Edit: Application Tracking

Air Case ID: 13207 Permit Id: 3603

FIN No.: A1896A

Company Name: SWITCH, LTD.

HA Basin No: 083 **Increment Tracked** ☑

Permit No: AP73753672 * Select a Permit No

Date App. Received: 09/14/2026 *

Permit Writer: Not Assigned (NA) *

Case Type: Class 1 OPTC Revision *

Default ODS Date: 10/22/2026 *

Actual ODS Date:

Date App. to be Closed: 04/20/2027 *

Stop Days: **Actual Date App. to be Closed:** 4/20/2027

App. Incomplete? ☐

Date App. Closed:

Fee Paid ($): 30000 *

Case Description:

Comments:

Flag (For Class 4) : None

Update Cancel

NEVADA DIVISION OF
ENVIRONMENTAL PROTECTION

A division of the
Nevada Department of Conservation & Natural Resources

STATE OF NEVADA
Joe Lombardo, *Governor*
Vinson Guthreau, *Director*
Jennifer L. Carr, *Administrator*

901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701
p: 775-687-4670 f: 775-687-5856
ndep.nv.gov

July 14, 2026

RECEIVED
SEP 14 2026
BAPC/BAQP

Devon White
Vice President of Data Operations
Switch, Ltd.
1 Superloop Circle
McCarran, Nevada 89437

Re: Approval of Request for Confidentiality for the Revision to Class I Air Quality Operating Permit to Construct, AP7375-3672, FIN A1896A, Air Case 13087 – Switch, Ltd.

Dear Mr. White:

The Nevada Division of Environmental Protection – Bureau of Air Pollution Control (BAPC) has reviewed the confidentiality request for the above-referenced Air Case from Switch, Ltd., received on June 24, 2026. Based on review and recommendation, I hereby approve the request for confidentiality of those items in the aforementioned request pursuant to Nevada Revised Statutes (NRS) 445B.570.

This approval only applies to this specific request with the BAPC Permitting Branch, and a new request must be submitted for any future permit actions containing confidential information. This approval does not apply to the BAPC's Chemical Accident Prevention Program (CAPP), the Compliance Branch, or any other bureau of the Nevada Division of Environmental Protection. Pursuant to NRS 445B.570, the BAPC will verify the content of the confidential information once the application and/or information submittal is received to ensure the information declared confidential conforms with the request. Switch, Ltd. must submit both public and confidential copies of the application and/or information submittal. This approval letter must be attached to the front of the confidential application. Please do not submit confidential information by email.

If you have any questions, please feel free to contact Jaimie Mara, Permitting Supervisor, at (775) 687- 9343 or jmara@ndep.nv.gov.

Sincerely,

Jennifer Carr (Jul 20, 2026 17:20:12 PDT)

Jennifer L. Carr, P.E., C.P.M., C.E.M.
Administrator
Nevada Division of Environmental Protection

JC/JK/JS/JM/mt
Enclosure: Bureau of Air Pollution Control (BAPC) – Permitting Branch Confidentiality Request Form
E-Copy: John Kossitch, VP of Data Center Operations, Switch, Ltd.
Sean Keane, Trinity Consultants
Emily Kolb, Trinity Consultants
Casey Elliott, Trinity Consultants
Mike Bonsteel, Switch, Ltd.
Shan Mathews, Switch, Ltd.
Steven Roberts, Switch, Ltd.

September 8, 2026

Bureau of Air Pollution Control
Nevada Division of Environmental Protection
901 South Stewart Street, Suite 4001
Carson City, NV 89701

RE: Application for a Revision to a Class I Air Quality Operating Permit to Construct AP7375-3672, FIN A1896 – Switch Ltd. - Public Version

Dear Sir or Madam,

Switch, Ltd. (Switch®) is in the process of constructing an advanced technology ecosystem communications facility located at 1 Superloop Circle in McCarran, Nevada (the Facility). The Facility is located within the jurisdiction of the Nevada Division of Environmental Protection (NDEP) and is permitted under the Class I Operating Permit to Construct (OPTC) AP7375-3672 (the Permit), issued by NDEP on January 30, 2015, and most recently revised on January 23, 2026. Enclosed is an application (the Application) for a revision to the Class I OPTC to authorize design changes at the Facility, including updated unit counts, new unit make/models, and a revised facility-wide potential to emit. Switch is submitting this application to request the revisions in the Permit detailed in Section 2 of the Application.

This Application includes all information required pursuant to NAC 445B.295 and satisfies the requirements stipulated in NAC 445B.3363 for revision to a Class I OPTC, including the necessary forms, emissions calculations, and equipment specifications. Emissions from the Project will exceed the environmental evaluation thresholds in NAC 445B.310.1(b) and an environmental evaluation is included with the application package. Per NAC 445B.327, an application fee of $30,000 has been included with this Application and Switch will pay any additional processing fees. Switch requests that the NDEP letter, Approval for Request for Confidentiality (Air Case 13087), dated July 14, 2026, be applied to this application.[1] A confidential and public version of this application is being submitted.

As required by Permit Condition I.U, I, the responsible official, certify that based on information and belief formed after reasonable inquiry, the statements made in this letter are true, accurate, and complete. If you have any questions or comments about the information presented in this Application, please do not hesitate to call me at (702) 449-8827 or Sean Keane (Trinity Consultants) at (847) 445-0557.

Sincerely,

Devon White
Vice President of Data Center Operations

Enclosure
cc: Heather Borgen, Switch
Sean Keane, Trinity Consultants, Inc.

[1] NDEP Approval of Request for Confidentiality for Revision of Class I Air Quality Operating Permit to Construct, AP7375-3672, FIN A1896A, Air Case 13087 – Switch, LTD. July 14, 2026.

APPLICATION FOR A CLASS I OPERATING PERMIT TO CONSTRUCT REVISION

Nevada Division of Environmental Protection

Switch, Ltd. / Reno, Nevada

Prepared By:

TRINITY CONSULTANTS
5401 Longley Lane, Suite 5
Reno, NV 89511
(775) 242-3200

August 2026

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1-1

2. FACILITY AND PROJECT INFORMATION 2-2
   - 2.1 Facility Description 2-2
   - 2.2 Project Description 2-2

3. EMISSIONS INFORMATION 3-1
   - 3.1 Project Emissions 3-1
     - *3.1.1 Emergency Generators and Emergency House Generators 3-1*
     - *3.1.2 Fluid Coolers 3-2*
     - *3.1.3 Diesel Tanks 3-2*
     - *3.1.4 Summary of Project PTE Emissions 3-2*

4. REGULATORY REVIEW 4-1
   - 4.1 Federally Applicable Regulations 4-1
     - *4.1.1 NSR Applicability (Non-Attainment New Source Review/PSD) 4-1*
     - *4.1.2 New Source Performance Standards 4-1*
     - *4.1.3 National Emission Standards for Hazardous Air Pollutants 4-2*
     - *4.1.4 Class I Operating Permit Program 4-3*

5. STATE SPECIFIC GENERAL REQUIREMENTS 5-1

APPENDIX A. NDEP FORMS A-1

APPENDIX B. MANUFACTURER SPECIFICATIONS B-1

APPENDIX C. EMISSION CALCULATIONS C-1

APPENDIX D. FACILITY PLOT PLANS D-1

APPENDIX E. ENVIRONMENTAL EVALUATION E-1

1. EXECUTIVE SUMMARY

Switch, Ltd. (Switch®) is recognized as the independent world-leader in exascale data center ecosystems, edge data center designs, industry-leading telecommunications solutions, and next-generation technology innovation. Switch believes that the future of humanity depends on the intelligent and sustainable growth of the Internet.

Switch is in the process of constructing an advanced technology ecosystem communications facility located at 1 Superloop Circle in McCarran, Nevada (the Facility). The Facility is located in the jurisdiction of the Nevada Division of Environmental Protection (NDEP) Bureau of Air Pollution Control (BAPC) and currently operates under the Class I Operating Permit to Construct (OPTC) No. AP7375-3672 (the Permit) for Facility ID No. A1896 issued by NDEP on January 30, 2015 and most recently revised on January 23, 2026.

With this OPTC revision application (the Application), Switch is proposing the following changes to the Permit (these changes are collectively referred to as the "Project"). A detailed discussion of the Project is provided in Section 2 of this Application.

- Revise one of the advanced technology ecosystem data centers currently authorized by the Permit (but not yet constructed) to reflect [redacted] diesel-fired engines powering emergency generators (emergency generators), [redacted] diesel-fired engine powering an emergency house generator (emergency house generator), and associated diesel storage tanks.
- Reflect other as-built changes to the Facility.

This report and associated appendices include all information required for a complete OPTC Revision application pursuant to Nevada Administrative Code (NAC) 445B.3363. Appendix A includes the Class I OPTC revision form, Appendix B includes the manufacturer specifications for the proposed emission units, Appendix C includes detailed emission calculations, Appendix D includes the proposed equipment location map, and Appendix E includes the environmental evaluation. Per NAC 445B.327, an application fee of $30,000 has been included with this Application and Switch will pay any additional processing fees. Switch requests that the NDEP letter, Approval for Request for Confidentiality (Air Case 13087), dated July 21, 2026, be applied to this application.[1]

[1] NDEP Approval of Request for Confidentiality for Revision of Class I Air Quality Operating Permit to Construct, AP7375-3672, FIN A1896A, Air Case 13087 – Switch, LTD. July 21, 2026.

2. FACILITY AND PROJECT INFORMATION

2.1 Facility Description

The Facility is located at 1 Superloop Circle, McCarran, NV. The Facility is approximately 15 miles east of Reno and approximately 30 miles northeast of Carson City in Hydrographic Area 83, also referred to as Basin 83 (HA83) or the Tracy Segment. This area is currently designated as unclassifiable and/or attainment for all criteria pollutants.[2] The Standard Industrial Classification (SIC) code for the Facility is 7375 (Information Retrieval Services) and the North American Industry Classification System (NAICS) code for the Facility is 518210 (Data Processing, Hosting, and Related Services).

2.2 Project Description

The Permit revisions proposed in this Application, including a description of the currently permitted Facility (Pre-Project Emission Units) and the post-Project Facility, are outlined in Table 2-1.[3,4] Note that Switch is not proposing any changes to the equipment currently included in Systems 2, 4, 5, and 8 of the Permit. The updated site map and emission unit layout that reflect the Facility Post-Project are provided in Appendix D.

[2] EPA Green Book accessed June 2026. https://www3.epa.gov/airquality/greenbook/anayo_nv.html

[3] Proposed operating restrictions associated with the Project's environmental evaluation are discussed in Appendix E.

[4] Diesel-fired emergency fire pump engines are referred to as "emergency fire pumps."

Table 2-1. Summary of Proposed Permit Changes

System in Permit	Pre-Project Emission Units	Post-Project Emissions Units	Description of Change
System 1	[redacted] Emergency Generators [redacted] referred to as the [redacted] engine).	[redacted] Emergency Generators [redacted] referred to as the [redacted] engine) [redacted] Emergency Generators [redacted] referred to as the [redacted] engine)	The changes to System 1 reflect a reconciliation of as-built [redacted] engine models. The balance of emergency generators currently included in System 1 [redacted] emergency generators) are proposed to be moved to a new System (Proposed System 10) as their emissions profile differs from [redacted] and [redacted] Note that while the [redacted] and [redacted] engines have slightly different model numbers, the emissions are equivalent and therefore will be covered under the same System.
	The combined units shall not operate more than 7,879.0 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations.	The combined units shall not operate more than 2,198.9 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations.	
System 2	[redacted] Emergency Fire Pumps [redacted]	No Changes	No Changes
	Each unit shall not operate more than 50 hours per 12-month rolling period.		
System 4	[redacted] Emergency House Generator [redacted]	No Changes	No Changes
	This unit shall not operate more than 100 hours per calendar year.		

System in Permit	Pre-Project Emission Units	Post-Project Emissions Units	Description of Change
System 5	[redacted] Emergency House Generator [redacted] This unit shall not operate more than 100 hours per calendar year.	No Changes	No Changes
System 6	[redacted] Emergency Generators [redacted] referred to as the [redacted] engine) These combined units shall not operate more than 8,380.0 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations.	[redacted] Emergency Generators [redacted] referred to as the [redacted] engine) These combined units shall not operate more than 7,394.4 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations.	The changes to System 6 reflect an update of the planned engine model for one of the advanced technology ecosystem data centers currently authorized by the Permit (but not yet constructed). In Air Case 12510, that data center was permitted to have [redacted] engines. Switch is instead proposing [redacted] engines for that not-yet-constructed data center (see Proposed System 11 in this Table).
System 7	[redacted] Emergency House Generators [redacted] referred to as the [redacted] engine) These combined units shall not operate more than 328.0 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations.	[redacted] Emergency House Generators [redacted] referred to as the [redacted] engine) These combined units shall not operate more than 246.5 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations.	The changes to System 7 reflect an update of the planned engine model for one of the advanced technology ecosystem data centers currently authorized by the Permit (but not yet constructed). In Air Case 12510, that data center was permitted to have [redacted] engines. Switch is instead proposing the emergency house generator in Proposed System 12 for that not-yet-constructed data center.
System 8	[redacted] Emergency Fire Pumps [redacted] Each unit may operate a total of 100 hours per year of non-emergency use. There is no time limit on operation in emergency situations.	No Changes	No Changes

System in Permit	Pre-Project Emission Units	Post-Project Emissions Units	Description of Change
System 9	[redacted] Emergency Generator [redacted]	No Changes	No Changes
	Each unit may operate a total of 100 hours per year of non-emergency use. There is no time limit on operation in emergency situations. The maximum allowable fuel consumption rate for each unit shall not exceed 26.5 gallons per hour, averaged over a calendar day, nor more than 2,650.0 gallons per 12-month period of non-emergency use.	Each unit may operate a total of 100 hours per year of non-emergency use. There is no time limit on operation in emergency situations. The maximum allowable fuel consumption rate for each unit shall not exceed 47.7 gallons per hour, averaged over a calendar day, nor more than 4,770.0 gallons per 12-month period of non-emergency use.	Switch proposes to revise the System 9 fuel consumption rates based on updated engine specifications received (see Appendix B).
Proposed System 10	N/A	[redacted] Emergency Generators [redacted] referred to as the [redacted] engine) These combined units shall not operate more than 5,680.4 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations. The maximum allowable fuel consumption rate for each unit shall not exceed 206.5 gallons per hour, averaged over a calendar day, nor more than 12,614.8 gallons per 12-month period of non-emergency use.	See "Description of Change" for System 1.

System in Permit	Pre-Project Emission Units	Post-Project Emissions Units	Description of Change
Proposed System 11	N/A	[redacted] Emergency Generators [redacted] referred to as the [redacted] engine) These combined units shall not operate more than 13,458.2 hours per 12-month rolling period for post-commissioning testing, maintenance, and non-emergency operations. The maximum allowable fuel consumption rate for each unit shall not exceed 42.3 gallons per hour, averaged over a calendar day, nor more than 1,976.7 gallons per 12-month period of non-emergency use.	See "Description of Change" for System 6.
Proposed System 12	N/A	[redacted] Emergency House Generator [redacted] referred to as the MTU emergency house generator) This unit shall not operate more than 100 hours per calendar year. The maximum allowable fuel consumption rate for each unit shall not exceed 111.0 gallons per hour, averaged over a calendar day, nor more than 11,100.0 gallons per 12-month period of non-emergency use.	See "Description of Change" for System 7.
Insignificant activities	Diesel tanks associated with the back-up generator, capacity <40,000 gallons (removed October 2017)		N/A
	[redacted] Fluid Coolers [redacted] (revised February 2025, Air Case 12007)	[redacted] Fluid Coolers	Increase number of fluid coolers.

3. EMISSIONS INFORMATION

3.1 Project Emissions

The emergency generators, emergency house generators, and emergency fire pumps at the Facility result in nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter (PM), particulate matter with an aerodynamic diameter of less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter of less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOC), greenhouse gases (GHG), and hazardous air pollutants (HAP) emissions. The fluid coolers at the Facility result in PM, PM_{10}, and $PM_{2.5}$ emissions. The following sections describe emission calculation methodologies associated with the sources at the Facility.[5] Appendix B includes the manufacturer's specification sheets for the Post-Project emission units. Detailed emission calculations are provided in Appendix C of this report. Table 3-1 contains a summary of the Pre- and Post-Project Potential to Emit (PTE).

3.1.1 Emergency Generators and Emergency House Generators

Switch is proposing a Facility-wide planned and predictable, post-commissioning, annual limit (hours/year) for all the post-commissioning maintenance, testing, and non-emergency operation of the emergency generators and emergency house generators to determine annual PTE emissions. Calculations for the criteria pollutants are based on the annual hours of operation for all engines at the specified power output for each post-commissioning maintenance, testing, and non-emergency operation. To provide the Facility with operational flexibility, Switch requests System-wide annual operating hour limits for the emergency engines, as outlined in Table 2-1 and consistent with the structure of the current Permit.

For the [redacted] engines, and [redacted] emergency house generator the following methodologies were used to calculate emissions. NO_x, CO, PM, and VOC emissions are calculated using the manufacturer provided emission factors contained in the emission data sheet (refer to Appendix B) at various power loads. PM_{10} and $PM_{2.5}$ emissions are conservatively assumed to be equal to PM emissions. For the [redacted] and [redacted] engines, the engine power and emission factor for loads not provided by the manufacturer were calculated based on interpolation of the values between the nearest available loads. For purposes of calculating emissions, it was assumed that operations at 0% load are represented by 3% load emission factors. For the [redacted] and [redacted] engines it was assumed that operations at 0% load are represented by 10% load emission factors.

For [redacted] and [redacted] house generator engines the SO_2 emission factors have been calculated in accordance with AP-42 Table 3.4-1. The engines will use ultra-low sulfur diesel or renewable diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra-low sulfur diesel fuel, as defined under Title 40 of the Code of Federal Regulations (40 CFR) part 80, Subpart I, Section 80.510(c)(1). The [redacted] and [redacted] engines' SO_2 emissions are calculated using emission factors provided by the manufacturer (and included in Appendix B) at various power loads.

The GHG pollutants expected to be emitted include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Standard emission factors for N_2O, CO_2, and CH_4 are provided in 40 CFR Part 98, Subpart C, Table C-1 and Table C-2. The global warming potential for each relevant pollutant is obtained from 40 CFR Part 98, Subpart A, Table A-1. Calculations for GHG pollutants are based on the emission factor for each GHG pollutant, the relevant global warming potential, annual hours of operation, and the maximum heat input of

[5] No changes are being proposed to the Facility's emergency fire pumps, so their calculation methodology is not described further in this Application.

the engine. Note that the GHG emissions for all engines were revised from the previous permit to reflect the updated global warming potentials per 40 CFR 98 Subpart A, Table A-1. HAP emissions for engines being added or revised with this application are based on the maximum heat input and annual hours of operation.

Emission factors for HAPs are obtained from AP-42, Section 3.4, Tables 3.4-3 and 3.4-4. To be conservative, HAP emissions are calculated for all speciated organic compounds and polycyclic aromatic hydrocarbons (PAH), provided in AP-42, Section 3.4, Tables 3.4-3 and 3.4-4.

Pursuant to the March 3, 2023, Notification of Authorized Change Approval (Air Case 11514), Switch is authorized to combust diesel fuel or renewable diesel fuel, both with a maximum sulfur content of 15 ppm, a minimum cetane index of 40, and a maximum aromatic content of 35 volume percent for the existing emergency engines and is proposing to use this fuel for the proposed emergency engines.

3.1.2 Fluid Coolers

Emission calculations are performed for each fluid cooler. Calculations are based on the annual hours of operation (8,760 hours/year) at the maximum flow rate capacity of each fluid cooler ([redacted] gpm) and total dissolved solids (TDS) concentration ([redacted] ppm) consistent with the October 23, 2017, report by ALS Global. Conservatively, PM_{10} and $PM_{2.5}$ are assumed to be equivalent to PM and are calculated using cooling tower flow rate, TDS concentration, and drift rate (based on the drift eliminators equipped on the units). As noted in Section VIII of the Permit, these emission units are classified as insignificant activities per NAC 445B.288.4. Emissions are quantified in support of the Environmental Evaluation included in Appendix E.

3.1.3 Diesel Tanks

As discussed in Table 2-1, the engines have associated diesel tanks. Each of the tank emissions are expected to be minimal. As such, Switch claims these tanks to be insignificant activities under NAC 445B.288.2(d) and are exempt from permitting (consistent with the Permit's IA Units table).

3.1.4 Summary of Project PTE Emissions

Table 3-1 summarizes the annual Facility-Wide PTE emissions pre-Project and post-Project based on the changes outlined in Table 2-1.

Table 3-1. Facility and Project PTE Calculation (tons/year)

System	Name	Quantity	PM (tpy)	$PM_{10}/PM_{2.5}$ (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_x (tpy)	HAP (tpy)	GHG (tpy)
Project Emissions Summary										
Pre-Project Facility PTE [1]			4.42	4.42	0.23	17.86	27.80	172.54	0.23	22,942.71
Post-Project Facility PTE [2]			5.33	5.33	0.20	14.56	34.89	191.97	0.24	24,916.34
Net Project PTE [3]			0.92	0.92	-3.21E-02	-3.30	7.09	19.42	1.89E-02	1,973.63
NDEP Environmental Evaluation Threshold [4] (tpy)			10	10	10	10	10	10	-	
NDEP Class I Thresholds [5] (tpy)			100	100	100	100	100	100	10/25	-
Prevention of Significant Deterioration (PSD) Thresholds [6] (tpy)			250	250	250	250	250	250	-	75,000
Does Project PTE Exceed the Environmental Evaluation Threshold?			No	No	No	No	No	Yes	-	-
Does Post-Project Facility PTE Exceed Class I Thresholds?			No	No	No	No	No	Yes	No	-
Does Post-Project Facility PTE Exceed PSD Thresholds?[7]			No	No	No	No	No	No	No	No

1. Pre-Project Facility PTE (tpy) = sum of emissions from all emission units (tpy) in Pre-Project PTE. This is consistent with the permitted emissions except for GHG which was updated to reflect the revised global warming potentials in 40 CFR Part 98 Subpart A.
2. Post-Project Facility PTE (tpy) = sum of emissions from all emission units (tpy) in Post-Project Facility PTE.
3. Net Project PTE (tpy) = Post-Project Facility PTE (tpy) - Pre-Project Facility PTE (tpy).
4. Per NAC 445B.310(1)(b)(2), an environmental evaluation is required for modifications with an emission increase greater than 10 tpy at an existing facility with emissions greater than 25 tpy.
5. The Class I thresholds are defined in NAC 445B.036 [40 CFR 52.21] as 100 tpy of any air contaminant and 10 tpy of any individual HAP or 25 tpy of combined HAP.
6. The PSD thresholds are defined in 40 CFR 52.21(b)(1)(ii) as 250 tpy of any regulated NSR pollutant for sources not listed in 40 CFR 52.21(b)(1)(i).
7. GHG SER as provided under "subject to regulation" definitions in 40 CFR 51.166(b)(48) and 52.21(b)(49). Unlike other pollutant SERs, a GHG SER is not listed in 40 CFR 51.166(b)(23) or 52.21(b)(23). Per 40 CFR 52.21(b)(49)(iv): "...the pollutant GHGs is subject to regulation if: (a) The stationary source is a new major stationary source for a regulated NSR pollutant that is not GHGs, and also will emit or will have the potential to emit 75,000 tpy CO_2e or more; or (b) The stationary source is an existing major stationary source for a regulated NSR pollutant that is not GHGs, and also will have an emissions increase of a regulated NSR pollutant, and an emissions increase of 75,000 tpy CO_2e or more."

4. REGULATORY REVIEW

The Facility is subject to federal and local air regulations. This section summarizes the air permitting requirements and the key air quality regulations that apply to the Facility. Specifically, the applicability of PSD, New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and NDEP regulations are addressed. The applicability of certain general provisions is not detailed in this narrative summary.

4.1 Federally Applicable Regulations

4.1.1 NSR Applicability (Non-Attainment New Source Review/PSD)

The NSR permitting program generally requires a stationary source to obtain a permit and undertake other obligations prior to construction of any project at an industrial facility if the proposed project results in emission increases in excess of certain threshold levels. The NSR program is comprised of two elements: Non-Attainment NSR (NNSR) and PSD. The NNSR program potentially applies to new construction or modifications that result in emission increases of a particular pollutant for which the area in which the facility is located is classified as "nonattainment" for that pollutant. The PSD program potentially applies to project increases of those pollutants for which the area the facility is located in is classified as "attainment" or "unclassifiable".

The Facility is located in Hydrographic Area 83, also referred to as Basin HA83 or Tracy Segment. Tracy Segment is currently designated as unclassifiable and/or attainment for all criteria air pollutants.[6] As such, NNSR does not apply. A stationary source is considered "major" for PSD if it has the potential to emit either (1) 100 tons per year or more of a regulated pollutant if the source is classified as one of 28 designated industrial source categories, or (2) 250 tons per year or more of any regulated pollutant for unlisted sources. Given that data centers are not on the list of 28 industrial source categories and that the post Project site-wide PTE for all regulated pollutants (NO_x, SO_2, $PM_{10}/PM_{2.5}$ and CO) is under the 250 tons per year threshold for PSD (see Table 3-1), the Facility will continue to be considered a PSD minor source.

4.1.2 New Source Performance Standards

NSPS require new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology as specified in the applicable provisions. Moreover, any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A, unless specifically excluded.

4.1.2.1 Subpart A- General Provisions

All affected sources are subject to the general provisions of NSPS Subpart A unless specifically excluded by the source specific NSPS. Subpart A requires initial notification and performance testing, recordkeeping, monitoring, provides reference methods, and mandates general control device requirements for all other subparts as applicable.

4.1.2.2 Subpart Kc- Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023

NSPS Kc, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023*,

[6] EPA Green Book accessed June 2026. https://www3.epa.gov/airquality/greenbook/anayo_nv.html

applies to owners or operators of storage vessels that store Volatile Organic Liquids and that are above certain capacity thresholds. The diesel tanks for the emergency generators and emergency house generators included in this Project are not subject to NSPS Kc since their capacity will be less than 75.7 cubic meters per §60.110c(a).

4.1.2.3 Subpart IIII- Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

NSPS Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, applies to any owner or operator of a stationary compression ignition (CI) internal combustion engine (ICE) for which construction has commenced after July 11, 2005. The emergency generators and emergency house generators included in this Project are considered CI ICE and construction has or will commence after July 11, 2005. Therefore, the emergency generators and emergency house generators are subject to the requirements under NSPS Subpart IIII.

Each of the emergency generators and emergency house generators meets the definition of an emergency stationary ICE per 40 CFR 60.4219 and will comply with 40 CFR 60.4211. Switch will follow all requirements for emergency ICE as stipulated under NSPS Subpart IIII.

4.1.2.4 Subpart JJJJ- Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

NSPS Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, applies to any owner or operator of a spark ignition (SI) ICE emergency engine with a maximum engine power greater than 25 hp, on or after January 1, 2009. SI ICE are fired with gasoline, liquid petroleum gas (LPG), methanol, ethanol, bioethanol, compressed natural gas, hydrogen, and nitromethane but not diesel. Therefore, the emergency generators and emergency house generators in this Application are not considered an SI ICE and are not subject to NSPS Subpart JJJJ.

