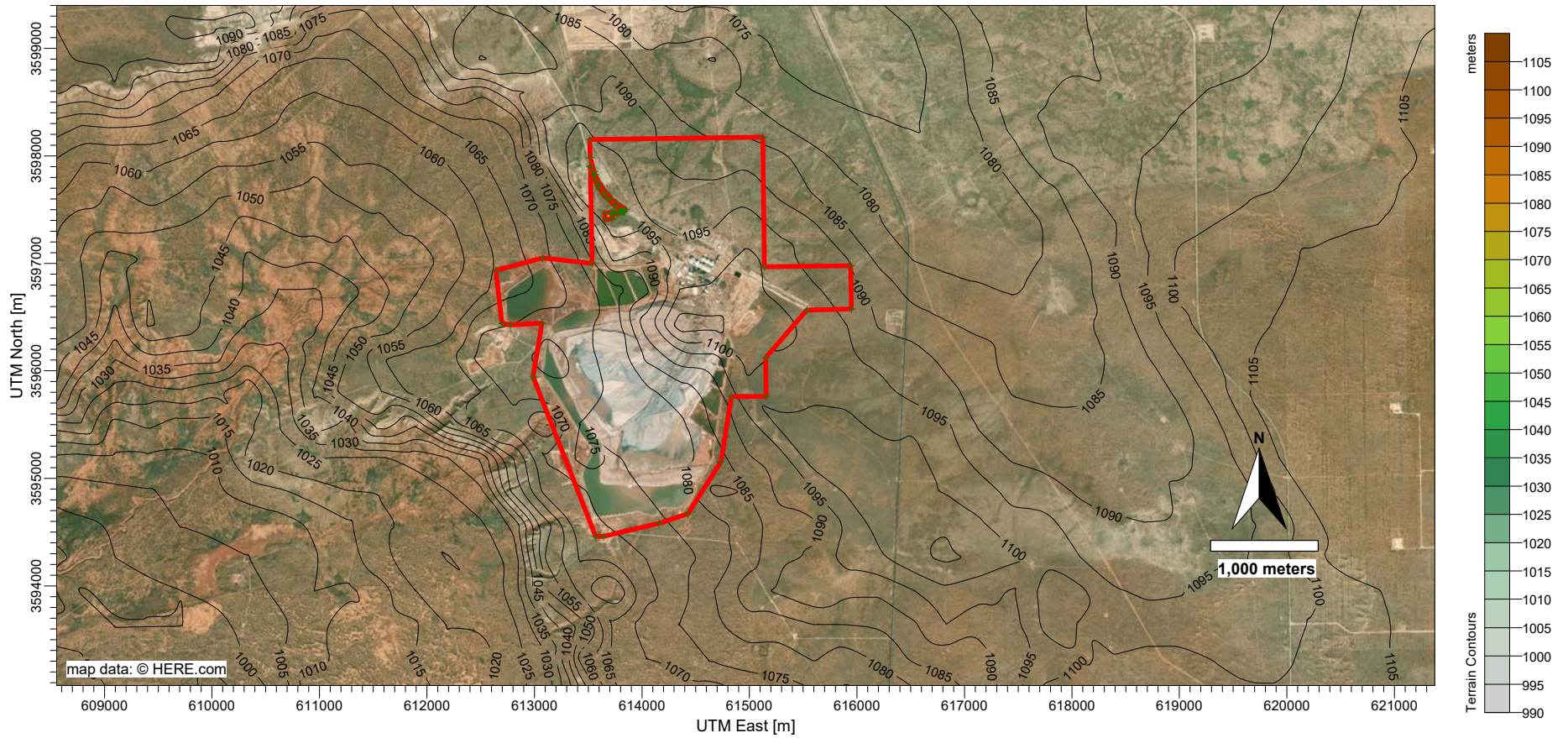


Figure 1 - Intrepid East Plant Boundaries & Non-road Engines. UTM Coordinates in NAD83 Zone 13. Elevation in meters, NED 1 deg.

# 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.
-

**Section 9**

**Proof of Public Notice**

**Item 1**

**Copy of Certified Letter Receipts**

7019 1120 0001 0456 0469

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

**OFFICIAL USE**

Certified Mail Fee \$ 3.60

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

Return Receipt (hardcopy) \$ 2.85

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$ 0.51

Total Postage and Fees \$ 6.96

Postmark Here

**U.S. POSTAL SERVICE**  
FEB - 2 2021  
CARLSBAD, NM 88220

PS Form 3826, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

TO: **Eddy County Clerk's Office**  
325 S. Main  
Carlsbad, NM 88220

PN

7019 1120 0001 0456 0476

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

**OFFICIAL USE**

Certified Mail Fee \$ 3.60

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

Return Receipt (hardcopy) \$ 2.85

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$ 0.51

Total Postage and Fees \$ 6.96

Postmark Here

**U.S. POSTAL SERVICE**  
FEB - 2 2021  
CARLSBAD, NM 88220

PS Form 3826, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

TO: **NM State Land Office**  
310 Old Santa Fe Trail  
Santa Fe, NM 87501

PN

7019 1120 0001 0456 0452

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

**OFFICIAL USE**

Certified Mail Fee \$ 3.60

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

Return Receipt (hardcopy) \$ 2.85

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$ 0.51

Total Postage and Fees \$ 6.96

Postmark Here

**U.S. POSTAL SERVICE**  
FEB - 2 2021  
CARLSBAD, NM 88220

PS Form 3826, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

TO: **City of Carlsbad  
Clerk's Office**  
101 N. Halaguano  
Carlsbad, NM 88220

PN

7019 1120 0001 0456 0461

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

**OFFICIAL USE**

Certified Mail Fee \$ 3.60

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

Return Receipt (hardcopy) \$ 2.85

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$ 0.51

Total Postage and Fees \$ 6.96

Postmark Here

**U.S. POSTAL SERVICE**  
FEB - 2 2021  
CARLSBAD, NM 88220

PS Form 3826, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

TO: **AFN: MR. JIM RUTLEY**  
**BLM - Carlsbad Field Office**  
620 E. Greene St.  
Carlsbad, NM 88220

PN

**Section 9**

**Proof of Public Notice**

**Item 2**

**List of Public Notice Posting Locations**

## **List of Public Notice Posting Locations**

Intrepid Potash – New Mexico, LLC has posted public notices containing the geographic locations of the facilities and describing the proposed modification at the following locations:

- The Intrepid Potash East Plant Entrance
- Brewer Shell, located at 713 North Canal in Carlsbad, NM
- The Carlsbad Public Library, at 101 South Halagueno in Carlsbad, NM
- La Tienda Thriftway, at 1301 S. Canal Street in Carlsbad, NM



**Section 9**

**Proof of Public Notice**

**Item 3**

**Copy of Property Tax Record (20.2.72.203.B NMAC)**



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**Account: R101110 \*Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry**

Location	Owner Information	Assessment History
<b>Account Number</b> R101110 <b>Situs Address</b> RFD CLOUD ROAD <b>Tax Area</b> CO_NR_CARLSBAD_OUI (Nonresidential) <b>Parcel Number</b> 4-182-121-391-728 <b>Legal Summary</b> Quarter: SE S: 5 T: 21S R: 31E S2S6 (PATENT #30-2014-0010) MAP# 200-5-2 LOC W OF 210 RFD CLOUD RD STATE ASSESSED <b>Map Number</b> <b>Parcel Size</b>	<b>Owner Name</b> INTREPID POTASH NLW MEXICO LLC <b>Owner Address</b> 1001 17TH STREET SUITE 1000 DENVER, CO 80202	<b>Actual Value</b> (2015) \$0 <b>No taxable value types</b>

Tax History		Images
Tax Year	Taxes	
*2021	\$0.00	<a href="#">GIS</a>
2020	\$0.00	
* Estimated		

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**Account: R101109 \*Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry**

Location	Owner Information	Assessment History
<b>Account Number</b> R101109 <b>Situs Address</b> 171 RFD CLOUD ROAD <b>Tax Area</b> CO_NR_CARLSBAD_OUI (Nonresidential) <b>Parcel Number</b> 4-183-121-131-388 <b>Legal Summary</b> Quarter: NW S: 4 T: 21S R: 31E LOTS 11,12,13,14 (W252N2) PATENT# 30-2014-0010 MAP# 208-4-3 LOC 171 RED CLOUD RD STATE ASSESSED <b>Map Number</b> <b>Parcel Size</b>	<b>Owner Name</b> INTREPID POTASH NEW MEXICO LLC <b>Owner Address</b> 1001 17TH STREET SUITE 1000 DENVER, CO 80202	<b>Actual Value</b> (2015) \$0 <b>No taxable value types</b>

Tax History		Images
Tax Year	Taxes	
*2021	\$0.00	<a href="#">GIS</a>
2020	\$0.00	
* Estimated		

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**Account: C200353 \*Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry**