4.1.3 National Emission Standards for Hazardous Air Pollutants

NESHAP, federal regulations found in Title 40 Parts 61 and 63 of the CFR, are emission standards for HAP and are primarily applicable to major sources of HAP (facilities that exceed the major source thresholds of 10 tpy of a single HAP and 25 tpy of any combination of HAP from stationary sources) or specifically designated area sources. NESHAP apply to sources in specifically regulated industrial source classifications (Clean Air Act Section 112(d)) or on a case-by-case basis (Clean Air Act Section 112(g)) for facilities not regulated as a specific industrial source type. Pollutant specific NESHAP may also be applicable.

The Facility will not have post-project potential to emit more than 10 tons per year of any specific HAP or 25 tons of combined HAP (see Table 3-1). Therefore, the Facility will continue to be classified as an area source with respect to 40 CFR Part 63 and will not be subject to any NESHAP subparts specifically applicable to major sources. Applicability determinations and a summary of the applicable emissions standards for the Project are provided in the following subsections.

4.1.3.1 Subpart A- General Provisions

All affected sources are subject to the general provisions of Part 63 NESHAP Subpart A unless specifically excluded by the source-specific NESHAP. Subpart A requires initial notification and performance testing, recordkeeping, monitoring, provides reference methods, and mandates general control device requirements for all other subparts as applicable.

4.1.3.2 *Subpart Q- National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers*

40 CFR 63 Subpart Q, *NESHAP for Industrial Process Cooling Towers*, applies to cooling towers operating with chromium-based water treatment chemicals that are located at facilities that are major sources of HAP. The Facility will be an area source of HAP and as such the Facility's fluid coolers are not subject to this standard.

4.1.3.3 *Subpart ZZZZ- National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)*

NESHAP Subpart ZZZZ, *NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE)* establishes emission and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. The emergency generators and emergency house generators will be subject to the RICE NESHAP in accordance with 40 CFR 63.6585. Pursuant to 40 CFR 63.6590(c)(1), new CI stationary RICE located at an area source must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR Part 60 Subpart IIII, and no additional requirements under Subpart ZZZZ apply to such engines. Therefore, Switch will comply with the requirements of the RICE NESHAP for the emergency generators and emergency house generators by complying with NSPS Subpart IIII.

4.1.4 Class I Operating Permit Program

40 CFR Section 70 establishes the major source operating permit program. The major source thresholds with respect to the NDEP Class I operating permit program for sources in attainment areas are 10 tons per year of a single HAP, 25 tpy of any combination of HAP, or 100 tpy of a criteria pollutant. The Facility will continue to have potential emissions of NO_x exceeding the 100 tpy major source threshold (see Table 3-1). As a result, the Facility will continue to be considered a major source per NAC 445B.094.

5. STATE SPECIFIC GENERAL REQUIREMENTS

NAC 445B.295, NAC 445B.296, and NAC 445B.3363 outline requirements for content on applications for an operating permit/permit to construct, as an application for an OPTC revision must comply with the requirements for an application for a Class I operating permit. The regulatory text from NAC 445B.295, NAC 445B.296, and NAC 445B.3363 are included in ***italic, bold*** text. This section also includes Switch's action to meet each requirement in plain text. All applicable NAC requirements have been identified and addressed in the Class I OPTC revision form provided in Appendix A of the Application.

NAC 445B.295 Application: General requirements

1. Information to identify the applicant, including the name and address of the company or the name and address of the plant if different from that of the company, the name of the owner of the company and the owner's agent, and the name and telephone number of the manager of the plant or another appropriate person to contact;

Please refer to the Class I OPTC revision form in Appendix A for identifying information.

2. A description of the stationary source's processes and products by Standard Industrial Classification Code, including any processes and products associated with an alternative operating scenario identified by the owner or operator;

Please refer to Section 2 of the Application for relevant information.

3. A description of the fuels, fuel use and raw materials to be used and the rates of production and operating schedules for each emission unit which is a part of the stationary source;

Please refer to Sections 2 and 3 of the Application for this information.

4. An identification and a description of any equipment for the control of air pollution and any devices or activities for monitoring compliance with emission limitations;

All the equipment proposed has no specific control devices outside the inherent process equipment (e.g., drift eliminators on fluid coolers, turbochargers on generators, etc.). See Section 3 for more details on the PTE calculations.

5. Limitations on the operation of the stationary source or any standards for work practices which affect emissions for all regulated air pollutants at the stationary source;

Please refer to Sections 2 and 3 of this Application for this information.

6. An explanation of any proposed exemption from any applicable requirement;

Switch is proposing that the diesel tanks associated with the emergency generators and emergency house generators be designated as insignificant activities and exempt from permitting under NAC 445B.288.2(d) and the fluid coolers to be insignificant activities under NAC 445B.288.4. The emergency generators and emergency house generators are exempt from the initial notification requirements per 40 CFR Part 60.4214(b).

7. The location of any records that the applicant must keep pursuant to the requirements of the operating permit, if the records are kept at a location other than the emitting facility; and

All compliance related records will be retained either on-site or electronically.

8. Other specific information that the Director determines is necessary to carry out, enforce and determine the applicability of all legal requirements.

Switch will provide, as requested, any additional information requested by NDEP to meet this requirement. Switch requests that commercially or security sensitive information be protected as confidential, to the extent permissible by the Nevada Revised Statutes (NRS).

NAC 445B.296 Application: Requests for inclusion of additional provisions

If an applicant for an operating permit requests the inclusion of:

1. Provisions for alternative operating scenarios, the application must:

(a) Define each scenario;

(b) Demonstrate that each scenario will comply with each applicable requirement or relevant requirement of NAC 445B.001 to 445B.390, inclusive;

(c) Contain proposed conditions of the permit which will ensure compliance with any applicable requirements, including a requirement for contemporaneous log entries each time the stationary source changes from one scenario to another; and

(d) Contain any additional information that the Director determines is necessary to process the application.

Switch is not proposing any alternative operating scenarios with this Application.

2. A federally enforceable emissions cap, the application must:

(a) State each applicable requirement that the applicant seeks to avoid;

(b) Demonstrate that the applicant will comply with any applicable requirements that the applicant does not avoid with the federally enforceable emissions cap;

(c) Contain proposed conditions of the operating permit which will ensure compliance with any applicable requirement; and

(d) Contain any additional information that the Director determines is necessary to process the application.

Switch requests a federally enforceable emissions cap to avoid PSD major source status at the Facility. Switch will comply with all applicable requirements and Section 2 of this Application contains the proposed conditions to ensure compliance with any applicable requirement. Switch will submit any additional information that NDEP determines is necessary.

NAC 445B.3363 Operating permit to construct: Application

1. Except as otherwise provided in NAC 445B.33637, in addition to the information required pursuant to NAC 445B.295, an application for a Class I operating permit to construct or for a revision of a Class I operating permit to construct must include:

(a) Descriptions of all emissions of any regulated pollutants for which the source is defined as a major source.

(b) A description of all emissions of regulated air pollutants from all emission units.

(c) An identification and a description of all points of emissions and all activities which may generate emissions of the regulated air pollutants described pursuant to paragraph (a) in sufficient detail to establish the basis for the applicability of standards and fees.
(d) The emission rates of all regulated air pollutants that are subject to an emissions limitation pursuant to an applicable requirement. The emission rates must be described in tons per year and in such terms as are necessary to establish compliance using the applicable standard reference test method.
(e) Any other information required by any applicable requirement.
(f) The calculations on which the information described in this subsection are based.
(g) Citations to and a description of all applicable requirements.
(h) A reference to any applicable test method used for determining compliance with each applicable requirement.

Please refer to Section 3, Appendix B, and Appendix C, in this Application for identifying information.

2. Except as otherwise provided in NAC 445B.33637, in addition to the information required pursuant to subsection 1, an application for a Class I operating permit to construct must contain:
(a) For a proposed new major stationary source, a proposed major modification to an existing stationary source or a major modification at an existing major stationary source:
(1) All information required pursuant to 40 C.F.R. § 52.21;
(2) A description of all emissions of each regulated pollutant:
(I) For which the source is a major stationary source; or
(II) That will, because of the major modification, result in a significant emissions increase or a significant net emissions increase in accordance with 40 C.F.R. § 52.21(a)(2);
(3) A description of all emissions of each regulated pollutant associated with the major modification;
(4) A description of each hydrographic area that may be triggered for increment consumption; and
(5) Any other information that the Director determines is necessary to process the application.

The modification is not a major modification with respect to 40 CFR 52.21 and therefore this section does not apply.

(b) For a proposed new major source or a proposed modification which is not a major modification:
(1) All information required by NAC 445B.308 to 445B.311, inclusive;

As the Project proposes a modification which is not considered a major modification, Switch reviewed NAC 445B.308 to 445B.311. NAC 445B.308 applies to the prerequisites and conditions for issuance or revision of an operating permit. NAC 445B.310 requires an environmental evaluation for modifications at existing sources who have a site wide PTE of greater than 25 tpy of a regulated air pollutant and who proposes a modification exceeding 10 tpy of a regulated air pollutant. As shown in Table 3-1, the Project's emissions do exceed 10 tpy of any regulated air pollutant and therefore an environmental evaluation is required. NAC 445B.310 specifies the requirements of an environmental evaluation. An environmental evaluation meeting these requirements is provided in Appendix E.

(2) Any other information that the Director determines is necessary to process the application; and

In addition to the information provided as part of this Application, Switch will readily provide any additional information requested by NDEP.

(3) For stationary sources subject to the provisions regarding new source review set forth in 42 U.S.C. §§ 7501 to 7515, inclusive, all information required by 42 U.S.C. § 7503.

The Facility is located in an area currently designated as unclassifiable and/or attainment for all regulated air pollutants.[7] Therefore the nonattainment provisions set forth in 42 U.S.C. §§ 7501 to 7515 do not apply.

(c) For a source, or proposed source, subject to the requirements of 40 C.F.R. §§ 63.40 to 63.44, inclusive:

(1) All information required by 40 C.F.R. § 63.43(e); and

(2) Any other information that the Director determines is necessary to process the application.

The Facility is not subject to the requirements of 40 CFR §§ 63.40 to 63.44 since it will remain an area source of HAPs post Project and does not meet the definition of an affected source per §63.41.

(d) For a source, or proposed source, subject to the requirements of 40 C.F.R. §§ 63.50 to 63.56, inclusive:

(1) All information required by 40 C.F.R. § 63.53; and

(2) Any other information that the Director determines is necessary to process the application.

The Facility is not subject to the requirements of 40 CFR §§ 63.50 to 63.56 since the emission sources are subject to applicable emission standards as noted in Section 4 and therefore do not meet the definition of an affected source per §63.51.

3. Except as otherwise provided in NAC 445B.33637, in addition to the information required pursuant to subsections 1 and 2, an application for a Class I operating permit to construct for a modification at an existing major stationary source that is not a major modification must contain:

(a) All applicable information required to determine whether the project or modification will result in a significant emissions increase or a significant net emissions increase in accordance with 40 C.F.R. § 52.21(a)(2);

(b) A description of the project or modification, including all emission units;

(c) A description of the applicable procedures used to determine that the project or modification is not a major modification pursuant to the provisions of 40 C.F.R. § 52.21(a)(2);

(d) All calculations associated with the procedures required to make the determinations pursuant to 40 C.F.R. § 52.21(a)(2), including detailed information for expected and highest projections of any business activities in accordance with 40 C.F.R. § 52.21(b)(41)(ii)(a);

(e) Calculations of emissions in accordance with 40 C.F.R. § 52.21(b)(41)(ii)(b); and

[7] EPA Green Book accessed June 2026. https://www3.epa.gov/airquality/greenbook/anayo_nv.html

(f) Detailed information used to demonstrate that emissions increases associated with any increased utilization that an emission unit could have accommodated during the baseline emission period is unrelated to the proposed project or modification, including any increased utilization due to product demand growth, in accordance with 40 C.F.R. § 52.21(b)(41)(ii)(c). In lieu of paragraphs (d), (e) and (f), the application must contain information on the potential of the unit to emit in accordance with 40 C.F.R. § 52.21(b)(41)(ii)(d).

The Facility is not a major stationary source with respect to 40 CFR 52.21 and therefore this section does not apply.

4. Except for a source, or proposed source, subject to the requirements of 40 C.F.R. §§ 63.40 to 63.44, inclusive, or 40 C.F.R. §§ 63.50 to 63.56, inclusive, in addition to the information required pursuant to subsections 1, 2 and 3, an application for an operating permit to construct must include an environmental evaluation pursuant to NAC 445B.308, 445B.310 and 445B.311.

As discussed, the environmental evaluation requirements under NAC 445B.310 are triggered and that evaluation is provided in Appendix E.

5. As used in this section, "project" has the meaning established in 40 C.F.R. § 52.21, as adopted by reference in NAC 445B.221.

The Project referenced in this Application has been defined consistent with the meaning established in 40 CFR § 52.21.

APPENDIX A. NDEP FORMS

Class I

Air Quality Operating Permit (AQOP), Operating Permit to Construct (OPTC), and Prevention of Significant Deterioration (PSD)
Application Form

Facility Name: Switch, Ltd.
Existing Facility ID: A1896
Existing Class I AQOP/OPTC: AP7375-3672
Type of Facility: Data Center
Number of Units (including IA's) in Facility: [redacted]
Number of Units (including IA's) Affected in Action: [redacted]

Application Type:

- ☐ New AQOP
- ☐ Minor Revision of Existing AQOP
- ☐ Significant Revision of Existing AQOP
- ☐ Renewal of Existing AQOP
- ☐ New OPTC
- ☒ Revision of OPTC
- ☐ Rollover OPTC to a New AQOP
- ☐ Rollover OPTC to Existing AQOP
- ☐ Administrative Revision of Existing AQOP
- ☐ New PSD AQOP
- ☐ Major PSD Revision of AQOP
- ☐ New PSD OPTC
- ☐ Major PSD Revision of OPTC

NDEP

Please Submit Application to:
Nevada Division of Environmental Protection
Bureau of Air Pollution Control, Class I Permitting Branch
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701-5249
Phone (775) 687-9349

August 2026
(Ver. 6)

IMPORTANT INFORMATION

- The Application packet contains:
  - General Company Information Form
  - Industrial Process Application Form
  - Combustion Equipment Application Form
  - Storage Silo Application Form
  - Liquid Storage Tanks Application Form
  - Facility-Wide Potential to Emit Table
  - Surface Area Disturbance Form
  - Plant Boundary Coordinates Form
  - Plant Building Parameters Forms
  - Application Certification Document with Required Attachments

- Please see the Guidance Document located at https://ndep.nv.gov/air/permitting/air-permit-forms-and-resources for additional instructions on how to complete the application.
- The application is available from the Nevada Division of Environmental Protection – Bureau of Air Pollution Control (BAPC) in a Microsoft Word file, or on the internet at https://ndep.nv.gov/air/permitting/air-permit-forms-and-resources. A printed copy of the application must be submitted (mailed or hand delivered), along with an electronic version.
- The application filing fee required by Nevada Administrative Code (NAC) 445B.327 must be submitted with the completed application. Checks must be made payable to the "Nevada State Treasurer, Environmental Protection" with "BAPC" noted in the memo line. Fees may also be submitted electronically at https://epayments.ndep.nv.gov/.
- This application shall be used for a new, renewal, and revision of Class I sources, including AQOP, OPTC, rollover OPTC, and PSD actions.
- An application for a Class I AQOP, OPTC, and PSD must be signed by the Responsible Official, as defined in NAC 445B.156. The certification document (signature page) is the last page of the application and the original "wet" signature must be provided.
- All items in the application must be addressed. If an item does not apply "N/A" or similar notation must be entered in the appropriate blank. All other information must be provided. Incomplete applications will be returned to the Responsible Official within:
  - 45 days for a new or revision of Class I OPTC. (NAC 445B.3364(1))
  - 30 days for sources subject to permitting requirements set forth in 40 CFR 52.21 applying for a new or revision of Class I PSD OPTC. (NAC 445B.3364(2))
  - 60 days for a new, significant revision, or renewal of Class I AQOP. (NAC 445B.3395(1), NAC 445B.3443(3))
  - 10 working days for a minor revision of Class I AQOP. (NAC 445B.3395(5))
  - 30 days for sources subject to permitting requirements set forth in 40 CFR 52.21 applying for a new of Class I PSD. (NAC 445B.3395(2))
  - 45 days for an administrative revision of Class I OPTC. (NAC 445B.3441(2) and NAC 445B.3364(1))

IMPORTANT INFORMATION (continued)

- For the renewal of a Class I Operating Permit, a **complete** application and corresponding processing fee must be submitted in accordance with NAC 445B.3443(2) at least 240 days prior to the expiration date of the current permit but not earlier than 18 months. The BAPC suggests that the application be submitted well in advance of the timeline outlined in NAC 445B.3443 to ensure the application is deemed complete. The BAPC has 60 days to deem the application complete or incomplete. As stated above, incomplete applications will be returned within 60 days of the receipt of the application. Therefore, the BAPC recommends the application be submitted at least 300 days prior to expiration of the current permit.
- For stationary sources subject to the provisions regarding new source review set forth in United States Code (U.S.C.) Title 42 7501 through 7515, inclusive (nonattainment areas), include all information required by U.S.C. Title 42 7503 pursuant to NAC 445B.3363(2)(b)(3).
- For a proposed new major source or a proposed major modification to an existing stationary source that is subject to the provisions of 40 CFR 52.21, include all information required by 40 CFR 52.21 pursuant to NAC 445B.3368(3)(a).
- For a proposed new major source, or a proposed significant revision to an existing stationary source which is not subject to the provisions of 40 CFR 52.21, include all information as required by NAC 445B.308 through 445B.313, inclusive, pursuant to NAC 445B.3368(3)(b).
- For a proposed new major source or a proposed significant revision to an existing stationary source which is subject to the requirements of U.S.C. Title 42 7412 regarding hazardous air pollutants, include all information required by NAC 445B.308 through 445B.313, inclusive, pursuant to NAC 445B.3368(3)(c).

GENERAL COMPANY INFORMATION FORM

1. **Briefly describe the permitted facility's process and include the Standard Industrial Classification (SIC) number and North American Industry Classification System (NAICS). Add details in the attached Process Narrative.**

   SIC: 7375 (Information Retrieval Services), NAICS: 518210 (Data Processing, Hosting, and Related Services)

2. **Company Name and Address that are to appear on the operating permit [NAC 445B.295(1)]:**

   Name: Switch, Ltd.
   Address: 1 Superloop Circle
   City: McCarran
   State: NV Zip Code: 89434

3. **Owner's Name and Address [NAC 445B.295(1)]:**

   Name: Switch, Ltd.
   Address: 7135 South Decatur Blvd.
   City: Las Vegas
   State: NV Zip Code: 89118

4. **Facility Name and Physical Address, if different from #2 [NAC 445B.295(1)]:**

   Name: Same as #2
   Address:
   City:
   State: Zip Code:

5. **If records required under the operating permit will be kept at a location other than the facility, specify that location [NAC 445B.295(7)]:**

   Name:
   Address:
   City:
   State: Zip Code:

GENERAL COMPANY INFORMATION FORM (continued)

6. Responsible Official Name, Title and Mailing Address [NAC 445B.295(1)]:

Name: Devon White
Title: Vice President of Data Center Operations
Address: 1 Superloop Circle
City: McCarran
State: NV Zip Code: 89434
Phone Number: (702) 449-8827
Fax Number: N/A
E-mail Address: dwhite@switch.com

Is this a new Responsible Official? ☐ Yes ☒ No
If yes, and the Responsible Official (RO) does not meet the definition under NAC 445B.156 then please fill out the "Responsible Official Identification/Designation/Change Request Form" and mail it in. (https://ndep.nv.gov/air/permitting/download-permit-forms)

7. Plant Manager or other appropriate Contact Name, Title and Address [NAC 445B.295(1)]:

Name: Devon White
Title: Vice President of Data Center Operations
Address: 7135 South Decatur Blvd.
City: Las Vegas
State: NV Zip Code: 89118
Phone Number: (702) 449-8827
Fax Number: N/A
E-mail Address: dwhite@switch.com

8. Location and Driving Directions to the Facility (For Example: From Elko, Nevada, 4 miles south of I-80 at xx Interchange) [NAC 445B.295(8)]:

Hydrographic Basin (HA) Number: HA 83
HA Basin Name: Tracy Segment of Truckee River Basin / Storey County

Township(s): 19 N; Range(s): 22 E; Section(s): 10, 11, 13, 14, 15, 16, 21, 22, 23, 24, 26, 27

UTM Coordinates for the Front Gate of the Facility (NAD 83, Zone 11):
4,377,021 m North; 286,947 m East;
Nearest City: McCarran, NV
County: Storey

Driving Directions from nearest city to the Facility:
The Facility is located approximately 15 miles east of Reno, NV, on I-80, from there take USA Pkwy to the South and the Facility is approximately 4 miles on the west side of USA Pkwy

GENERAL COMPANY INFORMATION FORM (continued)

9. Emission Cap Requested [NAC 445B.070, NAC 445B.296(2), NAC 445B.296(3)]:

☒ Yes ☐ No (If yes, provide details in the attached Process Narrative)

10. **Important note** for completing the Industrial Process, Combustion Equipment, Storage Silo, and Liquid Storage Tank Application Forms: forms need to be included for all permitted emission units and insignificant activities. Provide additional forms as needed. All items in the application must be addressed. If an item does not apply, then "N/A" or similar notation (TDB, unknown, etc.) must be entered in the appropriate blank.

11. Check one that applies:

☐ Major Stationary Source [40 CFR 52.21]

☐ Minor Source [40 CFR 71.2]

☒ New Source Review (NSR) Synthetic Minor Source [40 CFR 49.167]

12. Is the Facility subject to 40 CFR 51.307 and 52.21(p) (i.e., located within 100 km of a Class I Federal Area within Nevada and any adjacent states, for example Jarbidge Wilderness Area) protected by the Regional Haze Program (40 CFR Part 81)?

☐ Yes ☒ No

13. Check any of the following that apply to this application: This is a revision to an OPTC and not an OP, therefore these do not

☐ Involve significant changes to the existing requirements for monitoring, reporting, or recordkeeping.

☐ Require or change a determination of an emission limitation or other standard on a case-by-case basis.

☐ Require or change a visibility or increment analysis.

☐ Require or change a determination of ambient impact for any temporary source.

☐ Establish or change a condition of the operating permit for which there is no a federally enforceable emissions cap and/or an alternative emission limitation pursuant to U.S.C. Title 42 7412(i)(5).

☐ Result in an increase in allowable emissions that exceeds any of the following specified thresholds: Carbon monoxide, 100 tons per year; Nitrogen oxides, 40 tons per year; Sulfur dioxide (SO_2), 40 tons per year; Particulate Matter less than or equal to 10 microns in diameter (PM_{10}), 15 tons per year; Ozone (O_3), 40 tons per year of volatile organic compounds (VOC); Sulfuric acid mist, 7 tons per year; and Hydrogen sulfide (H_2S), 10 tons per year.

☐ Modification pursuant to any provision of U.S.C. Title 42 7401 to 7515, inclusive, or a major modification at an existing major stationary source.

If any of the boxes were checked above, a minor revision may not be made to the Class I Operating Permit pursuant to NAC 445B.3425.

14. Will the Facility be constructed in more than one phase [NAC 445B.3395(17)]?

☒ Yes ☐ No (If yes, provide details in the attached Process Narrative)

GENERAL COMPANY INFORMATION FORM (continued)

15. Will the facility violate any "Applicable requirement" pursuant to NAC 445B.019?
☐ Yes ☒ No

16. Verify facility's compliance status for the following regulations and describe the reason for exemption if applicable:

FEDERALLY ENFORCEABLE REQUIREMENTS			
NAC 445B.225	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.315(3)(h)	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.315(3)(i)	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.315(3)(k)	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
40 CFR 52.21(r)(4)	☐ Compliant	☐ Not Compliant	☒ Exempt, *40 CFR 52.21 is not applicable and the source is not a major stationery source and the project is not a major modification*
NAC 445B.252	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.22067	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.22093	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.22037	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.227	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
40 CFR Parts 60.1-60.19, 61.01-61.19, 61.140-61.157, 63.1-63.15, and 70	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
40 CFR Part 82	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.230	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.22017	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*

STATE REQUIREMENTS			
NRS 445B.470	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.22013	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.326(1)	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 445B.22087	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*
NAC 459.952-459.95528	☒ Compliant	☐ Not Compliant	☐ Exempt, *Reason for Exemption*

17. Has the facility provided modeling for each non-combustion baghouse individually? (See Testing Determination System for Baghouses Guidance Document)
☐ Yes ☐ No

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT

System Number and Name: **System 1**

Emission Unit Description: [redacted] **and** [redacted] **Engines**

Alternative Operating Scenario: ☐ **Yes** ☒ **No**

Insignificant Activity: ☐ **Yes** ☒ **No** If yes, identify exemption regulation: _____

Description			Data
Equipment Description	BAPC Emission Unit ID *Applicable for Renewal or Revision*	eg. Unit ID: S2.001	Various
	Source Classification Code (SCC)	e.g. *3-03-024-04 for Conveyors*	20200102
	Manufacturer		[redacted]
	Date Manufactured		Various
	Model and Serial Number		[redacted] and Various
	Emissions Released Inside building?	yes/no	No
For Reciprocating Internal Combustion Engines (RICE) Only	Type of Engine Code (See Notes*)		ECI
	Date Constructed	month/day/yr	Various
	Cylinder Displacement	liter/cylinder	TBD
	EPA Tier #		2
Location of Emission Source	UTM Northing (NAD 83, Zone 11)	m	See Modeling Parameters
	UTM Easting (NAD 83, Zone 11)	m	See Modeling Parameters
Operating Parameters /Fuel Usage	Fuel Type		Ultra Low Sulfur Diesel
	Fuel Flow Meter Installed?	yes/no/NA	Yes
	Sulfur Content	%	0.0015
	Heat Content	Btu/gal	137,000
	Start Time *if operating less than 24 hours/day*	hour:minute	06:00
	End Time *if operating less than 24 hours/day*	hour:minute	19:00
Control Equipment	Manufacturer		
	Manufacturer's Guarantee Included? *If "yes", attach manufacturer's sheets immediately after these forms.*	yes/N/A	Yes
Stack Parameters	Stack Height	feet	[redacted]
	Stack Inside Diameter	feet	[redacted]
	Stack Temperature	°F	[redacted]
	Stack Exit Velocity	feet/second	[redacted]
	Actual Gas Volume Flow Rate	acfm	[redacted]
	Dry Gas Volume Flow Rate *If not included in detailed calculations.*	dscfm	TBD
	Stack Release Type		[redacted]

Notes*

Code	Description	Code	Description
LU	Limited Use	E-SI	Emergency Spark Ignition
LDG	Landfill/Digester Gas	SI4SRB	Spark Ignition 4-Stroke Rich Burn
NECI	Non-Emergency Compression Ignition	SI4SLB	Spark Ignition 4-Stroke Lean Burn
ECI	Emergency Compression Ignition	SI2SLB	Spark Ignition 2-Stroke Lean Burn

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT (continued)

Emission Unit Description: [redacted] **Engines**

1. Subject to a Federal Regulation specific to the emission unit (e.g. 40 CFR Part 60, 61, 63, 64, 76, or other): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability and include required analysis or plans (e.g. siting analysis or Continuous Assurance Monitoring (CAM) plans).
   NSPS Subpart IIII- Stationary Compression Ignition Internal Combustion Engines NESHAP Subpart ZZZZ- Stationary Reciprocating Internal Combustion Engines

2. Subject to a State Regulation specific to the emission unit (e.g. NAC 445B.2203, NAC 445B.22047, NAC 445B.22017): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability.
   Subject to NAC 445B.2203, 22047, and 22017 for opacity, particulate emissions, and sulfur emissions for fuel-burning equipment

3. Identify standards for work practices which affect emissions for all regulated air pollutants (e.g. At all times, including startup, shutdown and malfunction).
   At all times, including startup, shutdown and malfunction, the emission unit will be operated in a manner consistent with good air pollution control practices. Switch qualified technicians and/or the third party preferred vendors conduct periodic preventive/ predictive maintenance on a weekly, monthly, quarterly, and annual basis to meet or exceed manufactured recommendations

4. Identify and describe compliance and performance testing with reference to any applicable test methods, monitoring devices, compliance plan, or other activities required to determine compliance with an applicable requirement (e.g. Emissions from this unit will be monitored by CEMS and/or COMS for the specific pollutant(s) (NO_X, CO, etc.)).
   Emissions from this unit will be monitored by non-resettable hour meters.