Location	Owner Information	Assessment History
<b>Account Number</b> C200353 <b>Situs Address</b> 210 RED CLOUD ROAD <b>Tax Area</b> CO_NR - CARLSBAD-OUT (Nonresidential) <b>Parcel Number</b> 4-183-121-264-666 <b>Legal Summary</b> Quarter: SW S: 4 T: 21S R: 31E Quarter: SE S: 4 T: 21S R: 31E S2 <b>Map Number</b> 208-4-5 <b>Parcel Size</b>	<b>Owner Name</b> INTREPID POTASH NEW MEXICO LLC <b>Owner Address</b> 1001 17TH STREET SUITE 1050 DENVER, CO 80202	<b>Actual Value</b> (2021) \$0 <b>No taxable value types</b>

Tax History		Images
Tax Year	Taxes	
*2021	\$0.00	
2020	No Tax Values	
* Estimated		

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**Account: R101108 \*Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry**

Location	Owner Information	Assessment History
<b>Account Number</b> R101108 <b>Situs Address</b> RED CLOUD ROAD <b>Tax Area</b> CO_NR - CARLSBAD-OUT (Nonresidential) <b>Parcel Number</b> 4-183-121-396-398 <b>Legal Summary</b> Quarter: NE S: 4 T: 21S R: 31E LOTS 9,10,15,16 (E2S2N2) PATENT# 30-2014-0010 MAP# 208-4-2 LOC-E OF 171 RED CLOUD RD STATE ASSESSED <b>Map Number</b> <b>Parcel Size</b>	<b>Owner Name</b> INTREPID POTASH NEW MEXICO LLC <b>Owner Address</b> 1001 17TH STREET SUITE 1050 DENVER, CO 80202	<b>Actual Value</b> (2015) \$0 <b>No taxable value types</b>

Tax History		Images
Tax Year	Taxes	
*2021	\$0.00	<a href="#">GIS</a>
2020	\$0.00	
* Estimated		

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**Account: R101111 \*Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry**

Location	Owner Information	Assessment History
<b>Account Number</b> R101111 <b>Situs Address</b> LOUIS WHITLOCK <b>Tax Area</b> CO_NR - CARLSBAD-OUT (Nonresidential) <b>Parcel Number</b> 4-183-122-261-134 <b>Legal Summary</b> Quarter: NE S: 9 T: 21S R: 31E Quarter: NW S: 9 T: 21S R: 31E N2 (PATENT# 30-2014-0010) MAP# 208-9-1 LOC W OF LOUIS WHITLOCK ROAD STATE ASSESSED <b>Map Number</b> <b>Parcel Size</b>	<b>Owner Name</b> INTREPID POTASH NEW MEXICO LLC <b>Owner Address</b> 1001 17TH STREET SUITE 1050 DENVER, CO 80202	<b>Actual Value</b> \$0 (2015) <b>No taxable value types</b>

Tax History		Images
Tax Year	Taxes	
*2021	\$0.00	• <a href="#">GIS</a>
2020	\$0.00	

\* Estimated

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 County Assessor    County Clerk    Logout Public

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[Remarks](#)  
[Owner Information](#)  
[Assessment History](#)  
[Tax History](#)  
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**Account: R101107 \*Mill Levy does not include Special District Rates such as Penasco, Carlsbad Soil & Water, Central Valley, Eagle Draw, PVC, Cottonwood, and Hackberry**

Location	Owner Information	Assessment History
<b>Account Number</b> R101107 <b>Situs Address</b> RED CLOUD ROAD <b>Tax Area</b> CO_NR - CARLSBAD-OUT (Nonresidential) <b>Parcel Number</b> 4-184-121-134-737 <b>Legal Summary</b> Quarter: SW S: 3 T: 21S R: 31E S2SW (PATENT# 30-2014-0010) MP# 208-3-2 LOC-E OF 210 RED CLOUD RD STATE ASSESSED <b>Map Number</b> <b>Parcel Size</b>	<b>Owner Name</b> INTREPID POTASH NEW MEXICO LLC <b>Owner Address</b> 1001 17TH STREET SUITE 1050 DENVER, CO 80202	<b>Actual Value</b> \$0 (2015) <b>No taxable value types</b>

Tax History		Images
Tax Year	Taxes	
*2021	\$0.00	• <a href="#">GIS</a>
2020	\$0.00	

\* Estimated

**Section 9**

**Proof of Public Notice**

**Item 4 & 5**

**Sample of Letter Sent to Owners of Record, Counties, and Municipalities**



Intrepid Potash – New Mexico, LLC  
 Post Office Box 101  
 Carlsbad, NM 88221  
 575.234.3881

**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

7019-1120-0001-0456-0681

February 1, 2021

Bureau of Land Management-CFO  
 620 E. Greene St.  
 Carlsbad, NM 88220

Dear Mr. Rutley:

Intrepid Potash – New Mexico, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its potash processing facility. The expected date of application submittal to the Air Quality Bureau is February 28.

The exact location for the proposed facility known as, Intrepid Potash East Plant, is 210 Red Cloud Road, Carlsbad, New Mexico 88220. The approximate location of this facility is 30.0 miles east of the intersection of Greene Street and Canal Street in Eddy County.

The proposed modification consists of the addition of portable and stationary fuel burning engines to support production activities at the East Plant and increase operational flexibility.

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

Pollutant:	Pounds per hour	Tons per year
PM <sub>10</sub>	54	235
PM <sub>2.5</sub>	30	130
Sulfur Dioxide (SO <sub>2</sub> )	2.5	10
Nitrogen Oxides (NO <sub>x</sub> )	48	200
Carbon Monoxide (CO)	57	245
Volatile Organic Compounds (VOC)	5.0	20
Green House Gas Emissions as Total CO <sub>2e</sub>	n/a	230,000

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

The owner and/or operator of the Facility is: Intrepid Potash – New Mexico, LLC, East Plant, 210 Red Cloud Road, Carlsbad, New Mexico 88220.

Intrepid Potash Public Notice  
February 1, 2021  
Page 2

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; (505) 476-4300; 1 800 224-7009; [https://www.env.nm.gov/aqb/permit/aqb\\_draft\\_permits.html](https://www.env.nm.gov/aqb/permit/aqb_draft_permits.html). Other comments and questions may be submitted verbally.

Please refer to the company name and site 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.

General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

Sincerely,



Ken Faulkner  
Environmental Manager

### **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 505-476-5557.

### **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: Kathryn Becker, Non-Discrimination Coordinator, NMED, 1190 St. Francis Dr., Suite N4050, P.O. Box 5469, Santa Fe, NM 87502, (505) 827-2855, [nd.coordinator@state.nm.us](mailto:nd.coordinator@state.nm.us). 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.

**Section 9**

**Proof of Public Notice**

**Item 6**

**Sample of Public Notice Posted**

**Verification of the Local Postings**



## NOTICE OF AIR QUALITY PERMIT APPLICATION

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The owner and/or operator of the Facility is: Intrepid Potash – New Mexico, LLC, East Plant, 210 Red Cloud Road, Carlsbad, New Mexico 88220.

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**General Posting of Notices – Certification**

I, **Jason Jones**, the undersigned, certify that on **February 5, 2021**, posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in **Carlsbad** of **Eddy** County, State of New Mexico on the following dates:

1. Intrepid Potash East Plant Entrance February 5, 2021

Signed this 5<sup>th</sup> day of FEBRUARY, 2021.

Jason Jones  
 Signature

2/5/2021  
 Date

JASON JONES  
 Printed Name

ENVIRONMENTAL SCIENTIST  
 Title (APPLICANT OR RELATIONSHIP TO APPLICANT)

East Plant Public Notice - Entrance 2/5/2021



## General Posting of Notices – Certification

I, **Robin Hughes**, the undersigned, certify that on **February 12, 2021**, posted a true and correct copy of the attached Public Notice in the following publicly accessible and conspicuous places in **Carlsbad of Eddy County, State of New Mexico** on the following dates:

1. Carlsbad Public Library, at 101 S. Halagueno in Carlsbad, NM February 12, 2021
2. Brewer Shell, at 713 N. Canal in Carlsbad, NM February 12, 2021
3. La Tienda Thriftway, at 1301 S. Canal in Carlsbad, NM February 12, 2021

Signed this 16<sup>th</sup> day of FEBRUARY, 2021.

Robin Hughes  
Signature

2/16/2021  
Date

ROBIN HUGHES  
Printed Name

ENVIRONMENTAL TECHNICIAN III  
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

**Section 9**

**Proof of Public Notice**

**Item 7**

**List of Notified Parties**

**LIST OF NOTIFIED PARTIES**

**PUBLIC NOTICE LETTERS**

<b>Addressee</b>	<b>Date of Certified Mail Posting</b>
Eddy County Clerk's Office 325 S. Main Carlsbad, NM 88220	February 2, 2021
Bureau of Land Management-CFO Attn: Jim Rutley 620 E. Greene St. Carlsbad, NM 88220	February 2, 2021
NM State Land Office 310 Old Santa Fe Trail Santa Fe, NM 87501	February 2, 2021
City Clerk's Office City of Carlsbad 101 N. Halagueno Carlsbad, NM 88220	February 2, 2021

**Section 9**

**Proof of Public Notice**

**Item 8**

**Copy of Public Service Announcement**

**Documentary Proof of Submittal**

**Submittal of Public Service Announcement – Certification**

## **PUBLIC SERVICE ANNOUNCEMENT**

### **Intrepid Potash Notice of Application for Modification of Air Quality Permit**

Intrepid Potash – New Mexico, LLC is announcing its intent to apply to the New Mexico Environment Department for an application to modify the East Plant New Source Review Permit No. 755-M13-R3. The modification would allow the addition of portable and stationary fuel burning engines to support production activities at the East Plant and increase operational flexibility.

The East Plant is located at 210 Red Cloud Road, in Eddy County, approximately 30 miles east-northeast of Carlsbad, NM by US Highway 62 East / US Highway 180.

Intrepid has posted complete notices containing the geographic locations of the facilities and describing the proposed modification at the following locations:

- The Intrepid Potash East Plant
- Brewer Shell located at 713 North Canal
- The Carlsbad Public Library at 101 South Halagueno
- La Tienda Thriftway at 1301 S Canal Street in Carlsbad

If you have any comments about this proposed modification and you want your comments to be made as part of the permit review process, you must submit your comments in writing to:

New Mexico Environment Department  
Air Quality Bureau  
525 Camino de los Marquez, Suite 1  
Santa Fe, New Mexico 87505-1816

The Department may be contacted by telephone at (505) 476-4300 or (800) 224-7009.



CARLSBAD RADIO, INC  
 PO Box 1538  
 CARLSBAD, NM 88221

Order #: 2573-00054  
 Description: PSA/Air Quality Permit  
 Date Entered: 2/1/2021  
 P.O.#:  
 Salesperson: Thomas, Debbie  
 Invoice Frequency: Billed at end of Cal Month, Sorted by Date

Intrepid Potash - New Mexico, LLC  
 Accounts Payable  
 P O Box 101  
 Carlsbad, NM 88221

**Other (Non-Spot) Charges**

Start Date	End Date	Station	Description of Charge	Repeated	Qty	Rate	Total
1 2/1/2021	2/1/2021	KCDY-FM	PSA/Air Quality	Monthly	1	500.00	500.00

**On-Air Schedule**

Start Date	End Date	Station	Scheduled Time/Event	Repeated	Length	Qty	Rate	Total	M	Tu	W	Th	F	Sa	Su
1 2/4/2021	2/4/2021	KAMQ/TheQ	12:00:00p to 01:30:00p	Weekly	1:30	1	0.00	0.00	0	0	0	1	0	0	0
2 2/4/2021	2/4/2021	KATK-FM	12:00:00p to 01:30:00p	Weekly	1:30	1	0.00	0.00	0	0	0	1	0	0	0
3 2/4/2021	2/4/2021	KCDY-FM	12:00:00p to 01:30:00p	Weekly	1:30	1	0.00	0.00	0	0	0	1	0	0	0

Order Start Date: 2/1/2021      Order End Date: 2/4/2021      Spots: 3      Total Charges: \$500.00  
 Taxes : \$38.22  
 Total Net: \$538.22

**Projected Calendar Month Billing Totals for Intrepid Potash - New Mexico, LLC / 2573-00054 :**

Month	Year	Spot Count	Net Billing
February	2021	3	\$500.00

**Submittal of Public Service Announcement – Certification**

I, **Robin Hughes**, the undersigned, certify that on **February 2, 2021**, submitted a public service announcement to **Carlsbad Radio Station** that serves the City of **Carlsbad, Eddy County, New Mexico**, in which the source is located and that **Carlsbad Radio Station RESPONDED THAT IT WOULD AIR THE ANNOUNCEMENT.**

Signed this 4<sup>th</sup> day of FEBRUARY, 2021.

Robin Hughes  
Signature

2/4/2021  
Date

ROBIN HUGHES  
Printed Name

ENVIRONMENTAL TECH III  
Title {APPLICANT OR RELATIONSHIP TO APPLICANT}

**Section 9**

**Proof of Public Notice**

**Item 9 & 10**

**Copy of Legal Ad & Copy of Display Ad**

**Carlsbad Current Argus 2-5-2021**

# CARLSBAD CURRENT-ARGUS

FRIDAY, FEBRUARY 5, 2021 | CURRENTARGUS.COM

PART OF THE USA TODAY NETWORK

Carlsbad Current-Argus - 02/05/2021

Page : B05

## NOTICE OF AIR QUALITY PERMIT APPLICATION

Intrepid Potash – New Mexico, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its potash processing facility. The expected date of application submittal to the Air Quality Bureau is February 28.

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Carbon Monoxide (CO)	57	245
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Green House Gas Emissions as Total CO <sub>2</sub> e	n/a	230,000

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

The owner and/or operator of the facility is: Intrepid Potash – New Mexico, LLC, East Plant, 210 Red Cloud Road, Carlsbad, New Mexico 88220.

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; (505) 476-4300; 1 800 224-7009; [https://www.env.nm.gov/airq/permits/airq\\_draft\\_permits.html](https://www.env.nm.gov/airq/permits/airq_draft_permits.html). Other comments and questions may be submitted verbally.

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General information about air quality and the permitting process can be found at the Air Quality Bureau's web site. The regulation dealing with public participation in the permit review process is 20.2.72.206 NMAC. This regulation can be found in the "Permits" section of this web site.

### Atención

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### Notice of Non-Discrimination

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Current Argus Feb 5 2021 46581927

February 8, 2021 9:18 am (GMT-7:00)

Powered by TECNIVIA

# CARLSBAD CURRENT-ARGUS

FRIDAY, FEBRUARY 5, 2021 | CURRENTARGUS.COM

PART OF THE USA TODAY NETWORK

Carlsbad Current-Argus - 02/05/2021

Page : B06

### NOTICE OF AIR QUALITY PERMIT APPLICATION

Intrepid Potash – New Mexico, LLC announces its application submittal to the New Mexico Environment Department for an air quality permit for the modification of its potash processing facility. The expected date of application submittal to the Air Quality Bureau is February 26.

The exact location for the proposed facility known as, Intrepid Potash East Plant, is 210 Red Cloud Road, Carlsbad, New Mexico 88220. The approximate location of this facility is 30.0 miles east of the intersection of Greene Street and Canal Street in Eddy County.

The proposed modification consists of the addition of portable and stationary fuel burning engines to support production activities at the East Plant and increase operational flexibility.

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TX-42038412741

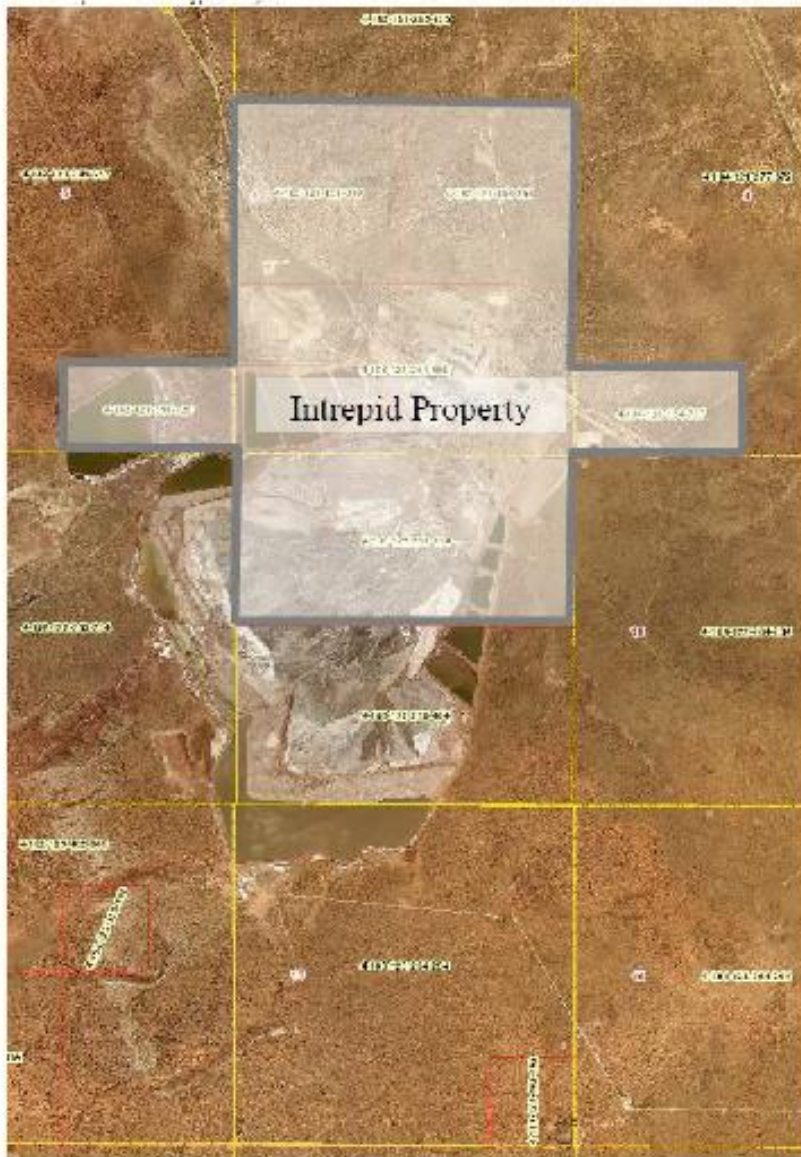
**Section 9**

**Proof of Public Notice**

**Item 11**

**Map Showing Facility & Surrounding Area**

**East Plant Property Boundary**



Note: from State of New Mexico, Department of Finance and Administration, Eddy County is a "Class B-Over" county, and as such, property owners located within one-half mile from Intrepid East property boundary were notified. Map Generated from Eddy County Assessor Database (<http://www.co.eddy.nm.us/184/CountyAssessor/>)