5. How will fuel consumption be monitored for this emission unit? (e.g. maximum fuel consumption rate supplied by manufacturer, fuel flow meter).
   The fuel consumption will be monitored by a fuel flow meter.

6. Does this unit have the capability to bypass air pollution controls in an emergency situation as defined under NAC 445B.056?:
   ☐ **Yes** ☒ **No**

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT

System Number and Name: **TBD - Proposed System 10**

Emission Unit Description: [redacted] **Engines**

Alternative Operating Scenario: ☐ **Yes** ☒ **No**

Insignificant Activity: ☐ **Yes** ☒ **No** If yes, identify exemption regulation: _____

Description			Data
Equipment Description	BAPC Emission Unit ID *Applicable for Renewal or Revision*	eg. Unit ID: S2.001	Various
	Source Classification Code (SCC)	e.g. *3-03-024-04 for Conveyors*	20200102
	Manufacturer		[redacted]
	Date Manufactured		Various
	Model and Serial Number		[redacted] and Various
	Emissions Released Inside building?	yes/no	No
For Reciprocating Internal Combustion Engines (RICE) Only	Type of Engine Code (See Notes*)		ECI
	Date Constructed	month/day/yr	Various
	Cylinder Displacement	liter/cylinder	TBD
	EPA Tier #		2
Location of Emission Source	UTM Northing (NAD 83, Zone 11)	m	See Modeling Parameters
	UTM Easting (NAD 83, Zone 11)	m	See Modeling Parameters
Operating Parameters /Fuel Usage	Fuel Type		Ultra Low Sulfur Diesel
	Fuel Flow Meter Installed?	yes/no/NA	Yes
	Sulfur Content	%	0.0015
	Heat Content	Btu/gal	137,000
	Start Time *if operating less than 24 hours/day*	hour:minute	06:00
	End Time *if operating less than 24 hours day*	hour:minute	19:00
Control Equipment	Manufacturer		
	Manufacturer's Guarantee Included? *If "yes", attach manufacturer's sheets immediately after these forms.*	yes/N/A	Yes
Stack Parameters	Stack Height	feet	[redacted]
	Stack Inside Diameter	feet	[redacted]
	Stack Temperature	°F	[redacted]
	Stack Exit Velocity	feet/second	[redacted]
	Actual Gas Volume Flow Rate	acfm	[redacted]
	Dry Gas Volume Flow Rate *If not included in detailed calculations.*	dscfm	TBD
	Stack Release Type		[redacted]

Notes*

Code	Description	Code	Description
LU	Limited Use	E-SI	Emergency Spark Ignition
LDG	Landfill/Digester Gas	SI4SRB	Spark Ignition 4-Stroke Rich Burn
NECI	Non-Emergency Compression Ignition	SI4SLB	Spark Ignition 4-Stroke Lean Burn
ECI	Emergency Compression Ignition	SI2SLB	Spark Ignition 2-Stroke Lean Burn

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT (continued)

Emission Unit Description: [redacted] **Engines**

1. Subject to a Federal Regulation specific to the emission unit (e.g. 40 CFR Part 60, 61, 63, 64, 76, or other): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability and include required analysis or plans (e.g. siting analysis or Continuous Assurance Monitoring (CAM) plans).
   NSPS Subpart IIII- Stationary Compression Ignition Internal Combustion Engines NESHAP Subpart ZZZZ- Stationary Reciprocating Internal Combustion Engines

2. Subject to a State Regulation specific to the emission unit (e.g. NAC 445B.2203, NAC 445B.22047, NAC 445B.22017): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability.
   Subject to NAC 445B.2203, 22047, and 22017 for opacity, particulate emissions, and sulfur emissions for fuel-burning equipment

3. Identify standards for work practices which affect emissions for all regulated air pollutants (e.g. At all times, including startup, shutdown and malfunction).
   At all times, including startup, shutdown and malfunction, the emission unit will be operated in a manner consistent with good air pollution control practices. Switch qualified technicians and/or the third party preferred vendors conduct periodic preventive/ predictive maintenance on a weekly, monthly, quarterly, and annual basis to meet or exceed manufactured recommendations

4. Identify and describe compliance and performance testing with reference to any applicable test methods, monitoring devices, compliance plan, or other activities required to determine compliance with an applicable requirement (e.g. Emissions from this unit will be monitored by CEMS and/or COMS for the specific pollutant(s) (NO_X, CO, etc.)).
   Emissions from this unit will be monitored by non-resettable hour meters.

5. How will fuel consumption be monitored for this emission unit? (e.g. maximum fuel consumption rate supplied by manufacturer, fuel flow meter).
   The fuel consumption will be monitored by a fuel flow meter.

6. Does this unit have the capability to bypass air pollution controls in an emergency situation as defined under NAC 445B.056?:
   ☐ **Yes** ☒ **No**

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT

System Number and Name: **Revised System 6 – Emergency Generators**

Emission Unit Description: [redacted] **Engines**

Alternative Operating Scenario: ☐ **Yes** ☒ **No**

Insignificant Activity: ☐ **Yes** ☒ **No** If yes, identify exemption regulation: _____

Description			Data
Equipment Description	BAPC Emission Unit ID *Applicable for Renewal or Revision*	eg. Unit ID: S2.001	Various Units
	Source Classification Code (SCC)	e.g. *3-03-024-04 for Conveyors*	20100102
	Manufacturer		[redacted]
	Date Manufactured		Various
	Model and Serial Number		[redacted] and Various
	Emissions Released Inside building?	yes/no	No
For Reciprocating Internal Combustion Engines (RICE) Only	Type of Engine Code (See Notes*)		ECI
	Date Constructed	month/day/yr	Various
	Cylinder Displacement	liter/cylinder	[redacted]
	EPA Tier #		2
Location of Emission Source	UTM Northing (NAD 83, Zone 11)	m	See Modeling Parameters
	UTM Easting (NAD 83, Zone 11)	m	See Modeling Parameters
Operating Parameters /Fuel Usage	Fuel Type		Ultra Low Sulfur Diesel
	Fuel Flow Meter Installed?	yes/no/NA	Yes
	Sulfur Content	%	0.0015
	Heat Content	Btu/gal	137,000
	Start Time *if operating less than 24 hours/day*	hour:minute	06:00
	End Time *if operating less than 24 hours/day*	hour:minute	19:00
Control Equipment	Manufacturer		N/A
	Manufacturer's Guarantee Included? *If "yes", attach manufacturer's sheets immediately after these forms.*	yes/N/A	yes
Stack Parameters	Stack Height	feet	[redacted]
	Stack Inside Diameter	feet	[redacted]
	Stack Temperature	°F	[redacted]
	Stack Exit Velocity	feet/second	[redacted]
	Actual Gas Volume Flow Rate	acfm	[redacted]
	Dry Gas Volume Flow Rate *If not included in detailed calculations.*	dscfm	TBD
	Stack Release Type		[redacted]

Notes*

Code	Description	Code	Description
LU	Limited Use	E-SI	Emergency Spark Ignition
LDG	Landfill/Digester Gas	SI4SRB	Spark Ignition 4-Stroke Rich Burn
NECI	Non-Emergency Compression Ignition	SI4SLB	Spark Ignition 4-Stroke Lean Burn
ECI	Emergency Compression Ignition	SI2SLB	Spark Ignition 2-Stroke Lean Burn

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT (continued)

Emission Unit Description: [redacted] **Engines**

1. Subject to a Federal Regulation specific to the emission unit (e.g. 40 CFR Part 60, 61, 63, 64, 76, or other): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability and include required analysis or plans (e.g. siting analysis or Continuous Assurance Monitoring (CAM) plans).

   NSPS Subpart IIII - Stationary Compression Ignition Internal Combustion Engines
   NESHAP Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines

2. Subject to a State Regulation specific to the emission unit (e.g. NAC 445B.2203, NAC 445B.22047, NAC 445B.22017): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability.

   Subject to NAC 445B.2203, 22047, and 22017 for opacity, particulate emissions, and sulfur emissions for fuel-burning equipment.

3. Identify standards for work practices which affect emissions for all regulated air pollutants (e.g. At all times, including startup, shutdown and malfunction).

   At all times, including startup, shutdown and malfunction, the emission unit will be operated in a manner consistent with good air pollution control practices. Switch qualified technicians and/or the third party preferred vendors conduct periodic preventive/predictive maintenance on a weekly, monthly, quarterly and annual basis to meet or exceed manufactured recommendations.

4. Identify and describe compliance and performance testing with reference to any applicable test methods, monitoring devices, compliance plan, or other activities required to determine compliance with an applicable requirement (e.g. Emissions from this unit will be monitored by CEMS and/or COMS for the specific pollutant(s) (NO_X, CO, etc.)).

   Emissions from this unit will be monitored by non-resettable hour meters.

5. How will fuel consumption be monitored for this emission unit? (e.g. maximum fuel consumption rate supplied by manufacturer, fuel flow meter).

   The fuel consumption will be monitored by a fuel flow meter.

6. Does this unit have the capability to bypass air pollution controls in an emergency situation as defined under NAC 445B.056?:

   ☐ **Yes** ☒ **No**

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT

System Number and Name: **Revised System 7 – Emergency Generators**

Emission Unit Description: **KD [redacted] Engines**

Alternative Operating Scenario: ☐ **Yes** ☒ [redacted]

Insignificant Activity: ☐ **Yes** ☒ **No** If yes, identify exemption regulation: _____

Description			Data
Equipment Description	BAPC Emission Unit ID *Applicable for Renewal or Revision*	eg. Unit ID: S2.001	Various Units
	Source Classification Code (SCC)	e.g. *3-03-024-04 for Conveyors*	20100102
	Manufacturer		[redacted]
	Date Manufactured		[redacted]
	Model and Serial Number		[redacted] and Various
	Emissions Released Inside building?	yes/no	[redacted]
For Reciprocating Internal Combustion Engines (RICE) Only	Type of Engine Code (See Notes*)		ECI
	Date Constructed	month/day/yr	Various
	Cylinder Displacement	liter/cylinder	2.25
	EPA Tier #		[redacted]
Location of Emission Source	UTM Northing (NAD 83, Zone 11)	m	See Modeling Parameters
	UTM Easting (NAD 83, Zone 11)	m	See Modeling Parameters
Operating Parameters /Fuel Usage	Fuel Type		Ultra Low Sulfur Diesel
	Fuel Flow Meter Installed?	yes/no/NA	Yes
	Sulfur Content	%	0.0015
	Heat Content	Btu/gal	137,000
	Start Time *if operating less than 24 hours/day*	hour:minute	06:00
	End Time *if operating less than 24 hours/day*	hour:minute	19:00
Control Equipment	Manufacturer		N/A
	Manufacturer's Guarantee Included? *If "yes", attach manufacturer's sheets immediately after these forms.*	yes/N/A	Yes
Stack Parameters	Stack Height	feet	14.25
	Stack Inside Diameter	feet	[redacted]
	Stack Temperature	°F	[redacted] 0/617.70 (high/low)
	Stack Exit Velocity	feet/second	[redacted]
	Actual Gas Volume Flow Rate	acfm	[redacted] /low)
	Dry Gas Volume Flow Rate *If not included in detailed calculations.*	dscfm	[redacted]
	Stack Release Type		[redacted]

Notes*

Code	Description	Code	Description
LU	Limited Use	E-SI	Emergency Spark Ignition
LDG	Landfill/Digester Gas	SI4SRB	Spark Ignition 4-Stroke Rich Burn
NECI	Non-Emergency Compression Ignition	SI4SLB	Spark Ignition 4-Stroke Lean Burn
ECI	Emergency Compression Ignition	SI2SLB	Spark Ignition 2-Stroke Lean Burn

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT (continued)

Emission Unit Description: [redacted] **Engines**

1. Subject to a Federal Regulation specific to the emission unit (e.g. 40 CFR Part 60, 61, 63, 64, 76, or other): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability and include required analysis or plans (e.g. siting analysis or Continuous Assurance Monitoring (CAM) plans).
   NSPS Subpart IIII - Stationary Compression Ignition Internal Combustion Engines
   NESHAP Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines

2. Subject to a State Regulation specific to the emission unit (e.g. NAC 445B.2203, NAC 445B.22047, NAC 445B.22017): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability.
   Subject to NAC 445B.2203, 22047, and 22017 for opacity, particulate emissions, and sulfur emissions for fuel-burning equipment.

3. Identify standards for work practices which affect emissions for all regulated air pollutants (e.g. At all times, including startup, shutdown and malfunction).
   At all times, including startup, shutdown and malfunction, the emission unit will be operated in a manner consistent with good air pollution control practices. Switch qualified technicians and/or the third party preferred vendors conduct periodic preventive/predictive maintenance on a weekly, monthly, quarterly and annual basis to meet or exceed manufactured recommendations.

4. Identify and describe compliance and performance testing with reference to any applicable test methods, monitoring devices, compliance plan, or other activities required to determine compliance with an applicable requirement (e.g. Emissions from this unit will be monitored by CEMS and/or COMS for the specific pollutant(s) (NO_X, CO, etc.)).
   Emissions from this unit will be monitored by non-resettable hour meters.

5. How will fuel consumption be monitored for this emission unit? (e.g. maximum fuel consumption rate supplied by manufacturer, fuel flow meter).
   The fuel consumption will be monitored by a fuel flow meter.

6. Does this unit have the capability to bypass air pollution controls in an emergency situation as defined under NAC 445B.056?:
   ☐ **Yes** ☒ **No**

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT

System Number and Name: **TBD - Proposed System 11**

Emission Unit Description: [redacted] **Engines**

Alternative Operating Scenario: ☐ **Yes** ☒ **No**

Insignificant Activity: ☐ **Yes** ☒ **No** If yes, identify exemption regulation: _____

Description			Data
Equipment Description	BAPC Emission Unit ID *Applicable for Renewal or Revision*	eg. Unit ID: S2.001	Various
	Source Classification Code (SCC)	e.g. *3-03-024-04 for Conveyors*	20200102
	Manufacturer		[redacted]
	Date Manufactured		TBD
	Model and Serial Number		[redacted] and TBD
	Emissions Released Inside building?	yes/no	No
For Reciprocating Internal Combustion Engines (RICE) Only	Type of Engine Code (See Notes*)		ECI
	Date Constructed	month/day/yr	TBD
	Cylinder Displacement	liter/cylinder	[redacted]
	EPA Tier #		2
Location of Emission Source	UTM Northing (NAD 83, Zone 11)	m	See Modeling Parameters
	UTM Easting (NAD 83, Zone 11)	m	See Modeling Parameters
Operating Parameters /Fuel Usage	Fuel Type		Ultra Low Sulfur Diesel
	Fuel Flow Meter Installed?	yes/no/NA	Yes
	Sulfur Content	%	0.0015
	Heat Content	Btu/gal	137,000
	Start Time *if operating less than 24 hours/day*	hour:minute	N/A
	End Time *if operating less than 24 hours/day*	hour:minute	N/A
Control Equipment	Manufacturer		N/A
	Manufacturer's Guarantee Included? *If "yes", attach manufacturer's sheets immediately after these forms.*	yes/N/A	Yes
Stack Parameters	Stack Height	feet	[redacted]
	Stack Inside Diameter	feet	[redacted]
	Stack Temperature	°F	[redacted]
	Stack Exit Velocity	feet/second	[redacted]
	Actual Gas Volume Flow Rate	acfm	[redacted]
	Dry Gas Volume Flow Rate *If not included in detailed calculations.*	dscfm	TBD
	Stack Release Type		[redacted]

Notes*

Code	Description	Code	Description
LU	Limited Use	E-SI	Emergency Spark Ignition
LDG	Landfill/Digester Gas	SI4SRB	Spark Ignition 4-Stroke Rich Burn
NECI	Non-Emergency Compression Ignition	SI4SLB	Spark Ignition 4-Stroke Lean Burn
ECI	Emergency Compression Ignition	SI2SLB	Spark Ignition 2-Stroke Lean Burn

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT (continued)

Emission Unit Description: [redacted] **Engines**

1. Subject to a Federal Regulation specific to the emission unit (e.g. 40 CFR Part 60, 61, 63, 64, 76, or other): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability and include required analysis or plans (e.g. siting analysis or Continuous Assurance Monitoring (CAM) plans).

   NSPS Subpart IIII- Stationary Compression Ignition Internal Combustion Engines
   NESHAP Subpart ZZZZ- Stationary Reciprocating Internal Combustion Engines

2. Subject to a State Regulation specific to the emission unit (e.g. NAC 445B.2203, NAC 445B.22047, NAC 445B.22017): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability.

   Subject to NAC 445B.2203, 22047, and 22017 for opacity, particulate emissions, and sulfur emissions for fuel-burning equipment

3. Identify standards for work practices which affect emissions for all regulated air pollutants (e.g. At all times, including startup, shutdown and malfunction).

   At all times, including startup, shutdown and malfunction, the emission unit will be operated in a manner consistent with good air pollution control practices. Switch qualified technicians and/or the third party preferred vendors conduct periodic preventive/ predictive maintenance on a weekly, monthly, quarterly, and annual basis to meet or exceed manufactured recommendations

4. Identify and describe compliance and performance testing with reference to any applicable test methods, monitoring devices, compliance plan, or other activities required to determine compliance with an applicable requirement (e.g. Emissions from this unit will be monitored by CEMS and/or COMS for the specific pollutant(s) (NO_X, CO, etc.)).

   Emissions from this unit will be monitored by non-resettable hour meters.

5. How will fuel consumption be monitored for this emission unit? (e.g. maximum fuel consumption rate supplied by manufacturer, fuel flow meter).

   The fuel consumption will be monitored by a fuel flow meter.

6. Does this unit have the capability to bypass air pollution controls in an emergency situation as defined under NAC 445B.056?:

   ☐ **Yes** ☒ **No**

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT

System Number and Name: **TBD - Proposed System 12**

Emission Unit Description: [redacted] **House Generator**

Alternative Operating Scenario: ☐ **Yes** ☒ **No**

Insignificant Activity: ☐ **Yes** ☒ **No** If yes, identify exemption regulation: _____

Description			Data
Equipment Description	BAPC Emission Unit ID *Applicable for Renewal or Revision*	eg. Unit ID: S2.001	TBD
	Source Classification Code (SCC)	e.g. *3-03-024-04 for Conveyors*	20200102
	Manufacturer		[redacted]
	Date Manufactured		TBD
	Model and Serial Number		[redacted] and TBD
	Emissions Released Inside building?	yes/no	No
For Reciprocating Internal Combustion Engines (RICE) Only	Type of Engine Code (See Notes*)		ECI
	Date Constructed	month/day/yr	TBD
	Cylinder Displacement	liter/cylinder	[redacted]
	EPA Tier #		2
Location of Emission Source	UTM Northing (NAD 83, Zone 11)	m	See Modeling Parameters
	UTM Easting (NAD 83, Zone 11)	m	See Modeling Parameters
Operating Parameters /Fuel Usage	Fuel Type		Ultra Low Sulfur Diesel
	Fuel Flow Meter Installed?	yes/no/NA	Yes
	Sulfur Content	%	0.0015
	Heat Content	Btu/gal	137,000
	Start Time *if operating less than 24 hours/day*	hour:minute	N/A
	End Time *if operating less than 24 hours/day*	hour:minute	N/A
Control Equipment	Manufacturer		N/A
	Manufacturer's Guarantee Included? *If "yes", attach manufacturer's sheets immediately after these forms.*	yes/N/A	Yes
Stack Parameters	Stack Height	feet	[redacted]
	Stack Inside Diameter	feet	[redacted]
	Stack Temperature	°F	[redacted]
	Stack Exit Velocity	feet/second	[redacted]
	Actual Gas Volume Flow Rate	acfm	[redacted]
	Dry Gas Volume Flow Rate *If not included in detailed calculations.*	dscfm	TBD
	Stack Release Type		[redacted]

Notes*

Code	Description	Code	Description
LU	Limited Use	E-SI	Emergency Spark Ignition
LDG	Landfill/Digester Gas	SI4SRB	Spark Ignition 4-Stroke Rich Burn
NECI	Non-Emergency Compression Ignition	SI4SLB	Spark Ignition 4-Stroke Lean Burn
ECI	Emergency Compression Ignition	SI2SLB	Spark Ignition 2-Stroke Lean Burn

COMBUSTION EQUIPMENT APPLICATION FORM
CLASS I OPERATING PERMIT (continued)

Emission Unit Description: [redacted] **House Generator**

1. Subject to a Federal Regulation specific to the emission unit (e.g. 40 CFR Part 60, 61, 63, 64, 76, or other): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability and include required analysis or plans (e.g. siting analysis or Continuous Assurance Monitoring (CAM) plans).
   NSPS Subpart IIII- Stationary Compression Ignition Internal Combustion Engines
   NESHAP Subpart ZZZZ- Stationary Reciprocating Internal Combustion Engines

2. Subject to a State Regulation specific to the emission unit (e.g. NAC 445B.2203, NAC 445B.22047, NAC 445B.22017): ☒ **Yes** ☐ **No** If yes, identify regulation and applicability.
   Subject to NAC 445B.2203, 22047, and 22017 for opacity, particulate emissions, and sulfur emissions for fuel-burning equipment

3. Identify standards for work practices which affect emissions for all regulated air pollutants (e.g. At all times, including startup, shutdown and malfunction).
   At all times, including startup, shutdown and malfunction, the emission unit will be operated in a manner consistent with good air pollution control practices. Switch qualified technicians and/or the third party preferred vendors conduct periodic preventive/ predictive maintenance on a weekly, monthly, quarterly, and annual basis to meet or exceed manufactured recommendations

4. Identify and describe compliance and performance testing with reference to any applicable test methods, monitoring devices, compliance plan, or other activities required to determine compliance with an applicable requirement (e.g. Emissions from this unit will be monitored by CEMS and/or COMS for the specific pollutant(s) (NO_X, CO, etc.)).
   Emissions from this unit will be monitored by non-resettable hour meters.

5. How will fuel consumption be monitored for this emission unit? (e.g. maximum fuel consumption rate supplied by manufacturer, fuel flow meter).
   The fuel consumption will be monitored by a fuel flow meter.

6. Does this unit have the capability to bypass air pollution controls in an emergency situation as defined under NAC 445B.056?:
   ☐ **Yes** ☒ **No**

COMBUSTION EQUIPMENT DETAILED CALCULATIONS

Unit No.	Unit Description	Operating Hours		Heat Input (MMBtu)		Fuel Usage			Power Output		Controls		Emissions						References
		Daily	Annual	Hourly	Annual	Hourly	Annual	Units	Amount	Units	Type	Efficiency or Dry Volume Flow Rate	Pollutant	Factor	Unit	Hourly Rate (lbs/hr)	Yearly Rate (tons/yr)		
System No. & Name:													**Uncontrolled**						
	See detailed emission calcs												PM						
													PM_{10}						
													$PM_{2.5}$						
													SO_2						
													NO_X						
													CO						
													VOC						
													Pb						
													Hg						
													H_2S						
													Controlled						
													PM						
													PM_{10}						
													$PM_{2.5}$						
													SO_2						
													NO_X						
													CO						
													VOC						
													Pb						
													Hg						
													H_2S						
System No. & Name:													**Uncontrolled**						
													PM						
													PM_{10}						
													$PM_{2.5}$						
													SO_2						
													NO_X						
													CO						
													VOC						
													Pb						
													Hg						
													H_2S						
													Controlled						
													PM						
													PM_{10}						
													$PM_{2.5}$						
													SO_2						
													NO_X						
													CO						
													VOC						
													Pb						
													Hg						
													H_2S						

*Exact format may be changed, but requested information is still required

GREENHOUSE GASES (GHG) DETAILED CALCULATIONS

Unit No.	Unit Description	Operating Hours		Heat Input (MMBtu)		Fuel Usage			Controls		Emissions					References
		Daily	Annual	Hourly	Annual	Hourly	Annual	Units	Type	Efficiency or Dry Volume Flow Rate	Pollutant	Factor	Unit	Hourly Rate (lbs/hr)	Yearly Rate (tons/yr)	
	System No. & Name:															
	See detailed emission calcs										CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					
	System No. & Name:															
											CO_2					
											CH_4					
											N_2O					

*Exact format may be changed, but requested information is still required

HAZARDOUS AIR POLLUTANTS (HAPS) DETAILED CALCULATIONS

Unit No.	Unit Description	Operating Hours		Heat Input (MMBtu)		Fuel Usage			Controls		Emissions					References
		Daily	Annual	Hourly	Annual	Hourly	Annual	Units	Type	Efficiency or Dry Volume Flow Rate	Pollutant	Factor	Unit	Hourly Rate (lbs/hr)	Yearly Rate (tons/yr)	
	System No. & Name:															
	See detailed emission calcs															

*Exact format may be changed, but requested information is still required

FACILITY-WIDE POTENTIAL TO EMIT TABLE (FOR ALL SOURCES INCLUDING INSIGNIFICANT ACTIVITIES) (POUND/HOUR AND TON/YEAR)

Pollutant	Facility-Wide Potential to Emit (pound/hour)	Facility-Wide Potential to Emit (ton/year)
Total Particulate Matter (PM)	1.22	5.33
Total PM_{10}	1.22	5.33
Total $PM_{2.5}$	1.22	5.33
Total Sulfur Dioxide (SO_2)	0.05	0.20
Total Carbon Monoxide (CO)	7.96	34.89
Total Oxides of Nitrogen (NO_X)	43.83	191.97
Total Volatile Organic Compounds (VOC)	3.32	14.56
Total Lead (Pb)	-	-
Total Hydrogen Sulfide (H_2S)	-	-
Total Sulfuric Acid Mist (H_2SO_4)	-	-
Total Hazardous Air Pollutants (HAPs)	0.06	0.24
Total Greenhouse Gases (CO_{2e})	5,688.78	24,916.86
Other Regulated Pollutants (Specify)	-	-

REVISION TABLE

Please complete the table below if this application is for a Minor/Significant **Revision** of an existing Class I Air Quality Operating Permit. Add more columns if needed for any other applicable regulated pollutants. All Potential To Emit (PTE) values must be in tons per year (TPY) [NAC 445B.3425 and NAC 445B.344]

Description	Pollutants									
	PM	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO	VOC	HAPs	CO_{2e}	Other
Permitted Facility-Wide PTE (TPY)	4.42	4.42	4.42	0.23	172.54	27.80	17.86	0.23	22,942.71	-
Proposed Facility-Wide PTE (TPY)	5.33	5.33	5.33	0.20	191.97	34.89	14.56	0.24	24,916.86	-
Change in Facility-Wide PTE (TPY)	0.92	0.92	0.92	-0.03	19.42	7.09	-3.30	0.02	1,974.14	-

SURFACE AREA DISTURBANCE FORM

1. Total Acres of the Facility Site: [redacted]
2. Total Acres Disturbed: [redacted]
3. Add Surface Area Disturbance location as Township(s), Range(s) and Section
   10, 11, 13, 14, 15, 16, 21, 22, 23, 24, 26, 27, T 19 N, R 22 E
4. NAC 445B.22037 requires fugitive dust to be controlled (regardless of the size or amount of acreage disturbed), and requires an ongoing program, using best practical methods, to prevent particulate matter from becoming airborne. All activities which have the potential to adversely affect the local air quality must implement all appropriate measures to limit controllable emissions. Appropriate measures for dust control may consist of a phased approach to acreage disturbance rather than disturbing the entire area all at once; using wet suppression through such application methods as water trucks or water spray systems to control wind-blown dust; the application of soil binding agents or chemical surfactant to roadways and areas of disturbed soil; as well as the use of wind-break or wind limiting fencing designed to limit wind erosion soils.
5. If the Surface Area Disturbance is greater than 5 acres, please check each box that applies for Best Management Practices (BMPs) used for controlling dust on project's disturbed areas:
   - ☒ Water trucks
   - ☒ Graveling/paving of roadway storage areas and staging areas
   - ☒ Dust palliatives
   - ☒ Posting and limiting vehicle speeds to 10-15 miles per hour
   - ☒ Ceasing operations during high wind events
   - ☒ Fencing or berming to prevent unauthorized access to disturbed areas
   - ☒ Application of water sprays on material storage piles on a regular basis
   - ☐ Covering material storage piles with tarpaulin or geo-textiles; tenting
   - ☒ Use of overhead water spray racks or water hoses
   - ☒ Track-out controls (graveled entranced, exit area, and street sweeping)
   - ☐ Landscape preservation and impact avoidance
   - ☐ Wind fence
   - ☒ Pre-watering of areas to be disturbed (including all unpaved onsite roads and staging areas)
   - ☒ Inform all subcontractors (including truck drivers) of their responsibilities for the control of fugitive dust while they are on the project site
   - ☒ Training of equipment operators to recognize fugitive dust generation and having the authority to shut down operations until water truck arrives and sprays water on the disturbed areas

   ☐Other Applicable BMPsClick or tap here to enter text.