Parcel No. within One-Half Mile of Intrepid Property	Property Owner
4-183-121-265-130	Bureau of Land Management ("BLM")
4-184-121-277-372	BLM
4-181-122-264-264	BLM
4-183-122-260-404	BLM
4-183-123-264-264	State Land Office ("SLO")
4-182-123-162-066	BLM
4-182-123-330-198	SLO
4-182-122-263-261	BLM
4-182-121-249-167	BLM

# Section 10

## Written Description of the Routine Operations of the Facility

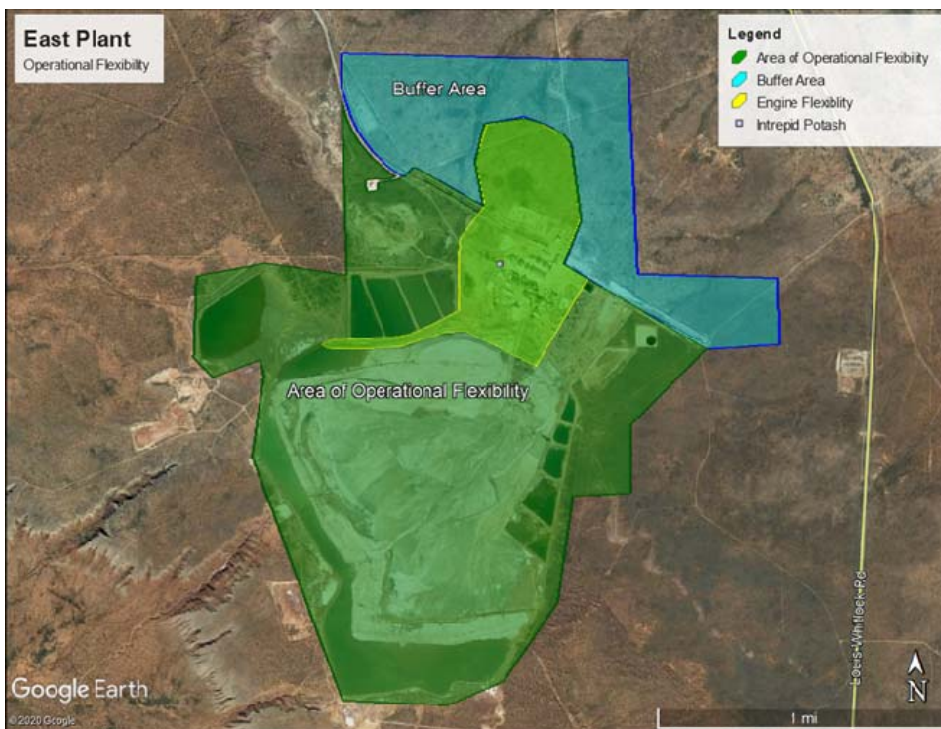
**A written description of the routine operations of the facility.** Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing 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.

In the salt drying area of the East Plant, Intrepid is proposing to permit portable non-road engines for a generator (GEN3), mobile salt screen (ENG1), light tower (ENG2), and air compressor (ENG3).

ENG4 through ENG7 will be used to power pumps managing the water seeps from the tailings pond. ENG1 through ENG3 will be used to power equipment in the salt drying area, i.e., salt screen, light tower, and air compressor. GEN3 will be used to power equipment in the salt drying area.

One engine (ENG9) will be located near Intrepid's Pond C area to facilitate as needed pumping for water management; and another engine (ENG10) will be located near the fresh water pond pump area to provide critical backup pump capability should our existing electric pumps go out.

Additionally, Intrepid is requesting the flexibility to bring non-road engines (Noted in this application as ENG8) on-site totaling no more than 825 HP to perform various tasks that may be required around the plant area. The requested flexibility area for the non-road engines is highlighted in yellow in the figure below. Intrepid's consultant has performed ambient air quality monitoring to define the area of flexibility as represented by this figure.





# 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): Intrepid East Plant only**

**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 minor PSD source before and after this modification (if so, delete C and D below).
- a major PSD source before this modification. This modification will make this a PSD minor source.
- an existing PSD Major Source that has never had a major modification requiring a BACT analysis.
- an existing PSD Major Source that has had a major modification requiring a BACT analysis
- a new PSD Major Source after this modification.

B. This facility **is one of the listed 20.2.74.501 Table I – PSD Source Categories.** The “project” emissions for this modification are **not significant. East Plant meets 20.2.74.501.F NMAC, fossil fuel boilers totaling more than 250 million BTU/hr heat input.** The “project” emissions listed below **do only result from changes described in this permit application, thus no emissions from other revisions or modifications, past or future** to this facility. Also, specifically discuss whether this project results in “de-bottlenecking”, or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:

- a. NOx: **27.63** TPY
- b. CO: **21.85** TPY
- c. VOC: **5.60** TPY
- d. SOx: **4.47** TPY
- e. PM: **2.19** TPY
- f. PM10: **2.19** TPY
- g. PM2.5: **2.19** TPY
- h. Fluorides: **0** TPY
- i. Lead: **0** TPY
- j. Sulfur compounds (listed in Table 2): **0** TPY
- k. GHG: **2,417.60** TPY

C. **Netting is not required; the project is not significant. Debottlenecking will not occur as a result of this requested change.**

D. **BACT is not required for this modification, as this application is a minor modification**

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. **None.**

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# Section 13

## Determination of State & Federal Air Quality Regulations

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**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/>

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To save paper and to standardize the application format, delete this sentence, and begin your submittal for this attachment on this page.

**Example of a Table for STATE REGULATIONS:**

<a href="#">STATE REGULATIONS CITATION</a>	Title	Applies? Enter Yes or No	Unit(s) or Facility	<b>JUSTIFICATION:</b>  <b>(You may delete instructions or statements that do not apply in the justification column to shorten the document.)</b>
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	If subject, this would normally apply to the entire facility. 20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. Title V applications, see exemption at 20.2.3.9 NMAC The TSP NM ambient air quality standard was repealed by the EIB effective November 30, 2018.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This applies to the entire facility.
20.2.19 NMAC	Potash	Yes	Units	Referenced regulation applies to 1D, 5, 7, 8, 9, 10, 11, F1-F24, F27-F37, F38-F39, F40-F67, & F68/69.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	Units	Units covered by this Permit do not have gas burning equipment with heat input of greater than 1,000,000 million British Thermal Units per year per unit.
20.2.34 NMAC	Oil Burning Equipment: NO <sub>2</sub>	No	Units	Units covered by this Permit do not have gas burning equipment with heat input of greater than 1,000,000 million British Thermal Units per year per unit.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	Facility	This facility does not have natural gas processing plants that use a Sulfur Recovery Unit to reduce sulfur emissions.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	<b>These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.</b>
<a href="#">20.2.38 NMAC</a>	Hydrocarbon Storage Facility	No	Units	Units covered by this Permit do not contain storage tanks that meet the criteria of the referenced regulation.
<a href="#">20.2.39 NMAC</a>	Sulfur Recovery Plant - Sulfur	No	Units	Facility does not contain any affected equipment or activity referenced by this regulation.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	Unit	Permitted units, GEN-1, GEN-2, & FWP and proposed units ENG1 through ENG7, GEN3 and GEN4 are subject to the referenced regulation.
20.2.70 NMAC	Operating Permits	Yes	Facility	Facility's potential to emit (PTE) exceeds 100 tpy or more of any regulated air pollutant other than HAPs.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	Facility is subject to operating permit fees.
20.2.72 NMAC	Construction Permits	Yes	Facility	Facility's potential emission rate (PER) is greater than 10 pph or greater than 25 tpy for any pollutant subject to a state or federal ambient air quality standard (does not include VOCs or HAPs).
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	Facility is permitted for greater than 10 tpy of TSP, PM10, PM2.5, nitrogen oxides, and carbon monoxide; and is subject to emissions inventories.emissions.

<u>STATE REGU- LATIONS</u> CITATION	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.)
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	Facility	Limits on the annual operation of the proposed equipment results in increases below the significant emission rates.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	Facility is subject to construction permit fees.
20.2.77 NMAC	New Source Performance	Yes	Units subject to 40 CFR 60	Permitted units, GEN-1, GEN-2, & FWP, are subject to the referenced regulation. Proposed units ENG1 – ENG8, and GEN3 are portable non-road engines. Portable or transportable (has wheels, skids, carrying handles, dolly, trailer or platform) engines are not covered by NSPS, i.e., nonroad engine as defined at 40 CFR 1068.30 are not stationary sources.
20.2.78 NMAC	Emission Standards for HAPS	Yes	Units Subject to 40 CFR 61	This facility emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility	Facility is not located in a Non-Attainment Area.
20.2.80 NMAC	Stack Heights	No		Facility does not contain equipment subject to referenced regulation.
20.2.82 NMAC	MACT Standards for source categories of HAPS	No	Units	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63.

**Example of a Table for Applicable FEDERAL REGULATIONS (Note: This is not an exhaustive list):**

<u>FEDERAL REGU- LATIONS</u> CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	If subject, this would normally apply to the entire facility. This applies if you are subject to 20.2.70, 20.2.72, 20.2.74, and/or 20.2.79 NMAC.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Units subject to 40 CFR 60	Referenced regulation applies to GEN-1, GEN-2, & FWP. Proposed units ENG1 – ENG8, and GEN3 are portable non-road engines. Portable or transportable (has wheels, skids, carrying handles, dolly, trailer or platform) engines are not covered by NSPS, i.e., nonroad engine as defined at 40 CFR 1068.30 are not stationary sources.
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for <b>Electric Utility Steam Generating Units</b>	No		Facility does not contain equipment subject to referenced regulation.

<u>FEDERAL REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
NSPS 40 CFR60.40b Subpart Db	<b>Electric Utility Steam Generating Units</b>	No		Facility does not contain equipment subject to referenced regulation.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial- Commercial- Institutional Steam Generating Units	Yes	Existing boilers 5B, 7B and 8B	40 CFR 60 Subparts A & Dc applies to Boilers 5B, 7B, & 8B.  40 CFR 60 Subparts A & Dc does not apply to existing boilers 1B and 3B since they were constructed prior to the effective date of this NSPS. Additionally, no other sources at the facility are subject to this regulation.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for <b>Storage Vessels for Petroleum Liquids</b> for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and <b>Prior</b> to July 23, 1984	No		Facility does not contain equipment subject to referenced regulation.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for <b>Volatile Organic Liquid Storage Vessels</b> (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced <b>After</b> July 23, 1984	No		Facility does not contain equipment subject to referenced regulation.
NSPS 40 CFR 60.330 Subpart GG	<b>Stationary Gas Turbines</b>	No		Facility does not contain equipment subject to referenced regulation.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from <b>Onshore Gas Plants</b>	No		Facility does not contain equipment subject to referenced regulation.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for <b>Onshore Natural Gas Processing:</b>	No		Facility does not contain equipment subject to referenced regulation.

<u>FEDERAL REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
	SO <sub>2</sub> Emissions			
NSPS 40 CFR 60 Subpart OOO	Standards of Performance for NonMetallic Mineral Processing Plants	No		Facility does not contain equipment subject to referenced regulation. Subpart OOO applies to non-metallic mineral processing plants. EPA intentionally left out potash facilities from being subject to NSPS OOO; and potash processing operations do not meet the definitions within 40 CFR 60.671.
NSPS 40 CFR Part 60 Subpart OOOO	NSPS for Crude Oil and Natural Gas Production, Transmission, and Distribution for which construction, modification or reconstruction commenced after August 23, 2011 and before September 18, 2015	No		Facility does not contain equipment subject to referenced regulation.
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	No		Facility does not contain equipment subject to referenced regulation.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	Yes	Units GEN-1, GEN-2 and FWP	Referenced regulation applies to GEN-1, GEN-2, & FWP. Proposed units ENG1 – ENG10, and GEN3 are portable non-road engines. Portable or transportable (has wheels, skids, carrying handles, dolly, trailer or platform) engines are not covered by NSPS, i.e., nonroad engine as defined at 40 CFR 1068.30 are not stationary sources.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No		Proposed Unit ENG2 is a spark ignition engine but it is a portable non-road engine not covered by NSPS.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No		Facility does not contain equipment subject to referenced regulation.
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No		Facility does not contain equipment subject to referenced regulation.

<u>FEDERAL REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No		Facility does not contain equipment subject to referenced regulation.
NESHAP 40 CFR 61 Subpart A	General Provisions	Yes	Facility	
NESHAP 40 CFR 61 Subpart E	National Emission Standards for <b>Mercury</b>	No		The provisions of this subpart are applicable to those stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge. N/A. Intrepid does not perform these processes or operations.
NESHAP 40 CFR 61 Subpart V	National Emission Standards for <b>Equipment Leaks</b> (Fugitive Emission Sources)	No		Facility does not contain equipment subject to referenced regulation.
MACT 40 CFR 63, Subpart A	General Provisions	Potentially Applicable	Units Subject to 40 CFR 63	Applies if any other Subpart in 40 CFR 63 applies. Currently none apply to Intrepid.
MACT 40 CFR 63.760 Subpart HH	Oil and Natural Gas Production Facilities	No		N/A. Not in this source category.
MACT 40 CFR 63 Subpart HHH		No		N/A. Not in this source category.
MACT 40 CFR 63 Subpart DDDDD	NESHAP for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		Intrepid is not a major source of HAPs
MACT 40 CFR 63 Subpart JJJJJ	NESHAP for Area Sources Industrial, Commercial, and Institutional Boilers & Process Heaters	No	Units 1B – 8B	Intrepid's boilers are natural gas fired only units meeting the definition of "gas fired boiler" and thus are not subject to the Subpart JJJJJ. See 40 CFR 63.11237 and 63.11195(e).
MACT 40 CFR 63 Subpart UUUUU	NESHAP Coal & Oil Fire Electric Utility Steam Generating Unit	No		N/A. Not in this source category.
MACT 40 CFR 63 Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines ( <b>RICE</b> )	Yes	Existing stationary RICE	GEN-1, GEN-2 and FWP currently listed in the East Plant air permit are subject to requirements of 40 CFR 63 Subpart ZZZZ, but fully comply by complying with the requirements of 40 CFR 60 Subpart IIII. See 40 CFR 63.6590(c). Proposed units ENG1 – ENG10, and GEN3 are portable non-road engines. Portable or transportable (has wheels, skids, carrying handles, dolly, trailer or platform) engines are not covered by NSPS, i.e., nonroad engine as defined at



<u>FEDERAL REGU- LATIONS CITATION</u>	<b>Title</b>	<b>Applies? Enter Yes or No</b>	<b>Unit(s) or Facility</b>	<b>JUSTIFICATION:</b>
	<b>MACT)</b>			40 CFR 1068.30 are not stationary sources.
40 CFR 64	<b>Compliance Assurance Monitoring</b>	Yes	Units	Applies only to Title V Major Sources. Units 1D, 5, 7, 8, 9, 10, 11, and 12 are subject to the CAM requirements.  Proposed engines do not have control equipment and are not subject to CAM.
40 CFR 68	<b>Chemical Accident Prevention</b>	No		If subject, this would normally apply to the entire facility.  An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under §68.115, See <a href="#">40 CFR 68</a>
Title IV – Acid Rain 40 CFR 72	<b>Acid Rain</b>	No		See 40 CFR 72.6. This may apply if your facility generates commercial electric power or electric power for sale. N/A. Not in this source category.
Title IV – Acid Rain 40 CFR 73	<b>Sulfur Dioxide Allowance Emissions</b>	No		See 40 CFR 73.2. This may apply if your facility generates commercial electric power or electric power for sale. N/A. Not in this source category.
Title IV-Acid Rain 40 CFR 75	<b>Continuous Emissions Monitoring</b>	No		See 40 CFR 75.2. This may apply if your facility generates commercial electric power or electric power for sale. N/A. Not in this source category.
Title IV – Acid Rain 40 CFR 76	<b>Acid Rain Nitrogen Oxides Emission Reduction Program</b>	No		See 40 CFR 76.1. This may apply if your facility generates commercial electric power or electric power for sale. N/A. Not in this source category.
Title VI – 40 CFR 82	<b>Protection of Stratospheric Ozone</b>	No	N/A	EPA Guidance Page for 40 CFR 82: <a href="https://www.epa.gov/section608">https://www.epa.gov/section608</a> 40 CFR 82 may apply if you:  <b>(40 CFR 82.1 and 82.100)</b> produce, transform, destroy, import or export a controlled substance or import or export a controlled product;  <b>(40 CFR 82.30)</b> if you perform service on a motor vehicle for consideration when this service involves the refrigerant in the motor vehicle air conditioner;  <b>(40 CFR 82.80)</b> if you are a department, agency, and instrumentality of the United States subject to Federal procurement requirements;  <b>(82.150)</b> if you service, maintain, or repair appliances, dispose of appliances, refrigerant reclaimers, <b>if you are an owner or operator of an appliance</b> , if you are a manufacturer of appliances or of recycling and recovery equipment, if you are an approved recycling and recovery equipment testing organization, and/or if you sell or offer for sell or purchase class I or class I refrigerants.  <b>Note:</b> Owners and operators of appliances subject to 40 CFR 82.150 Recycling and Emissions Reduction have recordkeeping and reporting requirements even if the owner/operator is not performing the actual work.  <b>Note:</b> Disposal definition in 82.152: Disposal means the process leading to and including: (1) The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water; (2) The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or (3) The disassembly of any appliance for reuse of its component parts. “Major maintenance, service, or repair means” any maintenance, service, or repair that involves the removal of any or all of the following appliance components: compressor, condenser, evaporator, or auxiliary heat exchange coil; or any maintenance, service, or repair that involves uncovering an opening of more than four (4) square inches of “flow area” for more than 15 minutes.