   ☐Other Applicable BMPs:Click or tap here to enter text.

   - ☒ If using water trucks, list how many water trucks are used and their capacity in gallons: 1-8,000 gal, 4 – 4,000 gal

PLANT BOUNDARY COORDINATES FORM

Corner Number	UTM Easting	UTM Northing
See modeling files		

PLANT BUILDING PARAMETERS FORM

Building Parameters
Building Name: See modeling files **Building Tier :** _____
Roof Height (ft): _____ **Building Diameter (ft):** _____

Building UTM Coordinates

UTM Easting	UTM Northing	UTM Easting	UTM Northing

Building Parameters
Building Name: _____ **Building Tier :** _____
Roof Height (ft): _____ **Building Diameter[4] (ft):** _____

Building UTM Coordinates

UTM Easting	UTM Northing	UTM Easting	UTM Northing

APPLICATION CERTIFICATION DOCUMENT

(With Required Attachments)

Please check all applicable boxes below to indicate the information provided in your application submittal:

- ☒ Cover Page
- ☒ General Company Information Form
- ☐ Compliance Plan
- ☐ Industrial Process Application Form(s)
- ☒ Combustion Equipment Application Form(s)
- ☐ Storage Silo Application Form(s)
- ☐ Liquid Storage Tank Application Form(s)
- ☒ Manufacturer's Guarantee
- ☒ Facility-Wide Potential to Emit Table
- ☒ Revision Table
- ☒ Surface Area Disturbance Form
- ☒ Plant Boundary Coordinates Form
- ☒ Plant Building Parameters Form
- ☒ Detailed Emission Calculations (for all emission units including IA units)
- ☐ Source Testing Data (if referenced in calculations)
- ☒ Process Narrative (revision applications must include a description of the revision)
- ☐ Process Flow Diagram(s)
- ☒ Site Plan(s) showing the locations (UTM coordinates), dimensions, and heights of buildings on the site
- ☒ Maps:
  - ☒ Vicinity Map of where the facility is located in the State
  - ☒ Area Map of the Facility (including location of all emission units, building locations (with UTMs), location of front gate, and fence line/site boundary (with UTMs))
- ☒ Environmental Evaluation (AERMOD Air Dispersion Modeling Report and Electronic Input Files) (NAC 445B.310, NAC 445B.311)
- ☒ Manufacturer's Guarantee *if applicable*
- ☒ Equipment Specifications *if applicable*
- ☐ TANKs Modeling Output *if applicable*
- ☒ Application Fee Attached or Electronically Submitted
- ☒ Digital Copy of Application on CD or Thumb Drive
- ☒ Application Certification Document with Original Responsible Official Signature

APPLICATION CERTIFICATION DOCUMENT (CONTINUED)

(With Required Attachments)

PLEASE NOTE THE FOLLOWING REQUIREMENTS WHICH APPLY TO PERMIT APPLICANTS DURING THE APPLICATION PROCESS:

A. A permit applicant must submit supplementary facts or corrected information upon discovery. (NAC 445B.297(1)(b))

B. A permit applicant is required to provide any additional information which the Director requests in writing within the time specified in the Director's request. (NAC 445B.297(1)(c))

C. Submission of fraudulent data or other information may result in prosecution for an alleged criminal offense. (NRS 445B.470)

CERTIFICATION:

I certify that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate and complete.

Signature of Responsible Official

Devon White, Vice President of Data Center Operations

Print or Type Name and Title

9/11/2026

Date

APPENDIX B. MANUFACTURER SPECIFICATIONS

All information in this Appendix is considered confidential.

APPENDIX C. EMISSION CALCULATIONS

Table 1-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 1

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]	[redacted]	kW
Maximum Fuel Consumption Rate[1]	[redacted]	gal/hr
Annual Hours[2]	[redacted]	hrs/yr
Heating Value of Diesel[3]	137,000.00	btu/gal
Maximum Heat Input[4]	[redacted]	MMBtu/hr
Number of Engines	[redacted]	Engine

1. Based on manufacturer specifications.

2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine.

3. Heating value of diesel provided in AP-42, Appendix A (09/85).

4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.
Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 1-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3,4]	
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	
CO_2	

1. NO_x, CO, VOC and PM emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

3. The manufacturer's supplied data indicates emissions are guaranteed for a fuel sulfur content of 5 ppm. Switch is unsure of the sulfur content for diesel fuel available in the area and has therefore considered a sulfur content of 15 ppm (a standard ultra low fuel diesel specification). As such, the manufacturer's emissions data has been multiplied by three (a ratio of 15 ppm/5 ppm) to determine the appropriate emission factors.

4. VOC emission factor is conservatively determined by the total organic compounds per AP-42 Section 3.4, Table 3.4-1 (4/25).

Table 1-3. HAP Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load		[redacted]					Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]					(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	2.19E-02	1.64E-02	1.10E-02	5.48E-03	2.19E-03	0.92	4.62E-04	119.18	5.96E-02
Toluene	2.81E-04	7.94E-03	5.95E-03	3.97E-03	1.98E-03	7.94E-04	0.33	1.67E-04	43.16	2.16E-02
Xylenes	1.93E-04	5.45E-03	4.09E-03	2.73E-03	1.36E-03	5.45E-04	0.23	1.15E-04	29.64	1.48E-02
Formaldehyde	7.89E-05	2.23E-03	1.67E-03	1.11E-03	5.57E-04	2.23E-04	9.39E-02	4.70E-05	12.12	6.06E-03
Acetaldehyde	2.52E-05	7.12E-04	5.34E-04	3.56E-04	1.78E-04	7.12E-05	3.00E-02	1.50E-05	3.87	1.94E-03
Acrolein	7.88E-06	2.23E-04	1.67E-04	1.11E-04	5.56E-05	2.23E-05	9.38E-03	4.69E-06	1.21	6.05E-04
Naphthalene	1.30E-04	3.67E-03	2.75E-03	1.84E-03	9.18E-04	3.67E-04	0.15	7.74E-05	19.97	9.98E-03
Acenaphthylene	9.23E-06	2.61E-04	1.96E-04	1.30E-04	6.52E-05	2.61E-05	1.10E-02	5.49E-06	1.42	7.09E-04
Acenaphthene	4.68E-06	1.32E-04	9.92E-05	6.61E-05	3.30E-05	1.32E-05	5.57E-03	2.79E-06	0.72	3.59E-04
Fluorene	1.28E-05	3.62E-04	2.71E-04	1.81E-04	9.04E-05	3.62E-05	1.52E-02	7.62E-06	1.97	9.83E-04
Phenanthrene	4.08E-05	1.15E-03	8.64E-04	5.76E-04	2.88E-04	1.15E-04	4.86E-02	2.43E-05	6.27	3.13E-03
Anthracene	1.23E-06	3.48E-05	2.61E-05	1.74E-05	8.68E-06	3.48E-06	1.46E-03	7.32E-07	0.19	9.45E-05
Fluoranthene	4.03E-06	1.14E-04	8.54E-05	5.69E-05	2.84E-05	1.14E-05	4.80E-03	2.40E-06	0.62	3.09E-04
Pyrene	3.71E-06	1.05E-04	7.86E-05	5.24E-05	2.62E-05	1.05E-05	4.42E-03	2.21E-06	0.57	2.85E-04
Benzo(a)anthracene	6.22E-07	1.76E-05	1.32E-05	8.79E-06	4.39E-06	1.76E-06	7.41E-04	3.70E-07	9.55E-02	4.78E-05
Chrysene	1.53E-06	4.32E-05	3.24E-05	2.16E-05	1.08E-05	4.32E-06	1.82E-03	9.11E-07	0.23	1.17E-04
Benzo(b)fluoranthene	1.11E-06	3.14E-05	2.35E-05	1.57E-05	7.84E-06	3.14E-06	1.32E-03	6.61E-07	0.17	8.52E-05
Benzo(k)fluoranthene	2.18E-07	6.16E-06	4.62E-06	3.08E-06	1.54E-06	6.16E-07	2.60E-04	1.30E-07	3.35E-02	1.67E-05
Benzo(a)pyrene	2.57E-07	7.26E-06	5.45E-06	3.63E-06	1.81E-06	7.26E-07	3.06E-04	1.53E-07	3.95E-02	1.97E-05
Indeno(1,2,3-cd)pyrene	4.14E-07	1.17E-05	8.77E-06	5.85E-06	2.92E-06	1.17E-06	4.93E-04	2.46E-07	6.36E-02	3.18E-05
Dibenz(a,h)anthracene	3.46E-07	9.78E-06	7.33E-06	4.89E-06	2.44E-06	9.78E-07	4.12E-04	2.06E-07	5.31E-02	2.66E-05
Benzo(g,h,i)perylene	5.56E-07	1.57E-05	1.18E-05	7.85E-06	3.92E-06	1.57E-06	6.62E-04	3.31E-07	8.54E-02	4.27E-05
Total HAPs:		4.45E-02	3.33E-02	2.22E-02	1.11E-02	4.45E-03	1.87	9.37E-04	241.67	0.12

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.
Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).
4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 1-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]					CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)					(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2[4]	1	Various	4,146.78	3,284.05	2,320.25	1,327.79	808.65	186,594.64	93.30	24,070,709.14	12,035.35
CH_4	28	3.00E-03	5.23	3.92	2.62	1.31	0.52	220.48	0.11	28,442.24	14.22
N_2O	265	6.00E-04	9.90	7.43	4.95	2.47	0.99	417.34	0.21	53,837.10	26.92
Total CO_2e Emissions:			4,161.92	3,295.40	2,327.82	1,331.57	810.17	187,232.47	93.62	24,152,988.47	12,076.49

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."
2. Emission factor for carbon dioxide is obtained from manufacturer specifications. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.
3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).
4. CO_2 emissions per the manufacturer specifications.

Table 1-5. Potential Emissions per Engine

Engine Load (%)	[redacted]					Annual PTE (per engine)		Annual PTE (all engines)	
Engine Power (kW)									
Hours per Year at % Load									
Pollutant	Hourly PTE (lb/hr)[1]					(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	51.76	26.87	14.93	7.29	4.65	1,513.49	0.76	195,240.16	97.62
CO	3.32	3.48	3.32	3.98	2.59	208.39	0.10	26,882.73	13.44
PM	0.40	0.40	0.60	0.48	0.38	24.44	1.22E-02	3,152.77	1.58
PM_{10}	0.40	0.40	0.60	0.48	0.38	24.44	1.22E-02	3,152.77	1.58
$PM_{2.5}$	0.40	0.40	0.60	0.48	0.38	24.44	1.22E-02	3,152.77	1.58
SO_x	3.98E-02	2.99E-02	1.99E-02	1.49E-02	7.96E-03	1.70	8.50E-04	219.31	0.11
VOC	2.54	1.91	1.27	0.64	0.25	107.15	5.36E-02	13,822.70	6.91
HAP	4.45E-02	3.33E-02	2.22E-02	1.11E-02	4.45E-03	1.87	9.37E-04	241.67	0.12
GHG	4,161.92	3,295.40	2,327.82	1,331.57	810.17	187,232.47	93.62	24,152,988.47	12,076.49

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 10% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 2-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 2

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]	[redacted]	kW
Maximum Fuel Consumption Rate [1]	[redacted]	gal/hr
Annual Hours [2]	[redacted]	hrs/yr
Heating Value of Diesel [3]	137,000.00	btu/gal
Maximum Heat Input [4]	[redacted]	MMBtu/hr
Number of New Engines	[redacted]	Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 2-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3]	Emissio
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_X	
VOC	

1. NO_x, CO, VOC and PM emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. SO_X emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1).

Table 2-3. HAP Emissions per Engine

Engine Load (%) Engine Power (kW) Hours per Year at % Load		[redacted]	Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	**Emission Factor (lb/MMBtu)[1]**	**Hourly PTE (lb/hr)[2,3]**	**(lb/yr)**	**(tpy)[4]**	**(lb/yr)**	**(tpy)**
Benzene	9.33E-04	1.37E-03	6.83E-02	3.42E-05	0.14	6.83E-05
Toluene	4.09E-04	5.99E-04	2.99E-02	1.50E-05	5.99E-02	2.99E-05
Xylenes	2.85E-04	4.17E-04	2.09E-02	1.04E-05	4.17E-02	2.09E-05
1,3-Butadiene	3.91E-05	5.73E-05	2.86E-03	1.43E-06	5.73E-03	2.86E-06
Formaldehyde	1.18E-03	1.73E-03	8.64E-02	4.32E-05	0.17	8.64E-05
Acetaldehyde	7.67E-04	1.12E-03	5.62E-02	2.81E-05	0.11	5.62E-05
Acrolein	9.25E-05	1.35E-04	6.77E-03	3.39E-06	1.35E-02	6.77E-06
Naphthalene	8.48E-05	1.24E-04	6.21E-03	3.10E-06	1.24E-02	6.21E-06
Acenaphthylene	5.06E-06	7.41E-06	3.70E-04	1.85E-07	7.41E-04	3.70E-07
Acenaphthene	1.42E-06	2.08E-06	1.04E-04	5.20E-08	2.08E-04	1.04E-07
Fluorene	2.92E-05	4.28E-05	2.14E-03	1.07E-06	4.28E-03	2.14E-06
Phenanthrene	2.94E-05	4.31E-05	2.15E-03	1.08E-06	4.31E-03	2.15E-06
Anthracene	1.87E-06	2.74E-06	1.37E-04	6.85E-08	2.74E-04	1.37E-07
Fluoranthene	7.61E-06	1.11E-05	5.57E-04	2.79E-07	1.11E-03	5.57E-07
Pyrene	4.78E-06	7.00E-06	3.50E-04	1.75E-07	7.00E-04	3.50E-07
Benzo(a)anthracene	1.68E-06	2.46E-06	1.23E-04	6.15E-08	2.46E-04	1.23E-07
Chrysene	3.53E-07	5.17E-07	2.58E-05	1.29E-08	5.17E-05	2.58E-08
Benzo(b)fluoranthene	9.91E-08	1.45E-07	7.26E-06	3.63E-09	1.45E-05	7.26E-09
Benzo(k)fluoranthene	1.55E-07	2.27E-07	1.13E-05	5.67E-09	2.27E-05	1.13E-08
Benzo(a)pyrene	1.88E-07	2.75E-07	1.38E-05	6.88E-09	2.75E-05	1.38E-08
Indeno(1,2,3-cd)pyrene	3.75E-07	5.49E-07	2.75E-05	1.37E-08	5.49E-05	2.75E-08
Dibenz(a,h)anthracene	5.83E-07	8.54E-07	4.27E-05	2.13E-08	8.54E-05	4.27E-08
Benzo(g,h,i)perylene	4.89E-07	7.16E-07	3.58E-05	1.79E-08	7.16E-05	3.58E-08
Total HAPs:		5.67E-03	0.28	1.42E-04	0.57	2.84E-04

1. HAP Emission Factors per AP-42 Chapter 3.3, Table 3.3-2 (4/25).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.
Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).
4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 2-4. Greenhouse Gas Potential to Emit

Engine Load (%) Engine Power (kW) Hours per Year at % Load Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	[redacted]	CO_2e emissions (per engine)		CO_2e emissions (all engines)	
				(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	238.78	11,938.77	5.97	23,877.55	11.94
CH_4	28	3.00E-03	0.27	13.56	6.78E-03	27.12	1.36E-02
N_2O	265	6.00E-04	0.51	25.67	1.28E-02	51.33	2.57E-02
Total CO_2e Emissions:			239.56	11,978.00	5.99	23,956.00	11.98

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

Table 2-5. Potential Emissions per Engine

Engine Load (%) Engine Power (kW) Hours per Year at % Load Pollutant	[redacted] Hourly PTE (lb/hr)[1]	Annual PTE (per engine)		Annual PTE (all engines)	
		(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	1.17	58.47	2.92E-02	116.93	5.85E-02
CO	0.28	13.76	6.88E-03	27.51	1.38E-02
PM	3.78E-02	1.89	9.46E-04	3.78	1.89E-03
PM_{10}	3.78E-02	1.89	9.46E-04	3.78	1.89E-03
$PM_{2.5}$	3.78E-02	1.89	9.46E-04	3.78	1.89E-03
SO_x	2.54E-03	0.13	6.35E-05	0.25	1.27E-04
VOC	0.52	25.84	1.29E-02	51.67	2.58E-02
HAP	5.67E-03	0.28	1.42E-04	0.57	2.84E-04
GHG	239.56	11,978.00	5.99	23,956.00	11.98

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb).
2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 3-1. Key Parameters/Constants for Proposed Fluid Cooler Emission Calculations - System 3

Parameters[1]		
Manufacturer	[redacted]	
Model Number	[redacted]	
Total cooling towers	[redacted]	
Maximum TDS (ppm)[2]	[redacted]	
Drift Rate (%)	[redacted]	
Water Flow Rate (GPM)	[redacted]	
Operation Hours (hr/yr)	[redacted]	

1. Fluid cooler parameters consistent with current permit representations.
2. TDS results from October 23, 2017 report by ALS Global (reflects maximum of two readings).

Table 3-2. Fluid Cooler Potential to Emit

Pollutant	Potential Emissions, [redacted]		Potential Emissions, Facility Wide Cooling Towers	
	Hourly	Annual	Hourly	Annual
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
$PM/PM_{10}/PM_{2.5}$ [1,2,3]	2.07E-03	9.05E-03	9.91E-02	0.43

1. Conservatively, PM_{10} and $PM_{2.5}$ are assumed to be equivalent to PM.

2. Hourly Emissions of $PM/PM_{10}/PM_{2.5}$ (lb/hr) = Water Flow Rate (gpm) * Drift Rate (%) / 100 x Max. TDS (ppmw) * 8.345 (lb water/gal) * 60 (min/hr)*Number of Cooling. Towers/10^6.

3. Annual Emissions of $PM/PM_{10}/PM_{2.5}$ (tpy) = Hourly Emissions of PM (lb/hr) * Operating Hours (hr/yr) / 2000 (lb/ton).

Table 4-1. Key Parameters/Constants for Proposed Diesel Fired Emergency Back-up Generator Emission Calculations - System 4

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]	[redacted]	kW
Maximum Fuel Consumption Rate[1]	[redacted]	gal/hr
Annual Hours[2]	[redacted]	hrs/yr
Heating Value of Diesel[3]	137,000.00	btu/gal
Maximum Heat Input[4]	[redacted]	MMBtu/hr
Number of Engines	[redacted]	Engine

1. Based on manufacturer specifications.

2. Calculated based on anticipated operational time.

3. Heating value of diesel provided in AP-42, Appendix A (09/85).

4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6

Table 4-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3,4]	Emissi
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	
CO_2	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.

2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

3. The manufacturer's supplied data indicates emissions are guaranteed for a fuel sulfur content of 330 ppm. This will be higher than the sulfur content of fuel used by Switch and therefore represents a highly conservative estimate.

4. VOC emission factor is conservatively determined by the total organic compounds per AP-42 Section 3.4, Table 3.4-1 (4/25).

Table 4-3. HAP Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load		[redacted]	Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	**Emission Factor (lb/MMBtu)[1]**	**Hourly PTE (lb/hr)[2,3]**	**(lb/yr)**	**(tpy)[4]**	**(lb/yr)**	**(tpy)**
Benzene	7.76E-04	4.47E-03	0.45	2.23E-04	0.45	2.23E-04
Toluene	2.81E-04	1.62E-03	0.16	8.08E-05	0.16	8.08E-05
Xylenes	1.93E-04	1.11E-03	0.11	5.55E-05	0.11	5.55E-05
Formaldehyde	7.89E-05	4.54E-04	4.54E-02	2.27E-05	4.54E-02	2.27E-05
Acetaldehyde	2.52E-05	1.45E-04	1.45E-02	7.25E-06	1.45E-02	7.25E-06
Acrolein	7.88E-06	4.53E-05	4.53E-03	2.27E-06	4.53E-03	2.27E-06
Naphthalene	1.30E-04	7.48E-04	7.48E-02	3.74E-05	7.48E-02	3.74E-05
Acenaphthylene	9.23E-06	5.31E-05	5.31E-03	2.66E-06	5.31E-03	2.66E-06
Acenaphthene	4.68E-06	2.69E-05	2.69E-03	1.35E-06	2.69E-03	1.35E-06
Fluorene	1.28E-05	7.37E-05	7.37E-03	3.68E-06	7.37E-03	3.68E-06
Phenanthrene	4.08E-05	2.35E-04	2.35E-02	1.17E-05	2.35E-02	1.17E-05
Anthracene	1.23E-06	7.08E-06	7.08E-04	3.54E-07	7.08E-04	3.54E-07
Fluoranthene	4.03E-06	2.32E-05	2.32E-03	1.16E-06	2.32E-03	1.16E-06
Pyrene	3.71E-06	2.13E-05	2.13E-03	1.07E-06	2.13E-03	1.07E-06
Benzo(a)anthracene	6.22E-07	3.58E-06	3.58E-04	1.79E-07	3.58E-04	1.79E-07
Chrysene	1.53E-06	8.80E-06	8.80E-04	4.40E-07	8.80E-04	4.40E-07
Benzo(b)fluoranthene	1.11E-06	6.39E-06	6.39E-04	3.19E-07	6.39E-04	3.19E-07
Benzo(k)fluoranthene	2.18E-07	1.25E-06	1.25E-04	6.27E-08	1.25E-04	6.27E-08
Benzo(a)pyrene	2.57E-07	1.48E-06	1.48E-04	7.39E-08	1.48E-04	7.39E-08
Indeno(1,2,3-cd)pyrene	4.14E-07	2.38E-06	2.38E-04	1.19E-07	2.38E-04	1.19E-07
Dibenz(a,h)anthracene	3.46E-07	1.99E-06	1.99E-04	9.95E-08	1.99E-04	9.95E-08
Benzo(g,h,i)perylene	5.56E-07	3.20E-06	3.20E-04	1.60E-07	3.20E-04	1.60E-07
Total HAPs:		9.05E-03	0.91	4.53E-04	0.91	4.53E-04

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.
Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).
4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 5-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]	CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	**Global Warming Potential[1]**	**Emission Factor (kg/MMBtu)[2]**	**Hourly PTE (lb/hr)**	**(lb/yr)[3]**	**(tpy)**	**(lb/yr)**	**(tpy)**
CO_2[4]	1	474.49	859.92	85,991.72	43.00	85,991.72	43.00
CH_4	28	3.00E-03	1.07	106.56	5.33E-02	106.56	5.33E-02
N_2O	265	6.00E-04	2.02	201.71	0.10	201.71	0.10
Total CO_2e Emissions:			863.00	86,300.00	43.15	86,300.00	43.15

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."
2. Emission factor for carbon dioxide is obtained from manufacturer specifications and is in the units of g/hp-hr. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.
3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).
4. CO_2 emissions per the manufacturer specifications.

Table 4-5. Potential Emissions per Engine

Engine Load (%)	[redacted]	Annual PTE (per engine)	
Engine Power (kW)			
Hours per Year at % Load			
Pollutant	Hourly PTE (lb/hr)[1]	(lb/yr)[2]	(tpy)
NO_x	9.05	905.46	0.45
CO	0.54	54.06	2.70E-02
PM	4.05E-02	4.05	2.03E-03
PM_{10}	4.05E-02	4.05	2.03E-03
$PM_{2.5}$	4.05E-02	4.05	2.03E-03
SO_x	0.18	17.97	8.99E-03
VOC	0.12	12.16	6.08E-03
HAP	9.05E-03	0.91	4.53E-04
GHG	863.00	86,300.00	43.15

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb).
2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb)

Table 5-1. Key Parameters/Constants for Proposed Diesel Fired Emergency Back-up Generator Emission Calculations - System 5

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]	[redacted]	kW
Maximum Fuel Consumption Rate[1]	[redacted]	gal/hr
Annual Hours[2]	[redacted]	hrs/yr
Heating Value of Diesel[3]	137,000.00	btu/gal
Maximum Heat Input[4]	[redacted]	MMBtu/hr
Number of Engines	[redacted]	Engine

1. Based on manufacturer specifications.

2. Calculated based on anticipated operational time.

3. Heating value of diesel provided in AP-42, Appendix A (09/85).

4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6

Table 5-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3,4]	Emission Fact
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	
CO_2	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.