# Section 14

## Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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- 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.
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# Section 15

## Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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**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: [https://www.env.nm.gov/aqb/permit/aqb\\_pol.html](https://www.env.nm.gov/aqb/permit/aqb_pol.html). 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).

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The facility is requesting operational flexibility to operate non-road engines on-site as needed. The non-road engines were divided into three groups. ENG4 through ENG7 represent up to four (4) water pump engines that are anticipated to be used to manage seep water when necessary. ENG1 through ENG3 and GEN3 are anticipated to be used in the salt drying area as needed. ENG8 represents a combination of engines totaling up to 825 HP that may be needed in and around the plant area on an as needed basis to support production operations. One engine (ENG9) will be located near Intrepid’s Pond C area to facilitate as needed pumping for water management; and another engine (ENG10) will be located near the fresh water pond pump area to provide critical backup pump capability should our existing electric pumps go out. The area proposed as engine flexibility operating area is depicted in the figure in Section 3.

# 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](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. <b>Note:</b> 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.	X (SO <sub>2</sub> )
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.

# 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.

To save paper and to standardize the application format, delete this sentence and the samples in the Compliance Test History Table, and begin your submittal for this attachment on this page.

**Compliance Test History Table**

Unit No.	Test Description	Test Date
EP-1D, EP-5, EP-7, EP-8	Tested in accordance with Title V Permit No. P009 / NSR Permit No. 755	2009, and annually thereafter
EP-9, EP-10, and EP-11	Tested in accordance with Title V Permit No. P009 / NSR Permit No. 755	2012, and annually thereafter
Boilers 1B through 8B	Tested in accordance with Title V Permit No. P009 / NSR Permit No. 755	4/2013 and semi- annually thereafter

# 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.

Non-road engines proposed in the salt drying area and around the tailings pond are based upon the sizes that may be needed for the anticipated functions. Within the proposed non-road engine flexibility area the emissions were based on the rental engines being a Tier 2 engine or above in order to be brought onsite and used. Based on the size category, the engines will have a maximum emissions factor as summarized below.

Rated Power (kW)	Upper (kW)	HP	Tier	Model Year	NMHC (g/kW-hr)	NMHC + NOx (g/kW-hr)	NOx (g/kW-hr)	PM (g/kW-hr)	CO (g/kW-hr)
kW < 8	8	10.7	2	2005-2007	-	7.5	-	0.80	8.0
8 ≤ kW < 19	19	25.5	2	2005-2007	-	7.5	-	0.80	6.6
37 ≤ kW < 56	56	75.1	3	2008-2011	-	4.7	-	0.40	5.0
56 ≤ kW < 75	75	100.5	3	2008-2011	-	4.7	-	0.40	5.0
75 ≤ kW < 130	130	174.3	3	2007-2011	-	4.0	-	0.30	5.0
130 ≤ kW < 225	225	301.6	3	2006-2010	-	4.0	-	0.20	3.5
225 ≤ kW < 450	450	603.2	3	2006-2010	-	4.0	-	0.20	3.5
450 ≤ kW < 560	560	750.7	3	2006-2010	-	4.0	-	0.20	3.5
560 ≤ kW < 900	746	1000.0	2	2006-2010	-	6.4	-	0.20	3.5

# Section 22: Certification

Company Name: Intrepid Potash – New Mexico, LLC

I, Roy Torres, 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 4<sup>th</sup> day of MARCH, 2021, upon my oath or affirmation, before a notary of the State of New Mexico.

Roy Torres

Roy Torres  
\*Signature

Roy Torres

Printed Name

3-4-2021  
Date

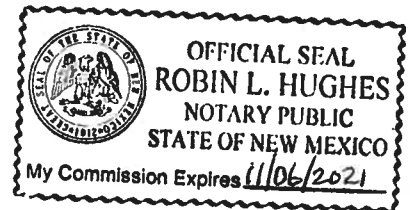
Operations Manager

Title

Scribed and sworn before me on this 4<sup>th</sup> day of MARCH, 2021.

My authorization as a notary of the State of NEW MEXICO expires on the

6<sup>th</sup> day of NOVEMBER, 2021.



Robin L. Hughes  
Notary's Signature

3/4/2021  
Date

ROBIN L. HUGHES  
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.

# Universal Application 4

## Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the “Air Dispersion Modeling Report”, only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

<b>16-A: Identification</b>		
1	Name of facility:	East Plant
2	Name of company:	Intrepid Potash – New Mexico, LLC
3	Current Permit number:	0755-M13
4	Name of applicant’s modeler:	Bruce Ferguson
5	Phone number of modeler:	601-824-1860
6	E-mail of modeler:	bferguson@fce-engineering.com

<b>16-B: Brief</b>		
1	Was a modeling protocol submitted and approved?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2	Why is the modeling being done?	Adding New Equipment
3	Describe the permit changes relevant to the modeling. Addition of non-road engines	
4	What geodetic datum was used in the modeling?	NAD83
5	How long will the facility be at this location?	Indefinite
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
7	Identify the Air Quality Control Region (AQCR) in which the facility is located	155



**16-B: Brief**

8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO <sub>2</sub>	February 8, 1988	
	SO <sub>2</sub>	January 6, 1975	
	PM <sub>10</sub>	January 6, 1975	
	PM <sub>2.5</sub>	October 20, 2010	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	None		
10	Is the facility located in a non-attainment area? If so describe below	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
11	Describe any special modeling requirements, such as streamline permit requirements.		
	None		

**16-C: Modeling History of Facility**

1	Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQs), and PSD increments modeled. (Do not include modeling waivers).			
	Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
	CO	0755-M13	01/09/2020	
	NO <sub>2</sub>	0755-M13	01/09/2020	
	SO <sub>2</sub>			
	H <sub>2</sub> S			
	PM <sub>2.5</sub>	0755-M13	01/09/2020	
	PM <sub>10</sub>	0755-M13	01/09/2020	
	Lead			
	Ozone (PSD only)			
NM Toxic Air Pollutants (20.2.72.402 NMAC)				

### 16-D: Modeling performed for this application

1	For each pollutant, indicate the modeling performed and submitted with this application. Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.					
	Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.
	CO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	NO <sub>2</sub>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	SO <sub>2</sub>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	H <sub>2</sub> S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	PM <sub>2.5</sub>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	PM <sub>10</sub>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Lead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Ozone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
State air toxic(s) (20.2.72.402 NMAC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

### 16-E: New Mexico toxic air pollutants modeling

1	List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application.  None					
	List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.					
2	Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/Correction Factor

### 16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

**16-G: Surrounding source modeling**

1	Date of surrounding source retrieval	March 11, 2020. Most current MergeMaster File
2	If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.	
	AQB Source ID	Description of Corrections
	Sources listed below are flares that appeared to have the actual diameter included in the surrounding source inventory rather than the effective diameter. The NOx emissions listed in the inventory were used to estimate the heat release based on a NOx emission factor of 0.068 lb/MMBtu. The effective diameter was calculated based on this heat release and an assumed MW of 28.97 using the NMED guidance for flare effective diameter. The estimated diameter was used in the PM <sub>2.5</sub> cumulative modeling.	
	10060	Effective diameter of 18.4 was used.
	10061	Effective diameter of 2.61 was used.
	10133	Effective diameter of 0.82 was used.
	244	Effective diameter of 2.56 was used.
	245	Effective diameter of 22.44 was used.
	10255	Effective diameter of 9.05 was used.
	10256	Effective diameter of 1.96 was used.
	10290	Effective diameter of 5.32 was used.
	10342	Effective diameter of 1.73 was used.
	10343	Effective diameter of 6.73 was used.
	10367	Effective diameter of 22.58 was used.
	10368	Effective diameter of 2.56 was used.
	10393	Effective diameter of 20.07 was used.
	10394	Effective diameter of 2.8 was used.
	10406	Effective diameter of 9.07 was used.
	10409	Effective diameter of 2.81 was used.
	10483	Effective diameter of 10.46 was used.
	10484	Effective diameter of 1.75 was used.
	10587	Effective diameter of 18.79 was used.
	10588	Effective diameter of 2.37 was used.
	10600	Effective diameter of 12.98 was used.
	10612	Effective diameter of 12.98 was used.
	10655	Effective diameter of 2.49 was used.
	10656	Effective diameter of 2.49 was used.
	10662	Effective diameter of 13.29 was used.
10663	Effective diameter of 2.42 was used.	
10671	Effective diameter of 13.29 was used.	
10688	Effective diameter of 0.82 was used.	
10749	Effective diameter of 18.42 was used.	
10857	Effective diameter of 1.01 was used.	
10858	Effective diameter of 9.2 was used.	
10884	Effective diameter of 20.07 was used.	
10885	Effective diameter of 2.8 was used.	
10899	Effective diameter of 2.72 was used.	
11307	Effective diameter of 5.85 was used.	
11325	Effective diameter of 19.44 was used.	
11401	Effective diameter of 18.36 was used.	
11402	Effective diameter of 2.55 was used.	