2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

3. The manufacturer's supplied data indicates emissions are guaranteed for a fuel sulfur content of 330 ppm. This will be higher than the sulfur content of fuel used by Switch and therefore represents a highly conservative estimate.

4. VOC emission factor is conservatively determined by the total organic compounds per AP-42 Section 3.4, Table 3.4-1 (4/25).

Table 5-3. HAP Emissions per Engine

Engine Load (%) Engine Power (kW) Hours per Year at % Load		[redacted]	Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]	(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	6.48E-03	0.65	3.24E-04	0.65	3.24E-04
Toluene	2.81E-04	2.35E-03	0.23	1.17E-04	0.23	1.17E-04
Xylenes	1.93E-04	1.61E-03	0.16	8.06E-05	0.16	8.06E-05
Formaldehyde	7.89E-05	6.59E-04	6.59E-02	3.30E-05	6.59E-02	3.30E-05
Acetaldehyde	2.52E-05	2.11E-04	2.11E-02	1.05E-05	2.11E-02	1.05E-05
Acrolein	7.88E-06	6.58E-05	6.58E-03	3.29E-06	6.58E-03	3.29E-06
Naphthalene	1.30E-04	1.09E-03	0.11	5.43E-05	0.11	5.43E-05
Acenaphthylene	9.23E-06	7.71E-05	7.71E-03	3.86E-06	7.71E-03	3.86E-06
Acenaphthene	4.68E-06	3.91E-05	3.91E-03	1.95E-06	3.91E-03	1.95E-06
Fluorene	1.28E-05	1.07E-04	1.07E-02	5.35E-06	1.07E-02	5.35E-06
Phenanthrene	4.08E-05	3.41E-04	3.41E-02	1.70E-05	3.41E-02	1.70E-05
Anthracene	1.23E-06	1.03E-05	1.03E-03	5.14E-07	1.03E-03	5.14E-07
Fluoranthene	4.03E-06	3.37E-05	3.37E-03	1.68E-06	3.37E-03	1.68E-06
Pyrene	3.71E-06	3.10E-05	3.10E-03	1.55E-06	3.10E-03	1.55E-06
Benzo(a)anthracene	6.22E-07	5.20E-06	5.20E-04	2.60E-07	5.20E-04	2.60E-07
Chrysene	1.53E-06	1.28E-05	1.28E-03	6.39E-07	1.28E-03	6.39E-07
Benzo(b)fluoranthene	1.11E-06	9.27E-06	9.27E-04	4.64E-07	9.27E-04	4.64E-07
Benzo(k)fluoranthene	2.18E-07	1.82E-06	1.82E-04	9.11E-08	1.82E-04	9.11E-08
Benzo(a)pyrene	2.57E-07	2.15E-06	2.15E-04	1.07E-07	2.15E-04	1.07E-07
Indeno(1,2,3-cd)pyrene	4.14E-07	3.46E-06	3.46E-04	1.73E-07	3.46E-04	1.73E-07
Dibenz(a,h)anthracene	3.46E-07	2.89E-06	2.89E-04	1.45E-07	2.89E-04	1.45E-07
Benzo(g,h,i)perylene	5.56E-07	4.65E-06	4.65E-04	2.32E-07	4.65E-04	2.32E-07
Total HAPs:		1.31E-02	1.31	6.57E-04	1.31	6.57E-04

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.
Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).
4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 5-4. Greenhouse Gas Potential to Emit

Engine Load (%) Engine Power (kW) Hours per Year at % Load			[redacted]	CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)	(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2[4]	1	474.49	1,248.49	124,849.32	62.42	124,849.32	62.42
CH_4	28	3.00E-03	1.55	154.72	7.74E-02	154.72	7.74E-02
N_2O	265	6.00E-04	2.93	292.86	0.15	292.86	0.15
Total CO_2e Emissions:			1,252.97	125,296.90	62.65	125,296.90	62.65

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."
2. Emission factor for carbon dioxide is obtained from manufacturer specifications and is in the units of g/hp-hr. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.
3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).
4. CO_2 emissions per the manufacturer specifications.

Table 5-5. Potential Emissions per Engine

Engine Load (%)	[redacted]	Annual PTE (per engine)	
Engine Power (kW)			
Hours per Year at % Load			
Pollutant	Hourly PTE (lb/hr)[1]	(lb/yr)[2]	(tpy)
NO_x	12.17	1,216.51	0.61
CO	1.18	117.73	5.89E-02
PM	3.92E-02	3.92	1.96E-03
PM_{10}	3.92E-02	3.92	1.96E-03
$PM_{2.5}$	3.92E-02	3.92	1.96E-03
SO_x	1.18E-02	1.18	5.89E-04
VOC	0.18	17.66	8.83E-03
HAP	1.31E-02	1.31	6.57E-04
GHG	1,252.97	125,296.90	62.65

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb).
2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 6-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 6

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]		kW
Maximum Fuel Consumption Rate [1]		gal/hr
Annual Hours [2]		hrs/yr
Heating Value of Diesel [3]		btu/gal
Maximum Heat Input [4]		MMBtu/hr
Number of New Engines		Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 6-2. Emission Factors

Engine Load (%) Engine Power (kW) Pollutant[1,2,3,4]	[redacted]
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.

2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

3. SO_x emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1).

4. The engine power and emission factor for 41.86% and 40.88% loads were calculated based on interpolation between 50% and 25% loads. For purposes of calculating emissions it was assumed that operations at 0% load are represented by 3% load emission factors.

Table 6-3. HAP Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load		[redacted]						Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]						(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	2.74E-02	2.05E-02	1.37E-02	1.15E-02	1.12E-02	8.23E-04	0.49	2.44E-04	99.74	4.99E-02
Toluene	2.81E-04	9.91E-03	7.44E-03	4.96E-03	4.15E-03	4.05E-03	2.98E-04	0.18	8.85E-05	36.12	1.81E-02
Xylenes	1.93E-04	6.81E-03	5.11E-03	3.40E-03	2.85E-03	2.78E-03	2.05E-04	0.12	6.08E-05	24.81	1.24E-02
Formaldehyde	7.89E-05	2.78E-03	2.09E-03	1.39E-03	1.17E-03	1.14E-03	8.37E-05	4.97E-02	2.49E-05	10.14	5.07E-03
Acetaldehyde	2.52E-05	8.89E-04	6.67E-04	4.44E-04	3.72E-04	3.63E-04	2.67E-05	1.59E-02	7.94E-06	3.24	1.62E-03
Acrolein	7.88E-06	2.78E-04	2.09E-04	1.39E-04	1.16E-04	1.14E-04	8.36E-06	4.97E-03	2.48E-06	1.01	5.06E-04
Naphthalene	1.30E-04	4.59E-03	3.44E-03	2.29E-03	1.92E-03	1.87E-03	1.38E-04	8.19E-02	4.10E-05	16.71	8.35E-03
Acenaphthylene	9.23E-06	3.26E-04	2.44E-04	1.63E-04	1.36E-04	1.33E-04	9.79E-06	5.82E-03	2.91E-06	1.19	5.93E-04
Acenaphthene	4.68E-06	1.65E-04	1.24E-04	8.25E-05	6.91E-05	6.75E-05	4.96E-06	2.95E-03	1.47E-06	0.60	3.01E-04
Fluorene	1.28E-05	4.52E-04	3.39E-04	2.26E-04	1.89E-04	1.85E-04	1.36E-05	8.07E-03	4.03E-06	1.65	8.23E-04
Phenanthrene	4.08E-05	1.44E-03	1.08E-03	7.20E-04	6.03E-04	5.88E-04	4.33E-05	2.57E-02	1.29E-05	5.24	2.62E-03
Anthracene	1.23E-06	4.34E-05	3.25E-05	2.17E-05	1.82E-05	1.77E-05	1.30E-06	7.75E-04	3.87E-07	0.16	7.90E-05
Fluoranthene	4.03E-06	1.42E-04	1.07E-04	7.11E-05	5.95E-05	5.81E-05	4.27E-06	2.54E-03	1.27E-06	0.52	2.59E-04
Pyrene	3.71E-06	1.31E-04	9.82E-05	6.54E-05	5.48E-05	5.35E-05	3.94E-06	2.34E-03	1.17E-06	0.48	2.38E-04
Benzo(a)anthracene	6.22E-07	2.19E-05	1.65E-05	1.10E-05	9.19E-06	8.97E-06	6.60E-07	3.92E-04	1.96E-07	7.99E-02	4.00E-05
Chrysene	1.53E-06	5.40E-05	4.05E-05	2.70E-05	2.26E-05	2.21E-05	1.62E-06	9.64E-04	4.82E-07	0.20	9.83E-05
Benzo(b)fluoranthene	1.11E-06	3.92E-05	2.94E-05	1.96E-05	1.64E-05	1.60E-05	1.18E-06	6.99E-04	3.50E-07	0.14	7.13E-05
Benzo(k)fluoranthene	2.18E-07	7.69E-06	5.77E-06	3.85E-06	3.22E-06	3.14E-06	2.31E-07	1.37E-04	6.87E-08	2.80E-02	1.40E-05
Benzo(a)pyrene	2.57E-07	9.07E-06	6.80E-06	4.53E-06	3.80E-06	3.71E-06	2.73E-07	1.62E-04	8.10E-08	3.30E-02	1.65E-05
Indeno(1,2,3-cd)pyrene	4.14E-07	1.46E-05	1.10E-05	7.30E-06	6.11E-06	5.97E-06	4.39E-07	2.61E-04	1.30E-07	5.32E-02	2.66E-05
Dibenz(a,h)anthracene	3.46E-07	1.22E-05	9.16E-06	6.10E-06	5.11E-06	4.99E-06	3.67E-07	2.18E-04	1.09E-07	4.45E-02	2.22E-05
Benzo(g,h,i)perylene	5.56E-07	1.96E-05	1.47E-05	9.81E-06	8.21E-06	8.02E-06	5.90E-07	3.50E-04	1.75E-07	7.15E-02	3.57E-05
Total HAPs:		5.55E-02	4.16E-02	2.78E-02	2.32E-02	2.27E-02	1.67E-03	0.99	4.96E-04	202.25	0.10

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).

2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).

3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a. Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 6-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]						CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)						(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	5,752.04	4,314.80	2,876.02	2,408.05	2,351.71	172.96	102,737.12	51.37	20,958,372.00	10,479.19
CH_4	28	3.00E-03	6.53	4.90	3.27	2.73	2.67	0.20	116.68	5.83E-02	23,803.45	11.90
N_2O	265	6.00E-04	12.37	9.28	6.18	5.18	5.06	0.37	220.87	0.11	45,056.53	22.53
Total CO_2e Emissions:			5,770.94	4,328.97	2,885.47	2,415.96	2,359.44	173.53	103,074.67	51.54	21,027,231.98	10,513.62

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

Table 6-5. Potential Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load							Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Hourly PTE (lb/hr)[1]						(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	58.82	26.72	19.06	16.97	16.69	2.37	708.72	0.35	144,579.35	72.29
CO	1.66	3.73	3.31	4.13	4.19	1.37	137.90	6.90E-02	28,131.96	14.07
PM	0.33	0.87	0.58	0.68	0.68	0.12	23.15	1.16E-02	4,723.25	2.36
PM_{10}	0.33	0.87	0.58	0.68	0.68	0.12	23.15	1.16E-02	4,723.25	2.36
$PM_{2.5}$	0.33	0.87	0.58	0.68	0.68	0.12	23.15	1.16E-02	4,723.25	2.36
SO_X	6.12E-02	4.59E-02	3.06E-02	2.56E-02	2.50E-02	1.84E-03	1.09	5.46E-04	222.83	0.11
VOC	2.90	2.80	2.65	2.91	2.92	1.27	106.66	5.33E-02	21,758.22	10.88
HAP	5.55E-02	4.16E-02	2.78E-02	2.32E-02	2.27E-02	1.67E-03	0.99	4.96E-04	202.25	0.10
GHG	5,770.94	4,328.97	2,885.47	2,415.96	2,359.44	173.53	103,074.67	51.54	21,027,231.98	10,513.62

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 3% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 7-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 7

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]		kW
Maximum Fuel Consumption Rate [1]		gal/hr
Annual Hours [2]		hrs/yr
Heating Value of Diesel [3]		btu/gal
Maximum Heat Input [4]		MMBtu/hr
Number of New Engines		Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 7-2. Emission Factors

Engine Load (%) Engine Power (kW) Pollutant[1,2,3,4]	[redacted]
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. SO_x emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1).
4. The engine power and emission factor for 41.86% and 40.88% loads were calculated based on interpolation between 50% and 25% loads. For purposes of calculating emissions it was assumed that operations at 0% load are represented by 3% load emission factors.

Table 7-3. HAP Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load		[redacted]						Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]						(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	1.20E-02	9.04E-03	6.02E-03	5.04E-03	4.93E-03	3.64E-04	0.22	1.08E-04	1.72	8.61E-04
Toluene	2.81E-04	4.36E-03	3.27E-03	2.18E-03	1.83E-03	1.78E-03	1.32E-04	7.79E-02	3.90E-05	0.62	3.12E-04
Xylenes	1.93E-04	3.00E-03	2.25E-03	1.50E-03	1.25E-03	1.23E-03	9.06E-05	5.35E-02	2.68E-05	0.43	2.14E-04
Formaldehyde	7.89E-05	1.23E-03	9.19E-04	6.13E-04	5.13E-04	5.01E-04	3.70E-05	2.19E-02	1.09E-05	0.18	8.75E-05
Acetaldehyde	2.52E-05	3.91E-04	2.93E-04	1.96E-04	1.64E-04	1.60E-04	1.18E-05	6.99E-03	3.49E-06	5.59E-02	2.80E-05
Acrolein	7.88E-06	1.22E-04	9.18E-05	6.12E-05	5.12E-05	5.00E-05	3.70E-06	2.19E-03	1.09E-06	1.75E-02	8.74E-06
Naphthalene	1.30E-04	2.02E-03	1.51E-03	1.01E-03	8.45E-04	8.25E-04	6.10E-05	3.61E-02	1.80E-05	0.29	1.44E-04
Acenaphthylene	9.23E-06	1.43E-04	1.07E-04	7.17E-05	6.00E-05	5.86E-05	4.33E-06	2.56E-03	1.28E-06	2.05E-02	1.02E-05
Acenaphthene	4.68E-06	7.27E-05	5.45E-05	3.63E-05	3.04E-05	2.97E-05	2.20E-06	1.30E-03	6.49E-07	1.04E-02	5.19E-06
Fluorene	1.28E-05	1.99E-04	1.49E-04	9.94E-05	8.32E-05	8.12E-05	6.01E-06	3.55E-03	1.77E-06	2.84E-02	1.42E-05
Phenanthrene	4.08E-05	6.33E-04	4.75E-04	3.17E-04	2.65E-04	2.59E-04	1.91E-05	1.13E-02	5.66E-06	9.05E-02	4.53E-05
Anthracene	1.23E-06	1.91E-05	1.43E-05	9.55E-06	7.99E-06	7.81E-06	5.77E-07	3.41E-04	1.71E-07	2.73E-03	1.36E-06
Fluoranthene	4.03E-06	6.26E-05	4.69E-05	3.13E-05	2.62E-05	2.56E-05	1.89E-06	1.12E-03	5.59E-07	8.94E-03	4.47E-06
Pyrene	3.71E-06	5.76E-05	4.32E-05	2.88E-05	2.41E-05	2.35E-05	1.74E-06	1.03E-03	5.14E-07	8.23E-03	4.12E-06
Benzo(a)anthracene	6.22E-07	9.66E-06	7.24E-06	4.83E-06	4.04E-06	3.95E-06	2.92E-07	1.72E-04	8.62E-08	1.38E-03	6.90E-07
Chrysene	1.53E-06	2.38E-05	1.78E-05	1.19E-05	9.94E-06	9.71E-06	7.18E-07	4.24E-04	2.12E-07	3.39E-03	1.70E-06
Benzo(b)fluoranthene	1.11E-06	1.72E-05	1.29E-05	8.62E-06	7.21E-06	7.05E-06	5.21E-07	3.08E-04	1.54E-07	2.46E-03	1.23E-06
Benzo(k)fluoranthene	2.18E-07	3.38E-06	2.54E-06	1.69E-06	1.42E-06	1.38E-06	1.02E-07	6.05E-05	3.02E-08	4.84E-04	2.42E-07
Benzo(a)pyrene	2.57E-07	3.99E-06	2.99E-06	2.00E-06	1.67E-06	1.63E-06	1.21E-07	7.13E-05	3.56E-08	5.70E-04	2.85E-07
Indeno(1,2,3-cd)pyrene	4.14E-07	6.43E-06	4.82E-06	3.21E-06	2.69E-06	2.63E-06	1.94E-07	1.15E-04	5.74E-08	9.18E-04	4.59E-07
Dibenz(a,h)anthracene	3.46E-07	5.37E-06	4.03E-06	2.69E-06	2.25E-06	2.20E-06	1.62E-07	9.60E-05	4.80E-08	7.68E-04	3.84E-07
Benzo(g,h,i)perylene	5.56E-07	8.63E-06	6.47E-06	4.32E-06	3.61E-06	3.53E-06	2.61E-07	1.54E-04	7.71E-08	1.23E-03	6.17E-07
Total HAPs:		2.44E-02	1.83E-02	1.22E-02	1.02E-02	9.99E-03	7.39E-04	0.44	2.18E-04	3.49	1.75E-03

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).

2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).

3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a. Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 7-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]						CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)						(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	2,531.63	1,898.72	1,265.82	1,059.74	1,034.93	76.53	45,217.58	22.61	361,740.64	180.87
CH_4	28	3.00E-03	2.88	2.16	1.44	1.20	1.18	8.69E-02	51.36	2.57E-02	410.85	0.21
N_2O	265	6.00E-04	5.44	4.08	2.72	2.28	2.22	0.16	97.21	4.86E-02	777.67	0.39
Total CO_2e Emissions:			2,539.95	1,904.96	1,269.98	1,063.22	1,038.33	76.78	45,366.15	22.68	362,929.16	181.46

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

Table 7-5. Potential Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load							Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Hourly PTE (lb/hr)[1]						(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	40.48	16.96	8.39	6.82	6.64	0.77	311.05	0.16	2,488.37	1.24
CO	0.36	0.82	0.73	1.01	1.03	0.33	31.75	1.59E-02	254.01	0.13
PM	3.65E-02	0.11	0.16	0.19	0.19	0.23	7.23	3.61E-03	57.83	2.89E-02
PM_{10}	3.65E-02	0.11	0.16	0.19	0.19	0.23	7.23	3.61E-03	57.83	2.89E-02
$PM_{2.5}$	3.65E-02	0.11	0.16	0.19	0.19	0.23	7.23	3.61E-03	57.83	2.89E-02
SO_x	2.69E-02	2.02E-02	1.35E-02	1.13E-02	1.10E-02	8.14E-04	0.48	2.40E-04	3.85	1.92E-03
VOC	7.29E-02	8.20E-02	0.11	0.12	0.12	6.61E-02	4.38	2.19E-03	35.03	1.75E-02
HAP	2.44E-02	1.83E-02	1.22E-02	1.02E-02	9.99E-03	7.39E-04	0.44	2.18E-04	3.49	1.75E-03
GHG	2,539.95	1,904.96	1,269.98	1,063.22	1,038.33	76.78	45,366.15	22.68	362,929.16	181.46

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 3% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 8-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 8

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]	[redacted]	kW
Maximum Fuel Consumption Rate [1]	[redacted]	gal/hr
Annual Hours [2]	[redacted]	hrs/yr
Heating Value of Diesel [3]	137,000.00	btu/gal
Maximum Heat Input [4]	[redacted]	MMBtu/hr
Number of New Engines	[redacted]	Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 8-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3]	Emissi
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.

2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

3. SO_x emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1).

Table 8-3. HAP Emissions per Engine

Engine Load (%)		[redacted]	Annual PTE (per engine)		Annual PTE (all engines)	
Engine Power (kW)		147.00				
Hours per Year at % Load		[redacted]				
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]	(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	9.33E-04	1.29E-03	0.13	6.44E-05	0.26	1.29E-04
Toluene	4.09E-04	5.64E-04	5.64E-02	2.82E-05	0.11	5.64E-05
Xylenes	2.85E-04	3.93E-04	3.93E-02	1.97E-05	7.87E-02	3.93E-05
1,3-Butadiene	3.91E-05	5.40E-05	5.40E-03	2.70E-06	1.08E-02	5.40E-06
Formaldehyde	1.18E-03	1.63E-03	0.16	8.14E-05	0.33	1.63E-04
Acetaldehyde	7.67E-04	1.06E-03	0.11	5.29E-05	0.21	1.06E-04
Acrolein	9.25E-05	1.28E-04	1.28E-02	6.38E-06	2.55E-02	1.28E-05
Naphthalene	8.48E-05	1.17E-04	1.17E-02	5.85E-06	2.34E-02	1.17E-05
Acenaphthylene	5.06E-06	6.98E-06	6.98E-04	3.49E-07	1.40E-03	6.98E-07
Acenaphthene	1.42E-06	1.96E-06	1.96E-04	9.80E-08	3.92E-04	1.96E-07
Fluorene	2.92E-05	4.03E-05	4.03E-03	2.01E-06	8.06E-03	4.03E-06
Phenanthrene	2.94E-05	4.06E-05	4.06E-03	2.03E-06	8.11E-03	4.06E-06
Anthracene	1.87E-06	2.58E-06	2.58E-04	1.29E-07	5.16E-04	2.58E-07
Fluoranthene	7.61E-06	1.05E-05	1.05E-03	5.25E-07	2.10E-03	1.05E-06
Pyrene	4.78E-06	6.60E-06	6.60E-04	3.30E-07	1.32E-03	6.60E-07
Benzo(a)anthracene	1.68E-06	2.32E-06	2.32E-04	1.16E-07	4.64E-04	2.32E-07
Chrysene	3.53E-07	4.87E-07	4.87E-05	2.44E-08	9.74E-05	4.87E-08
Benzo(b)fluoranthene	9.91E-08	1.37E-07	1.37E-05	6.84E-09	2.73E-05	1.37E-08
Benzo(k)fluoranthene	1.55E-07	2.14E-07	2.14E-05	1.07E-08	4.28E-05	2.14E-08
Benzo(a)pyrene	1.88E-07	2.59E-07	2.59E-05	1.30E-08	5.19E-05	2.59E-08
Indeno(1,2,3-cd)pyrene	3.75E-07	5.17E-07	5.17E-05	2.59E-08	1.03E-04	5.17E-08
Dibenz(a,h)anthracene	5.83E-07	8.04E-07	8.04E-05	4.02E-08	1.61E-04	8.04E-08
Benzo(g,h,i)perylene	4.89E-07	6.75E-07	6.75E-05	3.37E-08	1.35E-04	6.75E-08
Total HAPs:		5.35E-03	0.53	2.67E-04	1.07	5.35E-04

1. HAP Emission Factors per AP-42 Chapter 3.3, Table 3.3-2 (4/25).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.
Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).
4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 8-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]	CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]		(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	225.00	22,500.00	11.25	44,999.99	22.50
CH_4	28	3.00E-03	0.26	25.55	1.28E-02	51.11	2.56E-02
N_2O	265	6.00E-04	0.48	48.37	2.42E-02	96.74	4.84E-02
Total CO_2e Emissions:			225.74	22,573.92	11.29	45,147.85	22.57

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

Table 8-5. Potential Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load	[redacted]	Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Hourly PTE (lb/hr)[1]	(lb/yr)[2]	(tpy)	(lb/yr)	(tpy)
NO_x	1.23	122.83	6.14E-02	245.65	0.12
CO	0.39	38.89	1.94E-02	77.78	3.89E-02
PM	3.89E-02	3.89	1.94E-03	7.78	3.89E-03
PM_{10}	3.89E-02	3.89	1.94E-03	7.78	3.89E-03
$PM_{2.5}$	3.89E-02	3.89	1.94E-03	7.78	3.89E-03
SO_X	2.39E-03	0.24	1.20E-04	0.48	2.39E-04
VOC	3.89E-02	3.89	1.94E-03	7.78	3.89E-03
HAP	5.35E-03	0.53	2.67E-04	1.07	5.35E-04
GHG	225.74	22,573.92	11.29	45,147.85	22.57

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb).
2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 9-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 9

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]	[redacted]	kW
Maximum Fuel Consumption Rate [1]	[redacted]	gal/hr
Annual Hours [2]	[redacted]	hrs/yr
Heating Value of Diesel [3]	137,000.00	btu/gal
Maximum Heat Input [4]	[redacted]	MMBtu/hr
Number of New Engines	[redacted]	Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 9-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	[redacted]
Pollutant[1,2,3]	Emissio[redacted]
NO_x	[redacted]
CO	[redacted]
PM	[redacted]
PM_{10}	[redacted]
$PM_{2.5}$	[redacted]
SO_X	[redacted]
VOC	[redacted]

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. SO_x emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1).

Table 9-3. HAP Emissions per Engine

Engine Load (%) Engine Power (kW) Hours per Year at % Load		[redacted]	Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]	(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	2.92E-03	0.29	1.46E-04	0.29	1.46E-04
Toluene	2.81E-04	1.06E-03	1.06E-01	5.29E-05	1.06E-01	5.29E-05
Xylenes	1.93E-04	7.27E-04	7.27E-02	3.63E-05	7.27E-02	3.63E-05
Formaldehyde	7.89E-05	2.97E-04	2.97E-02	1.48E-05	2.97E-02	1.48E-05
Acetaldehyde	2.52E-05	9.49E-05	9.49E-03	4.74E-06	9.49E-03	4.74E-06
Acrolein	7.88E-06	2.97E-05	2.97E-03	1.48E-06	2.97E-03	1.48E-06
Naphthalene	1.30E-04	4.89E-04	4.89E-02	2.45E-05	4.89E-02	2.45E-05
Acenaphthylene	9.23E-06	3.47E-05	3.47E-03	1.74E-06	3.47E-03	1.74E-06
Acenaphthene	4.68E-06	1.76E-05	1.76E-03	8.81E-07	1.76E-03	8.81E-07
Fluorene	1.28E-05	4.82E-05	4.82E-03	2.41E-06	4.82E-03	2.41E-06
Phenanthrene	4.08E-05	1.54E-04	1.54E-02	7.68E-06	1.54E-02	7.68E-06
Anthracene	1.23E-06	4.63E-06	4.63E-04	2.32E-07	4.63E-04	2.32E-07
Fluoranthene	4.03E-06	1.52E-05	1.52E-03	7.58E-07	1.52E-03	7.58E-07
Pyrene	3.71E-06	1.40E-05	1.40E-03	6.98E-07	1.40E-03	6.98E-07
Benzo(a)anthracene	6.22E-07	2.34E-06	2.34E-04	1.17E-07	2.34E-04	1.17E-07
Chrysene	1.53E-06	5.76E-06	5.76E-04	2.88E-07	5.76E-04	2.88E-07
Benzo(b)fluoranthene	1.11E-06	4.18E-06	4.18E-04	2.09E-07	4.18E-04	2.09E-07
Benzo(k)fluoranthene	2.18E-07	8.21E-07	8.21E-05	4.10E-08	8.21E-05	4.10E-08
Benzo(a)pyrene	2.57E-07	9.67E-07	9.67E-05	4.84E-08	9.67E-05	4.84E-08
Indeno(1,2,3-cd)pyrene	4.14E-07	1.56E-06	1.56E-04	7.79E-08	1.56E-04	7.79E-08
Dibenz(a,h)anthracene	3.46E-07	1.30E-06	1.30E-04	6.51E-08	1.30E-04	6.51E-08
Benzo(g,h,i)perylene	5.56E-07	2.09E-06	2.09E-04	1.05E-07	2.09E-04	1.05E-07
Total HAPs:		5.92E-03	0.59	2.96E-04	0.59	2.96E-04

1. HAP Emission Factors per AP-42 Chapter 3.4, Tables 3.4-3 and 3.4-4 (4/25).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a. Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 9-4. Greenhouse Gas Potential to Emit

Engine Load (%) Engine Power (kW) Hours per Year at % Load			[redacted]	CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)	(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	613.78	61,377.54	30.69	61,377.54	30.69
CH_4	28	3.00E-03	0.70	69.71	3.49E-02	69.71	3.49E-02
N_2O	265	6.00E-04	1.32	131.95	6.60E-02	131.95	6.60E-02
Total CO_2e Emissions:			615.79	61,579.20	30.79	61,579.20	30.79

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."
2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

Table 9-5. Potential Emissions per Engine

Engine Load (%) Engine Power (kW) Hours per Year at % Load	[redacted]	Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Hourly PTE (lb/hr)[1]	(lb/yr)[2]	(tpy)	(lb/yr)	(tpy)
NO_x	2.93	292.62	1.46E-01	292.62	1.46E-01
CO	0.53	53.04	2.65E-02	53.04	2.65E-02
PM	8.84E-02	8.84	4.42E-03	8.84	4.42E-03
PM_{10}	8.84E-02	8.84	4.42E-03	8.84	4.42E-03
$PM_{2.5}$	8.84E-02	8.84	4.42E-03	8.84	4.42E-03
SO_x	6.53E-03	0.65	3.26E-04	0.65	3.26E-04
VOC	0.0972	9.72	4.86E-03	9.72	4.86E-03
HAP	5.92E-03	0.59	2.96E-04	0.59	2.96E-04
GHG	615.79	61,579.20	30.79	61,579.20	30.79

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb).
2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 10-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 1 - [redacted] and [redacted] Post Project

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]		kW
Maximum Fuel Consumption Rate[1]		gal/hr
Annual Hours[2]		hrs/yr
Heating Value of Diesel[3]	137,000.00	btu/gal
Maximum Heat Input[4]	[redacted]	MMBtu/hr
Number of Engines		Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 10-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3]	
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_X	
VOC	
CO_2	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. VOC emission factor is conservatively determined by the total organic compounds per AP-42 Section 3.4, Table 3.4-1 (4/25).

Table 10-3. HAP Emissions per Engine

Engine Load (%)		[redacted]				
Engine Power (kW)						
Hours per Year at % Load						
Pollutant	Emission Factor[1]	Hourly PTE (lb/hr)[2,3]				
Benzene	7.76E-04	2.00E-02	1.49E-02	9.99E-03	4.99E-03	2.01E-03
Toluene	2.81E-04	7.24E-03	5.41E-03	3.62E-03	1.81E-03	7.28E-04
Xylenes	1.93E-04	4.97E-03	3.72E-03	2.48E-03	1.24E-03	5.00E-04
Formaldehyde	7.89E-05	2.03E-03	1.52E-03	1.02E-03	5.07E-04	2.04E-04
Acetaldehyde	2.52E-05	6.49E-04	4.85E-04	3.24E-04	1.62E-04	6.53E-05
Acrolein	7.88E-06	2.03E-04	1.52E-04	1.01E-04	5.07E-05	2.04E-05
Naphthalene	1.30E-04	3.35E-03	2.50E-03	1.67E-03	8.36E-04	3.37E-04
Acenaphthylene	9.23E-06	2.38E-04	1.78E-04	1.19E-04	5.94E-05	2.39E-05
Acenaphthene	4.68E-06	1.21E-04	9.01E-05	6.02E-05	3.01E-05	1.21E-05
Fluorene	1.28E-05	3.30E-04	2.47E-04	1.65E-04	8.23E-05	3.32E-05
Phenanthrene	4.08E-05	1.05E-03	7.86E-04	5.25E-04	2.62E-04	1.06E-04
Anthracene	1.23E-06	3.17E-05	2.37E-05	1.58E-05	7.91E-06	3.19E-06
Fluoranthene	4.03E-06	1.04E-04	7.76E-05	5.19E-05	2.59E-05	1.04E-05
Pyrene	3.71E-06	9.55E-05	7.15E-05	4.77E-05	2.39E-05	9.61E-06
Benzo(a)anthracene	6.22E-07	1.60E-05	1.20E-05	8.01E-06	4.00E-06	1.61E-06
Chrysene	1.53E-06	3.94E-05	2.95E-05	1.97E-05	9.84E-06	3.96E-06
Benzo(b)fluoranthene	1.11E-06	2.86E-05	2.14E-05	1.43E-05	7.14E-06	2.88E-06
Benzo(k)fluoranthene	2.18E-07	5.61E-06	4.20E-06	2.81E-06	1.40E-06	5.65E-07
Benzo(a)pyrene	2.57E-07	6.62E-06	4.95E-06	3.31E-06	1.65E-06	6.66E-07
Indeno(1,2,3-cd)pyrene	4.14E-07	1.07E-05	7.97E-06	5.33E-06	2.66E-06	1.07E-06
Dibenz(a,h)anthracene	3.46E-07	8.91E-06	6.66E-06	4.45E-06	2.22E-06	8.96E-07
Benzo(g,h,i)perylene	5.56E-07	1.43E-05	1.07E-05	7.16E-06	3.58E-06	1.44E-06
Total HAPs:		4.05E-02	3.03E-02	2.03E-02	1.01E-02	4.08E-03

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).

2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).

3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.
Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 10-4. Greenhouse Gas Potential to Emit

Engine Load (%)			[redacted]				
Engine Power (kW)			2,743.00	2,052.00	1,371.00	685.00	276.00
Hours per Year at % Load			[redacted]				
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)				
CO_2[4]	1	Various	3,778.95	2,985.76	2,113.66	1,209.49	741.49
CH_4	28	3.00E-03	4.77	3.57	2.38	1.19	0.48
N_2O	265	6.00E-04	9.03	6.75	4.51	2.25	0.91
Total CO_2e Emissions:			3,792.74	2,996.08	2,120.56	1,212.94	742.88

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from manufacturer specifications. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

4. CO_2 emissions per the manufacturer specifications.

Table 10-5. Potential Emissions per Engine

Engine Load (%)	[redacted]					Annual PTE (per engine)		Annual PTE (all engines)	
Engine Power (kW)									
Hours per Year at % Load									
Pollutant	Hourly PTE (lb/hr)[1]					(lb/yr)[2]	(tpy)	(lb/yr)	(tpy)
NO_x	45.66	23.66	12.88	4.98	6.40	1,343.19	0.67	48,354.76	24.18
CO	4.60	4.43	2.30	3.64	4.84	270.86	0.14	9,750.84	4.88
PM	0.55	0.62	0.27	0.45	0.29	35.84	0.02	1,290.35	0.65
PM_{10}	0.55	0.62	0.27	0.45	0.29	35.84	1.79E-02	1,290.35	0.65
$PM_{2.5}$	0.55	0.62	0.27	0.45	0.29	35.84	1.79E-02	1,290.35	0.65
SO_X	1.81E-02	1.36E-02	1.21E-02	7.55E-03	3.65E-03	0.78	3.88E-04	27.92	1.40E-02
VOC	2.34	1.84	1.31	1.31	1.31	109.10	0.05	3,927.44	1.96
HAP	4.05E-02	3.03E-02	2.03E-02	1.01E-02	4.08E-03	1.70	8.52E-04	61.32	3.07E-02
GHG	3,792.74	2,996.08	2,120.56	1,212.94	742.88	170,250.28	85.13	6,129,010.01	3,064.51

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 10% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 11-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 10 - [redacted] Post Project

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]		kW
Maximum Fuel Consumption Rate[1]		gal/hr
Annual Hours[2]		hrs/yr
Heating Value of Diesel[3]	137,000.00	btu/gal
Maximum Heat Input[4]	[redacted]	MMBtu/hr
Number of Engines		Engine

1. Based on manufacturer specifications, fuel consumption based on heating value of diesel and the heat input.
2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 11-2. Emission Factors

Engine Load (%)		[redacted]
Engine Power (kW)		
Pollutant[1,2,3,4]	E	
NO_x		
CO		
PM		
PM_{10}		
$PM_{2.5}$		
SO_x		
VOC		
CO_2		

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. VOC emission factor is conservatively determined by the total organic compounds per AP-42 Section 3.4, Table 3.4-1 (4/25).

Table 11-3. HAP Emissions per Engine

Engine Load (%)		[redacted]					Annual PTE (per engine)		Annual PTE (all engines)	
Engine Power (kW)										
Hours per Year at % Load										
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]					(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	2.20E-02	1.65E-02	1.10E-02	5.47E-03	2.18E-03	0.92	0.000462472	86.02	4.30E-02
Toluene	2.81E-04	7.95E-03	5.96E-03	3.97E-03	1.98E-03	7.89E-04	0.33	1.67E-04	31.15	1.56E-02
Xylenes	1.93E-04	5.46E-03	4.09E-03	2.73E-03	1.36E-03	5.42E-04	0.23	1.15E-04	21.39	1.07E-02
Formaldehyde	7.89E-05	2.23E-03	1.67E-03	1.11E-03	5.56E-04	2.21E-04	9.40E-02	4.70E-05	8.75	4.37E-03
Acetaldehyde	2.52E-05	7.13E-04	5.35E-04	3.56E-04	1.78E-04	7.07E-05	3.00E-02	1.50E-05	2.79	1.40E-03
Acrolein	7.88E-06	2.23E-04	1.67E-04	1.11E-04	5.56E-05	2.21E-05	9.39E-03	4.70E-06	0.87	4.37E-04
Naphthalene	1.30E-04	3.68E-03	2.76E-03	1.84E-03	9.16E-04	3.65E-04	0.15	7.75E-05	14.41	7.21E-03
Acenaphthylene	9.23E-06	2.61E-04	1.96E-04	1.30E-04	6.51E-05	2.59E-05	1.10E-02	5.50E-06	1.02	5.12E-04
Acenaphthene	4.68E-06	1.32E-04	9.93E-05	6.61E-05	3.30E-05	1.31E-05	5.58E-03	2.79E-06	0.52	2.59E-04
Fluorene	1.28E-05	3.62E-04	2.72E-04	1.81E-04	9.02E-05	3.59E-05	1.53E-02	7.63E-06	1.42	7.09E-04
Phenanthrene	4.08E-05	1.15E-03	8.66E-04	5.76E-04	2.88E-04	1.15E-04	4.86E-02	2.43E-05	4.52	2.26E-03
Anthracene	1.23E-06	3.48E-05	2.61E-05	1.74E-05	8.67E-06	3.45E-06	1.47E-03	7.33E-07	0.14	6.82E-05
Fluoranthene	4.03E-06	1.14E-04	8.55E-05	5.69E-05	2.84E-05	1.13E-05	4.80E-03	2.40E-06	0.45	2.23E-04
Pyrene	3.71E-06	1.05E-04	7.87E-05	5.24E-05	2.62E-05	1.04E-05	4.42E-03	2.21E-06	0.41	2.06E-04
Benzo(a)anthracene	6.22E-07	1.76E-05	1.32E-05	8.79E-06	4.38E-06	1.75E-06	7.41E-04	3.71E-07	6.89E-02	3.45E-05
Chrysene	1.53E-06	4.33E-05	3.25E-05	2.16E-05	1.08E-05	4.29E-06	1.82E-03	9.12E-07	0.17	8.48E-05
Benzo(b)fluoranthene	1.11E-06	3.14E-05	2.35E-05	1.57E-05	7.83E-06	3.12E-06	1.32E-03	6.62E-07	0.12	6.15E-05
Benzo(k)fluoranthene	2.18E-07	6.17E-06	4.62E-06	3.08E-06	1.54E-06	6.12E-07	2.60E-04	1.30E-07	2.42E-02	1.21E-05
Benzo(a)pyrene	2.57E-07	7.27E-06	5.45E-06	3.63E-06	1.81E-06	7.21E-07	3.06E-04	1.53E-07	2.85E-02	1.42E-05
Indeno(1,2,3-cd)pyrene	4.14E-07	1.17E-05	8.78E-06	5.85E-06	2.92E-06	1.16E-06	4.93E-04	2.47E-07	4.59E-02	2.29E-05
Dibenz(a,h)anthracene	3.46E-07	9.79E-06	7.34E-06	4.89E-06	2.44E-06	9.71E-07	4.12E-04	2.06E-07	3.84E-02	1.92E-05
Benzo(g,h,i)perylene	5.56E-07	1.57E-05	1.18E-05	7.85E-06	3.92E-06	1.56E-06	6.63E-04	3.31E-07	6.16E-02	3.08E-05
Total HAPs:		4.45E-02	3.34E-02	2.22E-02	1.11E-02	4.42E-03	1.88	9.38E-04	174.42	8.72E-02

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).

2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).

3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a. Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 11-4. Greenhouse Gas Potential to Emit

Engine Load (%)			[redacted]					CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Engine Power (kW)											
Hours per Year at % Load											
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)					(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2[4]	1	Various	4,152.29	3,288.42	2,320.25	1,326.03	803.28	182,776.11	91.39	16,998,178.19	8,499.09
CH_4	28	3.00E-03	5.24	3.93	2.62	1.31	0.52	218.13	0.11	20,286.46	10.14
N_2O	265	6.00E-04	9.92	7.44	4.95	2.47	0.98	412.90	0.21	38,399.37	19.20
Total CO_2e Emissions:			4,167.45	3,299.78	2,327.82	1,329.80	804.78	183,407.14	91.70	17,056,864.02	8,528.43

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from manufacturer specifications. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.
3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).
4. CO_2 emissions per the manufacturer specifications.

Table 11-5. Potential Emissions per Engine

Engine Load (%)	[redacted]					Annual PTE (per engine)		Annual PTE (all engines)	
Engine Power (kW)									
Hours per Year at % Load									
Pollutant	Hourly PTE (lb/hr)[1]					(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	41.60	27.00	15.56	5.71	6.39	1,528.34	0.76	142,135.74	71.07
CO	7.11	5.63	2.09	2.05	3.54	329.11	0.16	30,607.57	15.30
PM	0.57	0.70	0.34	0.38	0.25	40.20	2.01E-02	3,738.43	1.87
PM_{10}	0.57	0.70	0.34	0.38	0.25	40.20	2.01E-02	3,738.43	1.87
$PM_{2.5}$	0.57	0.70	0.34	0.38	0.25	40.20	2.01E-02	3,738.43	1.87
SO_x	1.99E-02	1.49E-02	1.33E-02	6.62E-03	3.30E-03	0.85	4.25E-04	79.02	3.95E-02
VOC	0.80	0.80	0.83	1.18	1.31	51.48	2.57E-02	4,787.53	2.39
HAP	4.45E-02	3.34E-02	2.22E-02	1.11E-02	4.42E-03	1.88	9.38E-04	174.42	8.72E-02
GHG	4,167.45	3,299.78	2,327.82	1,329.80	804.78	187,431.06	93.72	17,431,088.13	8,715.54

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 11% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 12-1. Key Parameters/Constants for Proposed Fluid Cooler Emission Calculations - System 3 Post Project

Parameters[1]	
Manufacturer	[redacted]
Model Number	[redacted]
Total cooling towers	[redacted]
Maximum TDS (ppm)[2]	[redacted]
Drift Rate (%)	[redacted]
Water Flow Rate (GPM)	[redacted]
Operation Hours (hr/yr)	[redacted]

1. Fluid cooler parameters consistent with current permit representations.
2. TDS results from October 23, 2017 report by ALS Global (reflects maximum of two readings).

Table 12-2. Fluid Cooler Potential to Emit

Pollutant	Potential Emissions, [redacted]		Potential Emissions, Facility Wide Cooling Towers	
	Hourly (lb/hr)	Annual (tpy)	Hourly (lb/hr)	Annual (tpy)
$PM/PM_{10}/PM_{2.5}$ [1,2,3]	2.07E-03	9.05E-03	0.11	0.49

1. Conservatively, PM_{10} and $PM_{2.5}$ are assumed to be equivalent to PM.

2. Hourly Emissions of $PM/PM_{10}/PM_{2.5}$ (lb/hr) = Water Flow Rate (gpm) * Drift Rate (%) / 100 x Max. TDS (ppmw) * 8.345 (lb water/gal) * 60 (min/hr)*Number of Cooling Towers/10^6.

3. Annual Emissions of $PM/PM_{10}/PM_{2.5}$ (tpy) = Hourly Emissions of PM (lb/hr) * Operating Hours (hr/yr) / 2000 (lb/ton).

Table 13-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 6 Post Project

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]		kW
Maximum Fuel Consumption Rate [1]		gal/hr
Annual Hours [2]		hrs/yr
Heating Value of Diesel [3]		btu/gal
Maximum Heat Input [4]		MMBtu/hr
Number of New Engines		Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 13-2. Emission Factors

Engine Load (%) Engine Power (kW) Pollutant[1,2,3,4]	[redacted]
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. SO_x emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur
4. The engine power and emission factor for 41.86% and 40.88% loads were calculated based on interpolation between 50% and 25% loads. For purposes of calculating emissions it was assumed that operations at 0% load are represented by 3% load emission factors.

Table 13-3. HAP Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load		[redacted]						Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]						(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	2.74E-02	2.05E-02	1.37E-02	1.15E-02	1.12E-02	8.23E-04	0.49	2.44E-04	88.01	4.40E-02
Toluene	2.81E-04	9.91E-03	7.44E-03	4.96E-03	4.15E-03	4.05E-03	2.98E-04	0.18	8.85E-05	31.87	1.59E-02
Xylenes	1.93E-04	6.81E-03	5.11E-03	3.40E-03	2.85E-03	2.78E-03	2.05E-04	0.12	6.08E-05	21.89	1.09E-02
Formaldehyde	7.89E-05	2.78E-03	2.09E-03	1.39E-03	1.17E-03	1.14E-03	8.37E-05	4.97E-02	2.49E-05	8.95	4.47E-03
Acetaldehyde	2.52E-05	8.89E-04	6.67E-04	4.44E-04	3.72E-04	3.63E-04	2.67E-05	1.59E-02	7.94E-06	2.86	1.43E-03
Acrolein	7.88E-06	2.78E-04	2.09E-04	1.39E-04	1.16E-04	1.14E-04	8.36E-06	4.97E-03	2.48E-06	0.89	4.47E-04
Naphthalene	1.30E-04	4.59E-03	3.44E-03	2.29E-03	1.92E-03	1.87E-03	1.38E-04	8.19E-02	4.10E-05	14.74	7.37E-03
Acenaphthylene	9.23E-06	3.26E-04	2.44E-04	1.63E-04	1.36E-04	1.33E-04	9.79E-06	5.82E-03	2.91E-06	1.05	5.23E-04
Acenaphthene	4.68E-06	1.65E-04	1.24E-04	8.25E-05	6.91E-05	6.75E-05	4.96E-06	2.95E-03	1.47E-06	0.53	2.65E-04
Fluorene	1.28E-05	4.52E-04	3.39E-04	2.26E-04	1.89E-04	1.85E-04	1.36E-05	8.07E-03	4.03E-06	1.45	7.26E-04
Phenanthrene	4.08E-05	1.44E-03	1.08E-03	7.20E-04	6.03E-04	5.88E-04	4.33E-05	2.57E-02	1.29E-05	4.63	2.31E-03
Anthracene	1.23E-06	4.34E-05	3.25E-05	2.17E-05	1.82E-05	1.77E-05	1.30E-06	7.75E-04	3.87E-07	0.14	6.97E-05
Fluoranthene	4.03E-06	1.42E-04	1.07E-04	7.11E-05	5.95E-05	5.81E-05	4.27E-06	2.54E-03	1.27E-06	0.46	2.29E-04
Pyrene	3.71E-06	1.31E-04	9.82E-05	6.54E-05	5.48E-05	5.35E-05	3.94E-06	2.34E-03	1.17E-06	0.42	2.10E-04
Benzo(a)anthracene	6.22E-07	2.19E-05	1.65E-05	1.10E-05	9.19E-06	8.97E-06	6.60E-07	3.92E-04	1.96E-07	7.05E-02	3.53E-05
Chrysene	1.53E-06	5.40E-05	4.05E-05	2.70E-05	2.26E-05	2.21E-05	1.62E-06	9.64E-04	4.82E-07	0.17	8.68E-05
Benzo(b)fluoranthene	1.11E-06	3.92E-05	2.94E-05	1.96E-05	1.64E-05	1.60E-05	1.18E-06	6.99E-04	3.50E-07	0.13	6.29E-05
Benzo(k)fluoranthene	2.18E-07	7.69E-06	5.77E-06	3.85E-06	3.22E-06	3.14E-06	2.31E-07	1.37E-04	6.87E-08	2.47E-02	1.24E-05
Benzo(a)pyrene	2.57E-07	9.07E-06	6.80E-06	4.53E-06	3.80E-06	3.71E-06	2.73E-07	1.62E-04	8.10E-08	2.91E-02	1.46E-05
Indeno(1,2,3-cd)pyrene	4.14E-07	1.46E-05	1.10E-05	7.30E-06	6.11E-06	5.97E-06	4.39E-07	2.61E-04	1.30E-07	4.70E-02	2.35E-05
Dibenz(a,h)anthracene	3.46E-07	1.22E-05	9.16E-06	6.10E-06	5.11E-06	4.99E-06	3.67E-07	2.18E-04	1.09E-07	3.92E-02	1.96E-05
Benzo(g,h,i)perylene	5.56E-07	1.96E-05	1.47E-05	9.81E-06	8.21E-06	8.02E-06	5.90E-07	3.50E-04	1.75E-07	6.31E-02	3.15E-05
Total HAPs:		5.55E-02	4.16E-02	2.78E-02	2.32E-02	2.27E-02	1.67E-03	0.99	4.96E-04	178.46	8.92E-02

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a. Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).
4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 13-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]						CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)						(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	5,752.04	4,314.80	2,876.02	2,408.05	2,351.71	172.96	102,737.12	51.37	18,492,681.17	9,246.34
CH_4	28	3.00E-03	6.53	4.90	3.27	2.73	2.67	0.20	116.68	5.83E-02	21,003.05	10.50
N_2O	265	6.00E-04	12.37	9.28	6.18	5.18	5.06	0.37	220.87	0.11	39,755.76	19.88
Total CO_2e Emissions:			5,770.94	4,328.97	2,885.47	2,415.96	2,359.44	173.53	103,074.67	51.54	18,553,439.98	9,276.72

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."
2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.
3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

Table 13-5. Potential Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load							Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Hourly PTE (lb/hr)[1]						(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	58.82	26.72	19.06	16.97	16.69	2.37	708.72	0.35	127,570.01	63.79
CO	1.66	3.73	3.31	4.13	4.19	1.37	137.90	6.90E-02	24,822.32	12.41
PM	0.33	0.87	0.58	0.68	0.68	0.12	23.15	1.16E-02	4,167.57	2.08
PM_{10}	0.33	0.87	0.58	0.68	0.68	0.12	23.15	1.16E-02	4,167.57	2.08
$PM_{2.5}$	0.33	0.87	0.58	0.68	0.68	0.12	23.15	1.16E-02	4,167.57	2.08
SO_x	6.12E-02	4.59E-02	3.06E-02	2.56E-02	2.50E-02	1.84E-03	1.09	5.46E-04	196.61	0.10
VOC	2.90	2.80	2.65	2.91	2.92	1.27	106.66	5.33E-02	19,198.43	9.60
HAP	5.55E-02	4.16E-02	2.78E-02	2.32E-02	2.27E-02	1.67E-03	0.99	4.96E-04	178.46	8.92E-02
GHG	5,770.94	4,328.97	2,885.47	2,415.96	2,359.44	173.53	103,074.67	51.54	18,553,439.98	9,276.72

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 3% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 14-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 7 Post Project

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]		kW
Maximum Fuel Consumption Rate [1]		gal/hr
Annual Hours [2]		hrs/yr
Heating Value of Diesel [3]		btu/gal
Maximum Heat Input [4]		MMBtu/hr
Number of New Engines		Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 14-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3,4]	
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	

1. NO_x, CO, PM, CO_2, SO_2, and VOC emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. SO_x emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1).
4. The engine power and emission factor for 41.86% and 40.88% loads were calculated based on interpolation between 50% and 25% loads. For purposes of calculating emissions it was assumed that operations at 0% load are represented by 3% load emission factors.