**16-H: Building and structure downwash**

1	How many buildings are present at the facility?	61 structures were included in the historical BPIP analysis. Proposed engines are not within the influence of buildings.		
2	How many above ground storage tanks are present at the facility?	none		
3	Was building downwash modeled for all buildings and tanks? If not explain why below.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
4	Building comments	Cumulative analysis included the downwash parameters for the Intrepid East plant included in historical modeling.		

**16-I: Receptors and modeled property boundary**

1	<p>“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 a 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. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility.</p> <p>Describe the fence or other physical barrier at the facility that defines the restricted area.</p> <p>Access to the East Plant is restricted by fencing, gates, signage, and/or rugged undeveloped terrain.</p>					
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
3	Are restricted area boundary coordinates included in the modeling files?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
4	Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.					
	Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments
	Discrete	Rectangle	50 m	0	500 m	Same as site historical modeling
	Discrete	Rectangle	100 m	500 m	1 km	Same as site historical modeling
	Discrete	Rectangle	250 m	1 km	4 km	Same as site historical modeling
	Discrete	Rectangle	500 m	4 km	8.5 km	Same as site historical modeling
	Discrete	Rectangle	1 km	8.5 km	25 km	Same as site historical modeling
5	Describe receptor spacing along the fence line.					
	50 m					
6	Describe the PSD Class I area receptors.					
	N/A					

<b>16-J: Sensitive areas</b>			
1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

<b>16-K: Modeling Scenarios</b>											
1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).										
	None										
2	Which scenario produces the highest concentrations? Why?										
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)									Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.) Sources:										
	5	Hour of Day	Factor	Hour of Day	Factor						
1			13								
2			14								
3			15								
4			16								
5			17								
6			18								
7			19								
8			20								
9			21								
10			22								
11			23								
12			24								
If hourly, variable emission rates were used that were not described above, describe them below.											
6	Were different emission rates used for short-term and annual modeling? If so describe below.									Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

<b>16-L: NO<sub>2</sub> Modeling</b>			
1	Which types of NO <sub>2</sub> modeling were used? Check all that apply.		
	<input checked="" type="checkbox"/>	ARM2	
	<input type="checkbox"/>	100% NO <sub>x</sub> to NO <sub>2</sub> conversion	
	<input type="checkbox"/>	PVMRM	
	<input type="checkbox"/>	OLM	
	<input type="checkbox"/>	Other:	
2	Describe the NO <sub>2</sub> modeling.		
	Significance modeling with source groups was run without NO <sub>x</sub> conversion, the scenario with the highest impact was run with ARM2.		
3	Were default NO <sub>2</sub> /NO <sub>x</sub> ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.		Yes <input checked="" type="checkbox"/>
			No <input type="checkbox"/>
4	Describe the design value used for each averaging period modeled.		
	1-hour: High eighth high Annual: One Year Annual Average		

<b>16-M: Particulate Matter Modeling</b>			
1	Select the pollutants for which plume depletion modeling was used.		
	<input type="checkbox"/>	PM2.5	
	<input type="checkbox"/>	PM10	
	<input checked="" type="checkbox"/>	None	
2	Describe the particle size distributions used. Include the source of information.		
3	Does the facility emit at least 40 tons per year of NO <sub>x</sub> or at least 40 tons per year of SO <sub>2</sub> ? Sources that emit at least 40 tons per year of NO <sub>x</sub> or at least 40 tons per year of SO <sub>2</sub> are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.		Yes <input checked="" type="checkbox"/>
			No <input type="checkbox"/>
4	Was secondary PM modeled for PM2.5?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
5	If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.		
	NO <sub>x</sub> (ton/yr)	SO <sub>2</sub> (ton/yr)	[PM2.5] <sub>annual</sub>
	27.63	4.29	0.0003
			[PM2.5] <sub>24-hour</sub>
			0.005
	Southwest Climate Zone Lowest MERPs		
	State	County	Metric
	Colorado	Weld Co	Annual PM <sub>2.5</sub>
	Colorado	Weld Co	Annual PM <sub>2.5</sub>
	Colorado	Weld Co	Daily PM <sub>2.5</sub>
	Colorado	Weld Co	Daily PM <sub>2.5</sub>
			Precursor
			Emissions
			Stack
			MERP
			NO <sub>x</sub>
			SO <sub>2</sub>
			1000
			10
			10530
			7359
			5215
			814
	$[PM2.5]_{\text{annual}} = \text{SIL} \times [NO_x \text{ Annual Emissions}/10530 + SO_2 \text{ Annual Emissions}/7359]$ $= (0.2 \text{ ug/m}^3)[(27.63/10530) + (4.29/7359)] = 0.0007 \text{ ug/m}^3$		
	$[PM2.5]_{\text{24-hour}} = \text{SIL} \times [NO_x \text{ Annual Emissions}/5215 + SO_2 \text{ Annual Emissions}/814]$ $= (1.2 \text{ ug/m}^3)[(27.63/5215) + (4.29/814)] = 0.012 \text{ ug/m}^3$		

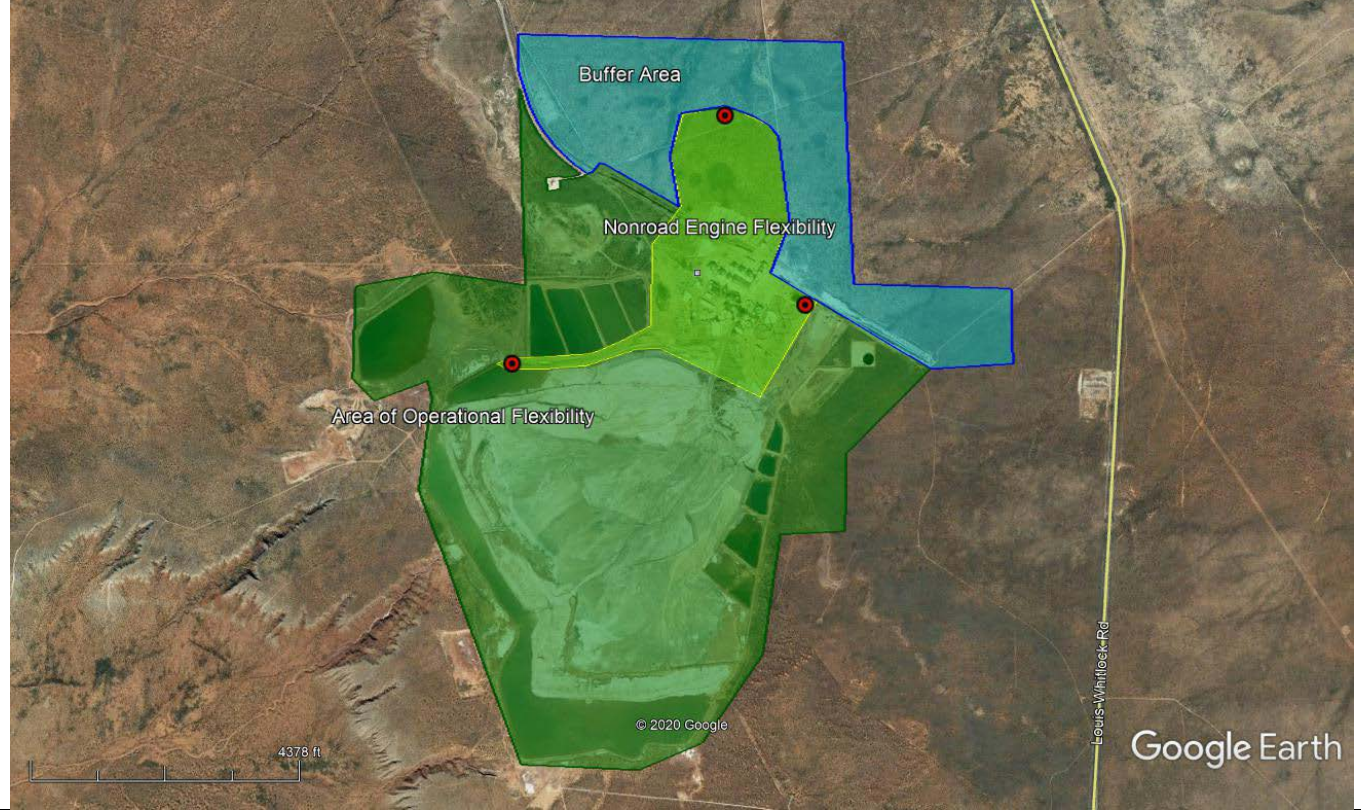
**16-N: Setback Distances**

1 Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.

Flexibility is being requested for non-road engines within the area identified in yellow in the figure below. It is requested that non-road engines be allowed in this area up to a combination of engines totaling 825 HP. A 825 HP engine was placed at the indicated locations closest to the fence line. Engines will be at least a Tier 2 or Tier 3 engine, depending on size. Modeling was based on the highest emission factor, i.e., Tier 2 factor for small engine, and 825 HP engine.

2 Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.

It is proposed that a combination of non road engines totaling 825 HP may be located within the yellow area depicted below.



### 16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.			Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Unit Number in UA-2		Unit Number in Modeling Files		
	EP_01		1D		
	EP_05		5		
	EP_07		7		
	EP_08		8		
	EPB_1		1B		
	EPB_3		3B		
	EPB_5		5B		
	EPB_7		7B		
	EPB_8		8B		
	EP_10		10D		
	EP_09		EP-09		
	EP_11		EP-11		
(F40-F67)					
EP_12		12			
2	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?			Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
4	Which units consume increment for which pollutants?				
	Unit ID	NO <sub>2</sub>	SO <sub>2</sub>	PM10	PM2.5
	8			X	
	7B			X	X
	8B			X	X
	10D			X	X
	EP-09			X	
	EP-11			X	X
	(F40-F67)			X	
	Dryer	X	X	X	X
	F-38 & F-39			X	X
	F-25/26			X	X
	F-68/69			X	X
ENG1-ENG7, ENG8	X	X	X	X	
GEN3	X	X	X	X	
5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).			Material Handling and Haul Road Emissions were conservatively assumed to be PM10/PM2.5 increment consuming. Source "208C1, Intrepid - East Plant, Krebs Scrubber Compactor - Rmv'd" included in NMED inventory expands PM10 increment.	
6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>



**16-P: Flare Modeling (Not Applicable)**

1	For each flare or flaring scenario, complete the following			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)

**16-Q: Volume and Related Sources**

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines?  If not please explain how increment consumption status is determined for the missing installation dates below.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources. Table 27, 28 & 29 of NMED guideline		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	<b>Application ID</b>	<b>Model ID</b>	
	F1	FUG1	
	F2		
	F3		
	F4	FUG2	
	F5		
	F6		
	F7	FUG3	
	F8	FUG4	
	F9	FUG5	
	F10	FUG6	
	F11		
	F14		
	F20	FUG7	
	F-25	UPXXX & PUSHLOADX NRXXX (New Source)	
	F-26	PRXX	
	F28	FUG8	
F-38	FUG9		
F-39			
F68	MH1 thru MH13		
F69	MH14 thru MH21 MHN1 thru MHN4		
4	Describe any open pits. None		
5	Describe emission units included in each open pit. N/A		

**16-R: Background Concentrations**

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	CO: Del Norte High School (350010023)			
	NO <sub>2</sub> : Outside Carlsbad (350151005)			
	PM <sub>2.5</sub> : Hobbs-Jefferson (350450019)			
	PM <sub>10</sub> : Hobbs-Jefferson (350250008)			
	SO <sub>2</sub> : Amarillo (483751025)			
2	Other:			
	Comments:	PM <sub>10</sub> and PM <sub>2.5</sub> background also included explicitly modeling PSD sources within 25 km and NAAQS sources within 10 km.		
2	Were background concentrations refined to monthly or hourly values? If so describe below.		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

**16-S: Meteorological Data**

1	Was NMED provided meteorological data used? If so select the station used.		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Artesia 2015			
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.			

**16-T: Terrain**

1	Was complex terrain used in the modeling? If not, describe why below.		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
2	What was the source of the terrain data? <a href="http://www.webgis.com/">http://www.webgis.com/</a> , downloaded through Lakes Environmental AERMOD-View GUI.			

<b>16-U: Modeling Files</b>			
1	Describe the modeling files:		
	File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
	SIA\CO.zip	CO	ROI/SIA
	SIA\SO2.zip	SO2	ROI/SIA, cumulative 1-hr
	SIA\NOx.zip	NO2	ROI/SIA
	SIA\PM.zip	PM10 & PM2.5	ROI/SIA
	CIA\NOx_ARM.zip	NO2	Cumulative NAAQS & Increment
	CIA\PM10.zip	PM10	Cumulative NAAQS & Increment
	CIA\PM25.zip	PM2.5	Cumulative NAAQS & Increment
	NOx.bpi	Building	Historical file, proposed sources are not within building influence.
	Surrounding Sources\		MergeMaster produced input files

<b>16-V: PSD New or Major Modification Applications (Not Applicable)</b>			
1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes <input type="checkbox"/>	No <input type="checkbox"/>

<b>16-W: Modeling Results</b>										
1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary.									
Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
SO <sub>2</sub> 3-hr PSD*	27.41550	N/A	N/A	47**	74.4	512	14.5	613552.00	3594494.00	1070.48
SO <sub>2</sub> 24-hr PSD*	11.39160	N/A	N/A	47**	58.4	91	64.2	613552.51	3594508.22	1070.73
SO <sub>2</sub> Annual PSD	2.28021	N/A	N/A	0.67**	2.95	20	14.7	613552.51	3594508.22	1070.73
SO <sub>2</sub> 1-hr NAAQS*	34.14669	N/A	N/A	47	81.1	196.4	41.3	613552.00	3594494.00	1070.48
CO 1-hr SIL	192.07048	N/A	N/A	N/A	192.1	2000	9.6	615139.69	3596969.38	1100.23
CO 8-hr SIL	107.17131	N/A	N/A	N/A	107.2	500	21.4	615139.69	3596969.38	1100.23
PM <sub>10</sub> 24-hr NAAQS	47.39943	47.65157	N/A	37.3	85.0	150	56.6	615135.91	3597258.32	1097.80
PM <sub>10</sub> 24-hr PSD	29.56533	29.77236	N/A	N/A	29.8	30	99.2	615139.69	3596969.38	1100.23
PM <sub>10</sub> Annual PSD	6.57421	7.00288	N/A	N/A	7.0	17	41.2	615139.69	3596969.38	1100.23
PM <sub>2.5</sub> 24-hr NAAQS	12.91190	13.02616	0.012	13.4	26.4	35	75.5	615139.69	3596969.38	1100.23
PM <sub>2.5</sub> Annual NAAQS	3.90531	4.15211	0.0006	5.9	9.8	12	81.7	615139.69	3596969.38	1100.23
PM <sub>2.5</sub> 24-hr PSD	7.92627	8.28415	0.012	N/A	8.3	9	92.2	615139.69	3596969.38	1100.23
PM <sub>2.5</sub> Annual PSD	2.29970	2.57408	0.0006	N/A	2.6	4	64.3	615139.69	3596969.38	1100.23
NO <sub>2</sub> Annual PSD	12.17804	N/A	N/A	5.0**	17.2	25	68.8	613552.51	3594508.22	1070.73
NO <sub>2</sub> Annual NMAAQS	12.17804	N/A	N/A	5.5**	17.2	94.02	18.3	613552.51	3594508.22	1070.73
NO <sub>2</sub> 1-hr NAAQS	138.76036	N/A	N/A	38.7**	177.5	188.03	94.4	615139.69	3596969.38	1100.23

\*SO<sub>2</sub> PSD based on H2H from significance modeling.

\*\*Monitored background used to estimate impacts from surrounding sources. Max 1-hr conservatively used for SO<sub>2</sub> 3-hr and 24-hr averaging periods.

## 16-X: Summary/conclusions

A statement that modeling requirements have been satisfied and that the permit can be issued.

The facility was modeled following the NMED Air Quality Modeling Guideline, revised June 6, 2019. The significance analysis for CO, SO<sub>2</sub>, and NO<sub>2</sub> included the new proposed sources and the existing facility sources. Monitored background from the NMED guideline was used to estimate the impact from surrounding sources and no surrounding sources were explicitly modeled for these pollutants.

The NO<sub>2</sub> significance analysis was conducted using three locations and a single source totaling the requested 825 HP of engine use within the area. These locations represent the closest distance to the fence line in the north, east and west directions. Conversion of NO<sub>x</sub> was not considered in the initial analysis because the emissions at all three locations will not occur at the same time and the model will tend to underestimate the NO<sub>2</sub> impacts if source groups are used in this fashion. The location producing the highest impacts was used in subsequent modeling with the ARM2 method to determine the conversion of NO<sub>x</sub> to NO<sub>2</sub>.

PM significance modeling was performed using only the proposed sources. Receptors with impacts above the PM<sub>2.5</sub> modeling significance level were used in the cumulative analysis for both the PM<sub>10</sub> and PM<sub>2.5</sub> cumulative analysis and receptors with insignificant impacts were discarded. There are several flare sources with substantial PM emissions surrounding the facility that were included in the surrounding inventory with the actual flare diameter. The effective diameter was estimated using the NO<sub>x</sub> emissions for these flares, an emission factor of 0.068 lb/MMBtu and a MW of 28.97. Cumulative predicted PM<sub>10</sub> and PM<sub>2.5</sub> impacts included all of the East Plant sources, surrounding sources within 25 km and monitored background from the NMED guideline. PM<sub>2.5</sub> impacts also included estimate of secondary PM<sub>2.5</sub> formation from the proposed sources predicted with the EPA MERPs guidance.

All of the impacts were found to be compliant with the NMAAQs, NAAQS and PSD increment. The proposed sources will, therefore, not cause or contribute to a violation of the ambient standards and the permit can be issued.