Table 14-3. HAP Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load		[redacted]						Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2,3]						(lb/yr)	(tpy)[4]	(lb/yr)	(tpy)
Benzene	7.76E-04	1.20E-02	9.04E-03	6.02E-03	5.04E-03	4.93E-03	3.64E-04	0.22	1.08E-04	1.29	6.46E-04
Toluene	2.81E-04	4.36E-03	3.27E-03	2.18E-03	1.83E-03	1.78E-03	1.32E-04	7.79E-02	3.90E-05	0.47	2.34E-04
Xylenes	1.93E-04	3.00E-03	2.25E-03	1.50E-03	1.25E-03	1.23E-03	9.06E-05	5.35E-02	2.68E-05	0.32	1.61E-04
Formaldehyde	7.89E-05	1.23E-03	9.19E-04	6.13E-04	5.13E-04	5.01E-04	3.70E-05	2.19E-02	1.09E-05	0.13	6.56E-05
Acetaldehyde	2.52E-05	3.91E-04	2.93E-04	1.96E-04	1.64E-04	1.60E-04	1.18E-05	6.99E-03	3.49E-06	4.19E-02	2.10E-05
Acrolein	7.88E-06	1.22E-04	9.18E-05	6.12E-05	5.12E-05	5.00E-05	3.70E-06	2.19E-03	1.09E-06	1.31E-02	6.56E-06
Naphthalene	1.30E-04	2.02E-03	1.51E-03	1.01E-03	8.45E-04	8.25E-04	6.10E-05	3.61E-02	1.80E-05	0.22	1.08E-04
Acenaphthylene	9.23E-06	1.43E-04	1.07E-04	7.17E-05	6.00E-05	5.86E-05	4.33E-06	2.56E-03	1.28E-06	1.54E-02	7.68E-06
Acenaphthene	4.68E-06	7.27E-05	5.45E-05	3.63E-05	3.04E-05	2.97E-05	2.20E-06	1.30E-03	6.49E-07	7.79E-03	3.89E-06
Fluorene	1.28E-05	1.99E-04	1.49E-04	9.94E-05	8.32E-05	8.12E-05	6.01E-06	3.55E-03	1.77E-06	2.13E-02	1.06E-05
Phenanthrene	4.08E-05	6.33E-04	4.75E-04	3.17E-04	2.65E-04	2.59E-04	1.91E-05	1.13E-02	5.66E-06	6.79E-02	3.39E-05
Anthracene	1.23E-06	1.91E-05	1.43E-05	9.55E-06	7.99E-06	7.81E-06	5.77E-07	3.41E-04	1.71E-07	2.05E-03	1.02E-06
Fluoranthene	4.03E-06	6.26E-05	4.69E-05	3.13E-05	2.62E-05	2.56E-05	1.89E-06	1.12E-03	5.59E-07	6.71E-03	3.35E-06
Pyrene	3.71E-06	5.76E-05	4.32E-05	2.88E-05	2.41E-05	2.35E-05	1.74E-06	1.03E-03	5.14E-07	6.17E-03	3.09E-06
Benzo(a)anthracene	6.22E-07	9.66E-06	7.24E-06	4.83E-06	4.04E-06	3.95E-06	2.92E-07	1.72E-04	8.62E-08	1.03E-03	5.17E-07
Chrysene	1.53E-06	2.38E-05	1.78E-05	1.19E-05	9.94E-06	9.71E-06	7.18E-07	4.24E-04	2.12E-07	2.55E-03	1.27E-06
Benzo(b)fluoranthene	1.11E-06	1.72E-05	1.29E-05	8.62E-06	7.21E-06	7.05E-06	5.21E-07	3.08E-04	1.54E-07	1.85E-03	9.23E-07
Benzo(k)fluoranthene	2.18E-07	3.38E-06	2.54E-06	1.69E-06	1.42E-06	1.38E-06	1.02E-07	6.05E-05	3.02E-08	3.63E-04	1.81E-07
Benzo(a)pyrene	2.57E-07	3.99E-06	2.99E-06	2.00E-06	1.67E-06	1.63E-06	1.21E-07	7.13E-05	3.56E-08	4.28E-04	2.14E-07
Indeno(1,2,3-cd)pyrene	4.14E-07	6.43E-06	4.82E-06	3.21E-06	2.69E-06	2.63E-06	1.94E-07	1.15E-04	5.74E-08	6.89E-04	3.44E-07
Dibenz(a,h)anthracene	3.46E-07	5.37E-06	4.03E-06	2.69E-06	2.25E-06	2.20E-06	1.62E-07	9.60E-05	4.80E-08	5.76E-04	2.88E-07
Benzo(g,h,i)perylene	5.56E-07	8.63E-06	6.47E-06	4.32E-06	3.61E-06	3.53E-06	2.61E-07	1.54E-04	7.71E-08	9.25E-04	4.63E-07
Total HAPs:		2.44E-02	1.83E-02	1.22E-02	1.02E-02	9.99E-03	7.39E-04	0.44	2.18E-04	2.62	1.31E-03

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (4/25)
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a. Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).
4. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton)

Table 14-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]						CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)						(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	2,531.63	1,898.72	1,265.82	1,059.74	1,034.93	76.53	45,217.58	22.61	271,305.48	135.65
CH_4	28	3.00E-03	2.88	2.16	1.44	1.20	1.18	8.69E-02	51.36	2.57E-02	308.13	0.15
N_2O	265	6.00E-04	5.44	4.08	2.72	2.28	2.22	0.16	97.21	4.86E-02	583.26	0.29
Total CO_2e Emissions:			2,539.95	1,904.96	1,269.98	1,063.22	1,038.33	76.78	45,366.15	22.68	272,196.87	136.10

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."
2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.
3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb)

Table 14-5. Potential Emissions per Engine

Engine Load (%) Engine Power (kW) Hours per Year at % Load							Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Hourly PTE (lb/hr)[1]						(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	40.48	16.96	8.39	6.82	6.64	0.77	311.05	0.16	1,866.28	0.93
CO	0.36	0.82	0.73	1.01	1.03	0.33	31.75	1.59E-02	190.51	0.10
PM	3.65E-02	0.11	0.16	0.19	0.19	0.23	7.23	3.61E-03	43.37	2.17E-02
PM_{10}	3.65E-02	0.11	0.16	0.19	0.19	0.23	7.23	3.61E-03	43.37	2.17E-02
$PM_{2.5}$	3.65E-02	0.11	0.16	0.19	0.19	0.23	7.23	3.61E-03	43.37	2.17E-02
SO_x	2.69E-02	2.02E-02	1.35E-02	1.13E-02	1.10E-02	8.14E-04	0.48	2.40E-04	2.88	1.44E-03
VOC	7.29E-02	8.20E-02	0.11	0.12	0.12	6.61E-02	4.38	2.19E-03	26.27	1.31E-02
HAP	2.44E-02	1.83E-02	1.22E-02	1.02E-02	9.99E-03	7.39E-04	0.44	2.18E-04	2.62	1.31E-03
GHG	2,539.95	1,904.96	1,269.98	1,063.22	1,038.33	76.78	45,366.15	22.68	272,196.87	136.10

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 3% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb)

Table 15-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 11 Post Project

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]		kW
Maximum Fuel Consumption Rate [1]		gal/hr
Annual Hours [2]		hrs/yr
Heating Value of Diesel [3]		btu/gal
Maximum Heat Input [4]		MMBtu/hr
Number of New Engines		Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time as the sum of operation at different loads for each engine.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 106 (Btu/MMBtu).

Table 15-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3,4]	
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	

1. NO_x, CO, VOC and PM emission factors per manufacturer specifications.
2. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.
3. SO_x emission factor calculated in accordance with AP-42 Table 3.4-1. The engine will use ultra low sulfur diesel fuel. The emission factor is based on a fuel sulfur content of 0.0015% for ultra low sulfur diesel fuel, as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1).

Table 15-3. HAP Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load		[redacted]					Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Emission Factor (lb/MMBtu)[1]	Hourly PTE (lb/hr)[2]					(lb/yr)	(tpy)[3]	(lb/yr)	(tpy)
Benzene	7.76E-04	4.91E-03	3.69E-03	2.45E-03	1.22E-03	4.88E-04	0.11	5.63E-05	32.44	1.62E-02
Toluene	2.81E-04	1.78E-03	1.33E-03	8.89E-04	4.43E-04	1.77E-04	4.08E-02	2.04E-05	11.75	5.87E-03
Xylenes	1.93E-04	1.22E-03	9.17E-04	6.11E-04	3.04E-04	1.21E-04	2.80E-02	1.40E-05	8.07	4.03E-03
Formaldehyde	7.89E-05	4.99E-04	3.75E-04	2.50E-04	1.24E-04	4.96E-05	1.15E-02	5.73E-06	3.30	1.65E-03
Acetaldehyde	2.52E-05	1.59E-04	1.20E-04	7.97E-05	3.97E-05	1.58E-05	3.66E-03	1.83E-06	1.05	5.27E-04
Acrolein	7.88E-06	4.99E-05	3.74E-05	2.49E-05	1.24E-05	4.96E-06	1.14E-03	5.72E-07	0.33	1.65E-04
Naphthalene	1.30E-04	8.23E-04	6.17E-04	4.11E-04	2.05E-04	8.18E-05	1.89E-02	9.43E-06	5.43	2.72E-03
Acenaphthylene	9.23E-06	5.84E-05	4.38E-05	2.92E-05	1.46E-05	5.81E-06	1.34E-03	6.70E-07	0.39	1.93E-04
Acenaphthene	4.68E-06	2.96E-05	2.22E-05	1.48E-05	7.38E-06	2.94E-06	6.79E-04	3.40E-07	0.20	9.78E-05
Fluorene	1.28E-05	8.10E-05	6.08E-05	4.05E-05	2.02E-05	8.05E-06	1.86E-03	9.29E-07	0.54	2.68E-04
Phenanthrene	4.08E-05	2.58E-04	1.94E-04	1.29E-04	6.43E-05	2.57E-05	5.92E-03	2.96E-06	1.71	8.53E-04
Anthracene	1.23E-06	7.78E-06	5.84E-06	3.89E-06	1.94E-06	7.74E-07	1.79E-04	8.93E-08	5.14E-02	2.57E-05
Fluoranthene	4.03E-06	2.55E-05	1.91E-05	1.27E-05	6.36E-06	2.53E-06	5.85E-04	2.92E-07	0.17	8.42E-05
Pyrene	3.71E-06	2.35E-05	1.76E-05	1.17E-05	5.85E-06	2.33E-06	5.38E-04	2.69E-07	0.16	7.75E-05
Benzo(a)anthracene	6.22E-07	3.94E-06	2.95E-06	1.97E-06	9.81E-07	3.91E-07	9.03E-05	4.51E-08	2.60E-02	1.30E-05
Chrysene	1.53E-06	9.68E-06	7.27E-06	4.84E-06	2.41E-06	9.62E-07	2.22E-04	1.11E-07	6.40E-02	3.20E-05
Benzo(b)fluoranthene	1.11E-06	7.02E-06	5.27E-06	3.51E-06	1.75E-06	6.98E-07	1.61E-04	8.06E-08	4.64E-02	2.32E-05
Benzo(k)fluoranthene	2.18E-07	1.38E-06	1.04E-06	6.90E-07	3.44E-07	1.37E-07	3.16E-05	1.58E-08	9.11E-03	4.56E-06
Benzo(a)pyrene	2.57E-07	1.63E-06	1.22E-06	8.13E-07	4.05E-07	1.62E-07	3.73E-05	1.87E-08	1.07E-02	5.37E-06
Indeno(1,2,3-cd)pyrene	4.14E-07	2.62E-06	1.97E-06	1.31E-06	6.53E-07	2.60E-07	6.01E-05	3.00E-08	1.73E-02	8.65E-06
Dibenz(a,h)anthracene	3.46E-07	2.19E-06	1.64E-06	1.09E-06	5.46E-07	2.18E-07	5.02E-05	2.51E-08	1.45E-02	7.23E-06
Benzo(g,h,i)perylene	5.56E-07	3.52E-06	2.64E-06	1.76E-06	8.77E-07	3.50E-07	8.07E-05	4.03E-08	2.32E-02	1.16E-05
Total HAPs:		9.96E-03	7.47E-03	4.98E-03	2.48E-03	9.90E-04	0.23	1.14E-04	65.77	3.29E-02

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (10/96).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 15-4. Greenhouse Gas Potential to Emit

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load			[redacted]					CO_2e emissions (per engine)		CO_2e emissions (all engines)	
Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	Hourly PTE (lb/hr)					(lb/yr)[3]	(tpy)	(lb/yr)	(tpy)
CO_2	1	73.96	1,031.63	774.49	515.82	257.14	102.55	23,665.59	11.83	6,815,689.67	3,407.84
CH_4	28	3.00E-03	1.17	0.88	0.59	0.29	0.12	26.88	1.34E-02	7,740.91	3.87
N_2O	265	6.00E-04	2.22	1.67	1.11	0.55	0.22	50.88	2.54E-02	14,652.44	7.33
Total CO_2e Emissions:			1,035.02	777.03	517.51	257.99	102.89	23,743.34	11.87	6,838,083.02	3,419.04

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission Factor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb).

Table 15-5. Potential Emissions per Engine

Engine Load (%) / Engine Power (kW) / Hours per Year at % Load	[redacted]					Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	Hourly PTE (lb/hr)[1]					(lb/yr) [2]	(tpy)	(lb/yr)	(tpy)
NO_x	8.51	6.00	4.46	1.82	1.12	204.03	0.10	58,760.90	29.38
CO	0.60	0.25	0.22	0.17	0.54	13.01	6.51E-03	3,748.25	1.87
PM	5.94E-02	4.46E-02	2.97E-02	1.48E-02	5.91E-03	1.36	6.82E-04	392.68	0.20
PM_{10}	5.94E-02	4.46E-02	2.97E-02	1.48E-02	5.91E-03	1.36	6.82E-04	392.68	0.20
$PM_{2.5}$	5.94E-02	4.46E-02	2.97E-02	1.48E-02	5.91E-03	1.36	6.82E-04	392.68	0.20
SO_x	1.10E-02	8.23E-03	5.48E-03	2.73E-03	1.09E-03	0.25	1.26E-04	72.46	3.62E-02
VOC	8.60E-02	6.94E-02	7.14E-02	6.39E-02	0.11	3.57	1.78E-03	1,027.66	0.51
HAP	9.96E-03	7.47E-03	4.98E-03	2.48E-03	9.90E-04	0.23	1.14E-04	65.77	3.29E-02
GHG	1,035.02	777.03	517.51	257.99	102.89	23,743.34	11.87	6,838,083.02	3,419.04

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb). Operations at 0% load are assumed to be at 10% load for purposes of emission calculations.

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 16-1. Key Parameters/Constants for Proposed Emergency Generator Engine Emission Calculations - System 12 Post Project

Parameter	Value	Unit
100% Load Engine Power[1]	[redacted]	hp
100% Load Engine Power[1]	[redacted]	kW
Maximum Fuel Consumption Rate [1]	[redacted]	gal/hr
Annual Hours [2]	[redacted]	hrs/yr
Heating Value of Diesel [3]	[redacted]	btu/gal
Maximum Heat Input [4]	[redacted]	MMBtu/hr
Number of New Engines	[redacted]	Engine

1. Based on manufacturer specifications.
2. Calculated based on anticipated operational time.
3. Heating value of diesel provided in AP-42, Appendix A (09/85).
4. Brake-Specific Fuel Consumption = 7,000 Btu/bhp-hr obtained from AP-42 Section 3.3, Table 3.3-1, footnote a.

Maximum Heat Input (MMBtu/hr) = Engine Rating (hp) * Brake-Specific Fuel Consumption (Btu/hp-hr) / 10^6 (Btu/MMBtu).

Table 16-2. Emission Factors

Engine Load (%)	[redacted]
Engine Power (kW)	
Pollutant[1,2,3,4]	E
NO_x	
CO	
PM	
PM_{10}	
$PM_{2.5}$	
SO_x	
VOC	

1. NO_x, CO, VOC and PM emission factors per manufacturer specifications.
2. VOC emission factors per AP-42 Section 3.4 Table 3.4-1.
3. It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

Table 16-3. HAP Emissions per Engine

Engine Load (%) Engine Power (kW) Hours per Year at % Load Pollutant	Emission Factor (lb/MMBtu)[1]	[redacted] Hourly PTE (lb/hr)[2]	Annual PTE (per engine) (lb/yr)	Annual PTE (per engine) (tpy)[3]	Annual PTE (all engines) (lb/yr)	Annual PTE (all engines) (tpy)
Benzene	7.76E-04	1.26E-02	1.26	6.32E-04	1.26	6.32E-04
Toluene	2.81E-04	4.58E-03	0.46	2.29E-04	0.46	2.29E-04
Xylenes	1.93E-04	3.15E-03	0.31	1.57E-04	0.31	1.57E-04
Formaldehyde	7.89E-05	1.29E-03	0.13	6.43E-05	0.13	6.43E-05
Acetaldehyde	2.52E-05	4.11E-04	4.11E-02	2.05E-05	4.11E-02	2.05E-05
Acrolein	7.88E-06	1.28E-04	1.28E-02	6.42E-06	1.28E-02	6.42E-06
Naphthalene	1.30E-04	2.12E-03	0.21	1.06E-04	0.21	1.06E-04
Acenaphthylene	9.23E-06	1.50E-04	1.50E-02	7.52E-06	1.50E-02	7.52E-06
Acenaphthene	4.68E-06	7.63E-05	7.63E-03	3.81E-06	7.63E-03	3.81E-06
Fluorene	1.28E-05	2.09E-04	2.09E-02	1.04E-05	2.09E-02	1.04E-05
Phenanthrene	4.08E-05	6.65E-04	6.65E-02	3.32E-05	6.65E-02	3.32E-05
Anthracene	1.23E-06	2.00E-05	2.00E-03	1.00E-06	2.00E-03	1.00E-06
Fluoranthene	4.03E-06	6.57E-05	6.57E-03	3.28E-06	6.57E-03	3.28E-06
Pyrene	3.71E-06	6.05E-05	6.05E-03	3.02E-06	6.05E-03	3.02E-06
Benzo(a)anthracene	6.22E-07	1.01E-05	1.01E-03	5.07E-07	1.01E-03	5.07E-07
Chrysene	1.53E-06	2.49E-05	2.49E-03	1.25E-06	2.49E-03	1.25E-06
Benzo(b)fluoranthene	1.11E-06	1.81E-05	1.81E-03	9.04E-07	1.81E-03	9.04E-07
Benzo(k)fluoranthene	2.18E-07	3.55E-06	3.55E-04	1.78E-07	3.55E-04	1.78E-07
Benzo(a)pyrene	2.57E-07	4.19E-06	4.19E-04	2.09E-07	4.19E-04	2.09E-07
Indeno(1,2,3-cd)pyrene	4.14E-07	6.75E-06	6.75E-04	3.37E-07	6.75E-04	3.37E-07
Dibenz(a,h)anthracene	3.46E-07	5.64E-06	5.64E-04	2.82E-07	5.64E-04	2.82E-07
Benzo(g,h,i)perylene	5.56E-07	9.06E-06	9.06E-04	4.53E-07	9.06E-04	4.53E-07
Total HAPs:		2.56E-02	2.56	1.28E-03	2.56	1.28E-03

1. HAP Emission Factors per AP-42 Chapter 3.4, Table 3.4-3 and Table 3.4-4 (10/96).
2. HAP emissions (lb/hr) = Heat Input (MMBtu/hr) * EF (lb/MMBtu).
3. HAP emissions (tpy) = HAP emissions (lb/hr) * Annual Hours of Operation (hr/yr) / 2000 (lb/ton).

Table 16-4. Greenhouse Gas Potential to Emit

Engine Load (%) Engine Power (kW) Hours per Year at % Load Pollutant	Global Warming Potential[1]	Emission Factor (kg/MMBtu)[2]	[redacted] Hourly PTE (lb/hr)	CO_2e emissions (per engine) (lb/yr)[3]	CO_2e emissions (per engine) (tpy)	CO_2e emissions (all engines) (lb/yr)	CO_2e emissions (all engines) (tpy)
CO_2	1	73.96	2,657.13	265,712.62	132.86	265,712.62	132.86
CH_4	28	3.00E-03	3.02	301.78	0.15	301.78	0.15
N_2O	265	6.00E-04	5.71	571.23	0.29	571.23	0.29
Total CO_2e Emissions:			2,665.86	266,585.63	133.29	266,585.63	133.29

1. Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials."

2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

3. CO_2e Potential Emissions (lb/year) = GWP * Emission F.actor (kg/MMBtu) * 1000 (g/kg) * 7,000 (Btu/hp-hr) / 1,000,000 (Btu/MMBtu) * Annual Hours (hr/year) * Engine Power (bhp) / 453.592 (grams/lb)

Table 16-5. Potential Emissions per Engine [redacted]

Engine Load (%) Engine Power (kW) Hours per Year at % Load		Annual PTE (per engine)		Annual PTE (all engines)	
Pollutant	**Hourly PTE (lb/hr)[1]**	**(lb/yr) [2]**	**(tpy)**	**(lb/yr)**	**(tpy)**
NO_x	24.69	2,468.67	1.23	2,468.67	1.23
CO	3.23	323.34	0.16	323.34	1.62E-01
PM	0.29	29.25	1.46E-02	29.25	1.46E-02
PM_{10}	0.29	29.25	1.46E-02	29.25	1.46E-02
$PM_{2.5}$	0.29	29.25	1.46E-02	29.25	1.46E-02
SO_x	2.83E-02	2.83	1.41E-03	2.83	1.41E-03
VOC	0.51	50.81	2.54E-02	50.81	2.54E-02
HAP	2.56E-02	2.56	1.28E-03	2.56	1.28E-03
GHG	2,665.86	266,585.63	133.29	266,585.63	133.29

1. Hourly PTE (lb/hr) = Emission Factor (g/hp-hr) * Engine Power (bhp) / 453.592 (grams/lb).

2. Annual PTE (lb/year) = Emission Factor (g/hp-hr) * Engine Power (bhp) * Annual Hours (hr/year) / 453.592 (grams/lb).

Table 17-1. Facility Wide Potential to Emit (PTE) Summary

System	Name	Quantity	PM (tpy)	$PM_{10}/PM_{2.5}$ (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_x (tpy)	HAP (tpy)	GHG (tpy)
Pre-Project Facility PTE										
System 1	[redacted] Engines	[redacted]	1.58	1.58	0.11	6.91	13.44	97.62	0.12	12,076.49
System 2	Diesel Fired Fire Pumps	[redacted]	1.89E-03	1.89E-03	1.27E-04	2.58E-02	1.38E-02	5.85E-02	2.84E-04	11.98
Insignificant Activties (Old System 3)	Fluid Coolers	[redacted]	0.43	0.43	-	-	-	-	-	-
System 4	Diesel Fired Emergency Back-up Generator	[redacted]	2.03E-03	2.03E-03	8.99E-03	6.08E-03	2.70E-02	0.45	4.53E-04	43.15
System 5	Diesel Fired Emergency Back-up Generator	[redacted]	1.96E-03	1.96E-03	5.89E-04	8.83E-03	5.89E-02	0.61	6.57E-04	62.65
System 6	[redacted] Engines	[redacted]	2.36	2.36	0.11	10.88	14.07	72.29	0.10	10,513.62
System 7	[redacted] Engines	[redacted]	2.89E-02	2.89E-02	1.92E-03	1.75E-02	0.13	1.24	1.75E-03	181.46
System 8	Emergency Diesel Fired Fire Pump Engines	[redacted]	3.89E-03	3.89E-03	2.39E-04	3.89E-03	3.89E-02	0.12	5.35E-04	22.57
System 9	Diesel Fired Emergency Generator	[redacted]	4.42E-03	4.42E-03	3.26E-04	4.86E-03	2.65E-02	1.46E-01	2.96E-04	30.79
Post-Project Facility PTE										
System 1	[redacted] and [redacted]	[redacted]	0.65	0.65	1.40E-02	1.96	4.88	24.18	3.07E-02	3,064.51
System 2	Diesel Fired Fire Pumps	[redacted]	1.89E-03	1.89E-03	1.27E-04	2.58E-02	1.38E-02	5.85E-02	2.84E-04	11.98
Insignificant Activties (Old System 3)	Fluid Coolers	[redacted]	0.49	0.49	-	-	-	-	-	-
System 4	Diesel Fired Emergency Back-up Generator	[redacted]	2.03E-03	2.03E-03	8.99E-03	6.08E-03	2.70E-02	0.45	4.53E-04	43.15
System 5	Diesel Fired Emergency Back-up Generator	[redacted]	1.96E-03	1.96E-03	5.89E-04	8.83E-03	5.89E-02	0.61	6.57E-04	62.65
System 6	[redacted] Engines	[redacted]	2.08	2.08	9.83E-02	9.60	12.41	63.79	8.92E-02	9,276.72
System 7	[redacted] Engines	[redacted]	2.17E-02	2.17E-02	1.44E-03	1.31E-02	9.53E-02	0.93	1.31E-03	136.10
System 8	Emergency Diesel Fired Fire Pump Engines	[redacted]	3.89E-03	3.89E-03	2.39E-04	3.89E-03	3.89E-02	0.12	5.35E-04	22.57
System 9	Diesel Fired Emergency Generator	[redacted]	4.42E-03	4.42E-03	3.26E-04	4.86E-03	2.65E-02	1.46E-01	2.96E-04	30.79
Proposed System 10	[redacted] Engine	[redacted]	1.87	1.87	3.95E-02	2.39	15.30	71.07	8.72E-02	8,715.54
Proposed System 11	[redacted] Engine	[redacted]	0.20	0.20	3.62E-02	0.51	1.87	29.38	3.29E-02	3,419.04
Proposed System 12	[redacted] House Generator	[redacted]	1.46E-02	1.46E-02	1.41E-03	2.54E-02	0.16	1.23	1.28E-03	133.29

System	Name	Quantity	PM (tpy)	$PM_{10}/PM_{2.5}$ (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	NO_x (tpy)	HAP (tpy)	GHG (tpy)
Project Emissions Summary										
Pre-Project Facility PTE [1]			4.42	4.42	0.23	17.86	27.80	172.54	0.23	22,942.71
Post-Project Facility PTE [2]			5.33	5.33	0.20	14.56	34.89	191.97	0.24	24,916.34
Net Project PTE [3]			0.92	0.92	-3.21E-02	-3.30	7.09	19.42	1.89E-02	1,973.63
NDEP Class II Thresholds[4] (tpy)			-	5	5	20	50	5	-	-
NDEP Environmental Evaluation Threshold[5] (tpy)			10	10	10	10	10	10	-	
NDEP Class I Thresholds[6] (tpy)			100	100	100	100	100	100	10/25	-
PSD Thresholds[7,8] (tpy)			250	250	250	250	250	250	-	75,000
Does Project PTE Exceed Class II Thresholds?			-	Yes	No	No	No	Yes	-	-
Does Project PTE Exceed the Environmental Evaluation Threshold?			No	No	No	No	No	Yes	No	-
Does Project PTE Exceed Class I Thresholds?			No	No	No	No	No	Yes	No	-
Does Project PTE Exceed PSD Thresholds?[9]			No	No	No	No	No	No	No	No

1. Pre-Project Facility PTE (tpy) = sum of emissions from all emission units (tpy) in Pre-Project Facility PTE. This is consistent with the permitted emissions except for GHG which was updated to reflect the revised global warming potentials in 40 CFR Part 98 Subpart A.
2. Post-Project Facility PTE (tpy) = sum of emissions from all emission units (tpy) in Post-Project Facility PTE.
3. Net Project PTE (tpy) = Post-Project Facility PTE (tpy) - Pre-Project Facility PTE (tpy).
4. The Class II thresholds are defined in NAC 445B.037.
5. Per NAC 445B.310(1)(b)(2), and environmental evaluation is required for modifications with an emission increase greater than 10 tpy at an existing facility with emissions greater than 25 tpy.
6. The Class I thresholds are defined in NAC 445B.036 [40CFR 52.21] as 100 tpy of any air contaminant and 10 tpy of any individual HAP or 25 tpy of combined HAP.
7. The Class II thresholds are defined in NAC 445B.037. Emissions less than these thresholds may not require a permit.
8. The PSD thresholds are defined in 40 CFR 52.21(b)(1)(ii) as 250 tpy of any regulated NSR pollutant for sources not listed in 40 CFR 52.21(b)(1)(i).

9. GHG SER as provided under "subject to regulation" definitions in 40 CFR 51.166(b)(48) and 52.21(b)(49). Unlike other pollutant SERs, a GHG SER is not listed in 40 CFR 51.166(b)(23) or 52.21(b)(23). Per 40 CFR 52.21 (b)(49)(iv) "... the pollutant GHGs is subject to regulation if:
(a) The stationary source is a new major stationary source for a regulated NSR pollutant that is not GHGs, and also will emit or will have the potential to emit 75,000 tpy CO_2e or more; or
(b) The stationary source is an existing major stationary source for a regulated NSR pollutant that is not GHGs, and also will have an emissions increase of a regulated NSR pollutant, and an emissions increase of 75,000 tpy CO2e or more."

Table 17-2. Diesel Fuel Usage Summary for New or Modified Units

System	Name	Quantity	Annual Hours of Operation (hr/yr)	Maximum Fuel Usage (gal/hr)	12-Month Rolling Maximum Fuel Usage (gal/year)
System 9	Diesel Fired Emergency Generator	[redacted]	100.00	47.70	4,770.0
Proposed System 10	[redacted] Engine	[redacted]	61.08	206.52	12,614.8
Proposed System 11	[redacted] Engine	[redacted]	46.73	42.30	1,976.7
Proposed System 12	MTU House Generator	[redacted]	100.00	111.00	11,100.0

1. Maximum Fuel Usage per manufacturer specifications or, for the Proposed System 10, estimated based on the engine rating (hp), brake specific fuel consumption (7,000 Btu/hp-hr), and the heating value of diesel (137,000 btu/gal).

APPENDIX D. FACILITY PLOT PLANS

All information in this Appendix is considered confidential.

APPENDIX E. ENVIRONMENTAL EVALUATION

APPLICATION FOR A CLASS I OPERATING PERMIT TO CONSTRUCT REVISION – ENVIRONMENTAL EVALUATION

Nevada Division of Environmental Protection

Switch, Ltd./ Reno, Nevada

Prepared By:

TRINITY CONSULTANTS
5401 Longley Lane, Suite 5
Reno, NV 89502

August 2026

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1-1

1.1 NAAQS and NVAAQS Thresholds 1-1

1.1.1 NAAQS and NVAAQS Analyses 1-2

1.1.2 PSD Class II Increment Analysis 1-2

1.2 Facility Description and Location 1-3

1.3 Dispersion Model 1-4

1.4 Building Wake Effects 1-5

1.5 Air Pollutants Modeled 1-5

1.5.1 Significance Impact Analysis 1-5

1.5.2 Ambient Impacts Analysis 1-5

1.6 Nitrogen Dioxide Chemistry and Intermittent Sources 1-6

1.7 Meteorological Data 1-6

1.8 Terrain Data 1-6

1.9 Project Datum 1-7

1.10 Receptor Grid and Facility Boundary 1-7

1.11 Source Characterization 1-7

1.12 Operating Scenarios 1-8

1.12.1 Annual Criteria Pollutant Emissions Modeling 1-8

1.12.2 Short-Term Criteria Pollutant Emissions Modeling 1-8

1.13 Background Concentrations 1-9

1.14 Effects of Nearby Facilities 1-9

1.15 Ozone Modeling 1-11

1.16 Secondary $PM_{2.5}$ Assessment 1-11

1.17 Modeling Results 1-12

1.18 Electronic Files 1-13

1.19 Source Inputs 1-13

1. EXECUTIVE SUMMARY

Switch, Ltd. (Switch®) is recognized as the independent world-leader in exascale data center ecosystems, edge data center designs, industry-leading telecommunications solutions, and next-generation technology innovation. Switch believes that the future of humanity depends on the intelligent and sustainable growth of the Internet.

Switch is in the process of constructing an advanced technology ecosystem communications facility located at 1 Superloop Circle in McCarran, Nevada (the Facility). The Facility is located in the jurisdiction of the Nevada Division of Environmental Protection (NDEP) Bureau of Air Pollution Control (BAPC) and currently operates under the Class I Operating Permit to Construct (OPTC) No. AP7375-3672 (the Permit) for Facility ID No. A1896 issued by NDEP on January 30, 2015 and most recently revised on January 23, 2026.

NAC 445B.310.1(a) requires that an environmental evaluation be provided if a stationary source has the potential to emit (PTE) greater than 25 tpy of any regulated air pollutant and is applying for a revision that has a PTE increase of greater than 10 tpy. Regulated air pollutants include particulate matter (PM), PM less than 10 and 2.5 microns in aerodynamic diameter (PM_{10} and $PM_{2.5}$ respectively), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), volatile organic compounds (VOCs), lead (Pb), and hydrogen sulfide (H_2S). Per NAC 445B.311, when the applicant is required to provide an environmental evaluation under NAC 445B.310, all regulated air pollutants must be modeled. In addition, the applicant must model all sources of emissions, including those emissions from insignificant activities.

This environmental evaluation is being submitted to support a Class I OPTC revision application (the Application) for the Project. Emission calculations for the Project exceed a potential emission rate of 10 tpy for NO_2 as shown in Table 3-1 of the Application.[1] Therefore, as required by NAC 445B.311, Switch has provided an environmental evaluation for all regulated air pollutants emitted from the Facility. As shown in Table 3-1 of the Application, Facility wide potential emissions are below the Prevention of Significant Deterioration (PSD) major source threshold of 250 tons/yr for all criteria pollutants; therefore, PSD modeling requirements do not apply to this project. This environmental evaluation is being provided to demonstrate compliance of the proposed emissions with the applicable national and Nevada ambient air quality standards (NAAQS and NVAAQS respectively).

This modeling analysis has been performed using current EPA and NDEP Air Quality Modeling regulatory guidelines.[2,3] This section describes the methodology followed in conducting the air dispersion analyses.

1.1 NAAQS and NVAAQS Thresholds

Regulated air pollutants associated with the Facility are PM_{10}, $PM_{2.5}$, SO_2, NO_2, VOC, and CO. This modeling analysis evaluates whether revised emissions from the Facility will demonstrate compliance with applicable ambient air quality standards. Table 1-1 presents a summary of the NAAQS and NVAAQS pollutant concentrations which must be met for various averaging times.

[1] VOCs do not have a NAAQS or NVAAQS and are only evaluated for secondary impacts of ozone.

[2] 40 Code of Federal Regulations (CFR) Part 51 Appendix W.

[3] Nevada Bureau of Air Pollution Control General Air Dispersion Modeling Guidelines, September 2008.

Table 1-1. Applicable NVAAQS and NAAQS

Pollutant	Averaging Period	Nevada Ambient Air Quality Standard ($\mu g/m^3$)	Form of Standard	NAAQS Standard ($\mu g/m^3$)	Form of Standard
$PM_{2.5}$	Annual	12	Averaged over modeled years	9	Averaged over modeled years
	24-hour	35	8th high, 98th percentile	35	98th Percentile, averaged over modeled years
PM_{10}	24-hour	150	1st high	150	Not to be exceeded more than once per year on average over modeled years
NO_2	Annual	100	Annual Mean	100	Annual Mean
	1-hour	188 (100 ppb)	8th high, 98th percentile	188	98th percentile of daily maximum 1-hour concentrations, averaged over modeled years
SO_2	Annual	80	Averaged over modeled years	80	N/A
	24-hour	365	1st high	365	N/A
	3-hour	1,300	1st high	N/A	Not to be exceeded more than once per year
	1-hour	196 (75 ppb)	99th percentile of daily maximum 1-hour concentrations, averaged over modeled years	196	99th percentile of daily maximum 1-hour concentrations, averaged over modeled years
CO	8-hour	10,500[1]	1st high	10,000 (9 ppm)	Not to be exceeded more than once per year
	1-hour	40,500	1st high	40,000 (35 ppm)	Not to be exceeded more than once per year

Notes:

$\mu g/m^3$ = micrograms per cubic meter

[1] 7,000 $\mu g/m^3$ at areas equal to or greater than 5,000 feet above Mean Sea Level

1.1.1 NAAQS and NVAAQS Analyses

As part of the NAAQS and NVAAQS analyses, the modeled concentration of all Facility sources (as described in Section 1.19), plus the background concentrations have been considered (as described in Section 1.13), plus the contribution of neighboring sources (as described in Section 1.14), for comparison with the NAAQS and NVAAQS. The form of the probabilistic standard is identified in Table 1-1.

1.1.2 PSD Class II Increment Analysis

A PSD Increment is the maximum increase in ambient concentrations allowed to occur above a baseline concentration for a pollutant. The baseline date for HA083 was triggered on March 11, 1994, for SO_2, NO_x,

and PM_{10}.[4] However, since the Project is not subject to PSD regulations, a PSD increment analysis is not provided.

1.2 Facility Description and Location

Emission sources at the Facility, including diesel-fired engines powering emergency generators (emergency generators), diesel-fired engines powering emergency house generators (emergency house generator), and diesel-fired engines powering emergency fire pumps (fire pumps), and fluid coolers, are modeled as point sources (both horizontal and vertical). The following sections identify the assumptions used to determine emission rates for each averaging period and dispersion parameters. Table 2-1 of the Application contains detailed system descriptions. The location of each source was determined by the facility plot plan included in Appendix D of the Application. The manufacturer's specifications were used to determine dispersion parameters and emission rates; these are included in Appendix B of the Application.

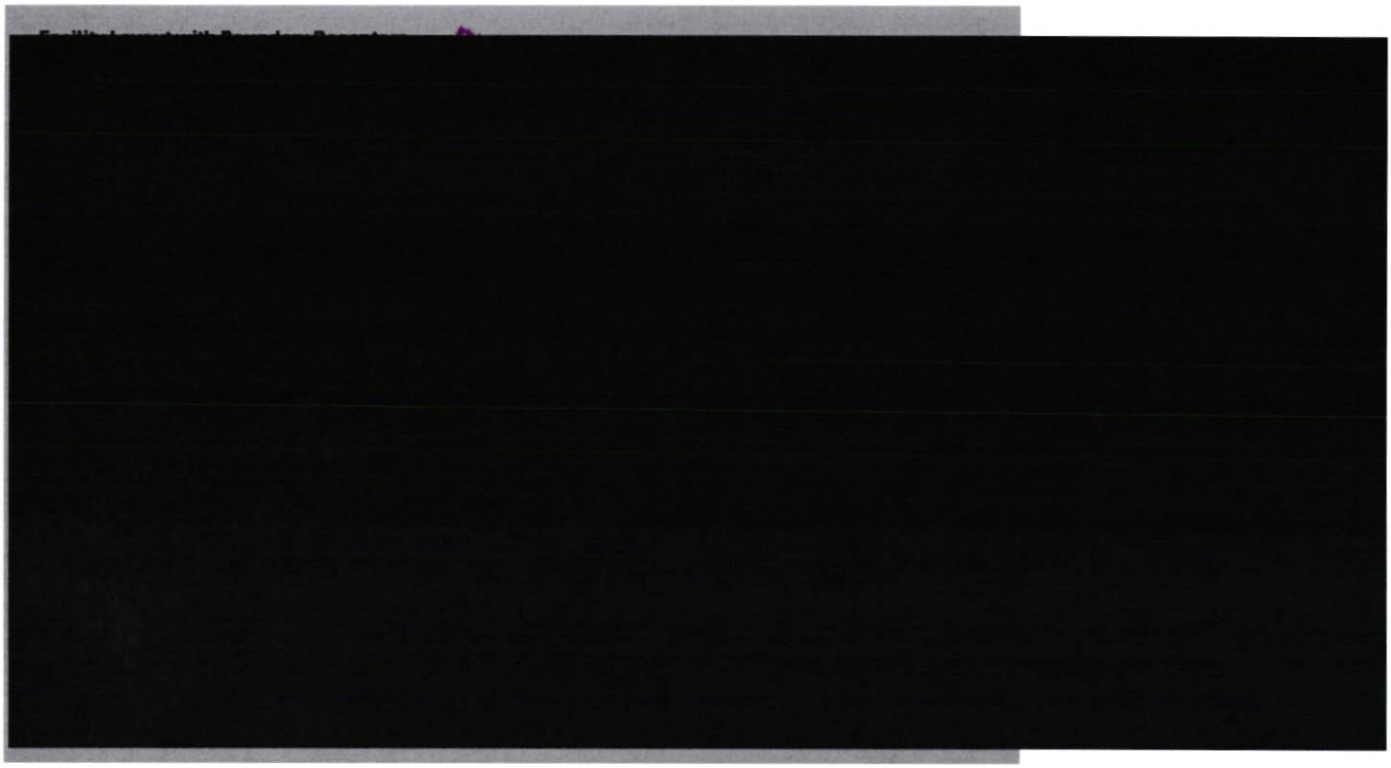
The Facility is located in Storey County, Nevada. The North American Datum of 1983 (NAD83) Zone 11 Universal Transverse Mercator (UTM) coordinates for the Facility are as follows:

- [redacted] m Easting;
- [redacted] m Northing

An overview of the Facility as included in the air dispersion model is presented in the Figure below including the sources, buildings, and the fenceline receptor grid. The zoomed in box indicated the layout associated with the combined stack configuration discussed in Section 1.11 of this report.

[4] Nevada PSD Triggered 107(d) Planning Areas, https://ndep.nv.gov/uploads/documents/westar_psd_trigger_areas.pdf

Figure 1-1. Facility Overview



1.3 Dispersion Model

Dispersion modeling is completed using the American Meteorological Society/EPA Regulatory Model Improvement Committee Dispersion Model named "AERMOD." AERMOD is the EPA regulatory model approved for use with industrial sources. EPA released a new version of the AERMOD modeling system (v26135) (including AERMOD, AERMET, AERSURFACE, AERMINUTE, and AERPLOT) on July 9, 2026. EPA's memorandum[5] details updates made from the prior version (v24142) which include minor bug fixes and enhancements. Based on EPA's memorandum, there are minimal differences between v26135 and v24142, and none of the updates made are expected to be relevant to modeling analyses conducted in support of the Project. The Facility used the prior version (v24142) of the AERMOD modeling system to estimate maximum ground-level concentrations in all analyses conducted for this application. The AERMOD modeling is completed using the regulatory default options including stack-tip downwash, buoyancy-induced dispersion, calms processing routines, upper-bound downwash concentrations for super-squat buildings, default wind speed profile exponents, vertical potential temperature gradients, and no use of gradual plume rise. This Facility is classified as a rural area, so no consideration of population is required.

A summary of the air pollutant modeling evaluations completed in support of the Application is given in Table 1-2.

[5] U.S. Environmental Protection Agency, Office of State Air Partnerships, Release of the Regulatory AERMOD Modeling System (including AERMOD and AERMET), AERSURFACE, AERMINUTE, and AERPLOT (Version 26135), Memorandum dated July 9, 2026.

Table 1-2. Modeling Evaluations Proposed for the Facility

Pollutant Modeled	Averaging Periods Evaluated	Modeling Method
$PM_{2.5}$	Annual	AERMOD
	24-hour	AERMOD
PM_{10}	24-hour	AERMOD
NO_2	Annual	AERMOD
	1-hour	AERMOD
SO_2	Annual	AERMOD
	24-hour	AERMOD
	3-hour	AERMOD
	1-hour	AERMOD
CO	8-hour	AERMOD
	1-hour	AERMOD
Ozone	8-hour	Scheffe Spreadsheet

1.4 Building Wake Effects

The modeling analysis includes evaluation of building dimensions at the Facility to assess potential downwash effects on stack emissions from nearby structures. Building locations and dimensions for off-site sources are determined based on modeling files received from various correspondence with Scott Speckart (NDEP) for facilities described in Section 1.14. Building elevations are determined using AERMAP software (Version 24142). U.S. Geological Survey (USGS) National Elevation Data (NED) digital elevation data (1/3 arc-second) is used in AERMAP to assign terrain elevations to the receptors (NED data acquired on June 20, 2026 for which the metadata was updated on June 8, 2026). Model receptors are developed in the Universal Transverse Mercator (UTM), North American Datum (NAD83) coordinate system. Direction-specific downwash parameters are calculated using the building information and EPA's Building Profile Input Program PRIME (BPIPPRM, Version 04274) software. This software produces building dimension data that is used with the PRIME building downwash algorithms incorporated into AERMOD.

1.5 Air Pollutants Modeled

1.5.1 Significance Impact Analysis

Since the Project proposes modifications to a future data center building and as-built design changes, Switch has conservatively assumed all sources at the Facility will be included in the Significance Impact Assessment. In order to determine the locations where Project impacts will exceed the Significant Impact Levels (SIL), a significance modeling analysis was conducted for each pollutant and averaging period. Only receptors where Project contributions exceeded the SIL, on a specific hour, day, or year, for that specific averaging period were evaluated.

1.5.2 Ambient Impacts Analysis

The ambient impacts modeling included ambient air concentrations of criteria air pollutants [PM_{10}, $PM_{2.5}$, NO_x, SO_2, and CO] emitted from the Facility's sources and insignificant activities as listed in NAC 445B.288. For comparison against the NAAQS and NVAAQS, the emissions of the regulated air pollutants were

modeled to determine ambient air concentrations for the regulatory averaging periods for the NAAQS and NVAAQS, consistent with 40 CFR Part 50 and NAC 445B as shown in Table 1-1.

1.6 Nitrogen Dioxide Chemistry and Intermittent Sources

Several options are available in AERMOD for calculating the conversion of NO_x emissions into NO_2. EPA has identified a tiered approach for addressing NO_2 conversion, with each tier requiring a more technical approach and typically resulting in a less conservative result. The three tiers identified by EPA are summarized below:

Tier 1: All of the NO_x emissions released from the source are assumed to convert to NO_2. This is the most conservative option and likely will result in an overestimate of NO_2 concentrations in the ambient air.

Tier 2: Modeled NO_x concentrations are converted to NO_2 by multiplying by empirically derived scaling factors of 0.75 for annual averages. This method is referred to as the Ambient Ratio Method (ARM). A Tier 2 option has been developed and is referred to as the ARM2 method. The ARM2 method is an additional Tier 2 method that can be used where a ratio is applied in the AERMOD program, as opposed to the post-processing requirement for ARM.

Tier 3: NO_2 concentrations are calculated from NO_x within AERMOD using screening algorithms that estimate the amount of NO_2 conversion based on ambient ozone concentrations and other environmental factors. Two options are available in AERMOD, the Ozone Limiting Method (OLM) and the Plume Volume Molar Ratio Method (PVMRM). Both Tier 3 methods are generally acceptable for use in a regulatory context.

Modeled concentrations of NO_x from the Facility are converted to NO_2 using the ARM2 method, which is contained within the AERMOD model.

Additionally, per NDEP guidance, the 1-hr NO_2 emission rate associated with intermittent (e.g., emergency) sources was annualized by multiplying the maximum hourly emission rate times the annual hours of operation associated with each emission unit divided by the total hours in a year (e.g., 8,760 hours per year).[6]

1.7 Meteorological Data

Meteorological data was provided by NDEP for the Facility for the year 2019. NDEP has processed meteorological data using the AERMET meteorological data preprocessor program, Version 24142 and provided the meteorological data sets to Trinity with adjusted friction velocity (ADJ_U*).

1.8 Terrain Data

Elevations for all modeled receptors were electronically generated through the AERMOD terrain processor, AERMAP (Version 24142), and the applicable USGS 1/3 arc second resolution NED.[7] AERMAP determines the elevation of each receptor by interpolation.

---

[6] Per the NDEP Modeling Guidance for Intermittent Sources and the 1-hr NO2 Standard, 09/2015. https://ndep.nv.gov/uploads/air-permitting-docs/1hr-no2-model-guidance-9-15.pdf

[7] NED data acquired on 06/20/2026 for which the metadata was updated on 06/08/2026.

In addition to terrain elevation, an additional parameter called the hill height scale is required for each receptor to execute AERMOD's terrain modeling algorithms. The 1/3 arc second NED extending 50 km from Facility sources was used for calculating the hill height scales. Because the receptor domain only extends 25 km from the boundary, a 50 km NED extent is more than necessary to capture the 10% slope from every receptor in the modeling domain. AERMOD computes the impact at a receptor as a weighted interpolation between horizontal and terrain-following states using a critical dividing streamline approach. This scheme assumes that part of the plume mass will have enough energy to ascend and traverse over a terrain feature and the remainder will impinge and traverse around a terrain feature under certain meteorological conditions. The hill height scale is computed by the AERMAP terrain preprocessor for each receptor as a measure of the one terrain feature in the modeling domain that would have the greatest effect on plume behavior at that receptor.

1.9 Project Datum

The Project datum was set in NAD83, Zone 11 UTM coordinates. All emission sources, buildings, receptors, fenceline, and elevation references are in NAD83, Zone 11 UTM coordinates.

1.10 Receptor Grid and Facility Boundary

For the purposes of establishing a dispersion model Facility boundary, consideration of adequate barriers to public access included the installation of fencing, posting signage, use of security cameras, construction of safety berms, and inclusion of natural terrain features that restrict public access. This property line has been revised since the initial air dispersion modeling exercise and is summarized in the provided files. Please refer to Appendix D for a plot plan showing the facility boundary.

The following tiered Cartesian receptor array was used for the analysis:

- "Boundary" receptors spaced at approximately 25-meter intervals along the boundary of the Facility.
- Cartesian grid receptors, spaced at 50-meter intervals, out to a distance of at least 500 meters from the boundary of the Facility;
- Cartesian grid receptors, spaced at 100-meter intervals, out to a distance of at least 1,000 meters from the boundary of the Facility;
- Cartesian grid receptors, spaced at 500-meter intervals, out to a distance of at least 5,000 meters from the boundary of the Facility; and
- Cartesian grid receptors, spaced at 1,000-meter intervals, out to a distance of at least 25,000 meters from the boundary of the Facility.
- Receptors will not be generated within the Facility boundary.

1.11 Source Characterization

Emission sources at the Facility, including emergency generators, fire pumps and fluid coolers, are modeled as point sources (both horizontal and vertical). The following sections identify the assumptions used to determine emission rates for each averaging period and dispersion parameters. Stack parameters for these sources were based on design parameters and provided by the manufacturer. The emission rates for all sources are provided in Section 1.19. The emergency generators, emergency house generators, and fire pumps at the Facility are configured to provide uninterrupted power supply or fire water in the event of an emergency. [redacted]



1.12 Operating Scenarios

The two operating scenarios included in this modeling analysis are high load (75%/100%) scenarios for annual and short term models as well as low load (3%/10%) scenarios for short term models. The generators will not be used to generate power except in the rare event of an emergency. Besides emergency use of the generators during power grid outages, the emergency generators, emergency house generators, and fire pumps will be operated, post-commissioning, in a planned and predictable manner for maintenance, testing, and nonemergency operations. Therefore, the models are inclusive of maintenance, testing, and nonemergency operations of the emergency generators, emergency house generators, and fire pumps. Fluid coolers (insignificant activity) were assumed to be continuously operational at maximum capacity for both the annual and short-term models.

1.12.1 Annual Criteria Pollutant Emissions Modeling

Annual emissions modeling is based on the annual PTE for all sources. Models included operation from 6:00 am to 7:00 pm daily for Systems 1, 6, 7 and Proposed System 10. Systems 2, 4, and 5, 8, 9, and Proposed System 12 were modeled at [redacted] load. System 1 and Proposed System 10 were modeled at [redacted] System 6, 7, and Proposed System 11 were modeled at [redacted] No low load models were considered for annual emissions modeling as it's not anticipated the Facility would operate in this configuration on an annual basis and the high load models are anticipated to have more conservative annual results.

1.12.2 Short-Term Criteria Pollutant Emissions Modeling

Short-term impacts (1-hour, 3-hour, 8-hour, and 24-hour averaging periods) are evaluated using the maximum daily pound-per-hour emission rates. Models are inclusive of maintenance, testing, and nonemergency operations of the emergency generator. Models included operation from 6:00 am to 7:00 pm daily for Systems 1, 6, 7 and Proposed System 10. Systems 2, 4, 5, 8, 9, and Proposed System 12 were modeled at [redacted] load for all load scenarios described above. System 1 and Proposed System 10 were modeled at [redacted] and [redacted] loads. System 6, 7, and Proposed System 11 were modeled at [redacted] and [redacted] loads. For the 1-hour NO2 standards, Switch followed NDEP guidance to adjust the maximum hourly emission rate by applying a ratio of maximum annual hours and continuous operation (i.e. 8,760 hours).

All fluid coolers and all emergency generators can operate on the same day for testing, maintenance, and non-emergency operations, except for [redacted] emergency generators located at the northeast most building (i.e. the first
building constructed at this Facility).

- These [redacted] emergency generators will not operate on the same day as the rest of the emergency generators at the Facility.
- For the purpose of evaluating all combinations of engine operation, the emergency generators at the building were split into [redacted] groups of [redacted] emergency generators.
- The lowest impacts from [redacted] groups of [redacted] emergency generators not in operation (i.e., [redacted] emergency generators not operating), was evaluated to determine that any [redacted] groups of emergency generators could

operate in one day with the rest of the emergency generators at the site (i.e., the highest [redacted] groups of emergency generators were included in the model as needed).

- [redacted] emergency generators may operate at the northeast most building on the same day as the rest of the site (there are a total of [redacted] emergency generators at the northeast most building). The provided model files contain source groups for each of these.
- Only the 24-hr $PM_{2.5}$ model implemented the approach above. All other models passed with all emergency generators running simultaneously at the Facility.

1.13 Background Concentrations

Pursuant to recommended NDEP guidance, background concentrations are considered negligible for gaseous pollutants and will therefore not be included for NO_2, SO_2, or CO modeling for comparison against the NAAQS and NVAAQS. The modeling for PM_{10} and $PM_{2.5}$ included regional background concentrations to determine compliance with the PM_{10} and $PM_{2.5}$ NAAQS and NVAAQS. Background concentrations for the following pollutants and averaging periods were added to the modeled concentration for the following averaging periods, as recommended by NDEP, are shown below in Table 1-3.

Table 1-3. Applicable NVAAQS and NAAQS Background Concentrations[8]

Pollutant	Background Concentration (µg/m³)
PM_{10}-24 hour	10.2
$PM_{2.5}$-24 hour	8
$PM_{2.5}$- Annual	2.3
NO_2	0
SO_2	0
CO	0

1.14 Effects of Nearby Facilities

The Facility will be located in an area with several other nearby sources of emissions. 40 CFR Part 51 Appendix W Table 8-2 specifies that for nearby sources, the air dispersion model should account for an operating factor as shown below:

- Annual and Quarterly Averaging Periods - Actual operating factor averaged over the most recent 2 years.
- Short Term Averaging Periods - Continuous operation, i.e., all hours of each time period under consideration (for all hours of the meteorological database).
  - If operation does not occur for all hours of the time period of consideration (*e.g.,* 3 or 24-hours) and the source operation is constrained by a federally enforceable permit condition, an appropriate adjustment to the modeled emission rate may be made (*e.g.,* if operation is only 8 a.m. to 4 p.m. each day, only these hours will be modeled with emissions from the source. Modeled emissions should not be averaged across non-operating time periods.)

[8] Nevada Division of Environmental Protection (NDEP). 2017. RE: Background Concentrations for Air Dispersion Modeling. Letter to Tom Coulter (Department of Interior/Bureau of Land Management). PM background per NDEP technical review document for rural projects in NV.

Per discussions with NDEP, neighboring sources and buildings for the nearby Fulcrum Power Generation facility (Fulcrum), Amazon Web Services (Amazon), Tract – Peru Ridge (Tract), Novva Data Centers (Novva), EdgeCore Digital Infrastructure AKA MECP (EdgeCore), CASS Inc. (CASS), Nevada Gold Mines LLC. – Western 102 Power Plant (Western 102), and American Battery Technology Company (ABTC) facilities have been included in the cumulative NAAQS models (note that Trinity has conservatively included the upcoming Tract (Facility ID A2622) and Fulcrum (Facility ID A0921) facilities in these models even though the permit has not been issued at the time of this submittal). For all sources, NDEP provided the AERMOD-ready stack locations, parameters, emissions rates, and downwash inputs or the supplied permit application from the Facility. These impacts were processed and included in the cumulative modeling results. Per correspondence with NDEP, the following conservative, actual assumptions were implemented to the nearby facility models. If the first iteration of a model showed passing results with all neighboring sources including all emission units running simultaneously, the below updates involving limiting the number of units were not applied to the models (i.e. CO, SO_2 models). All pollutants and averaging periods utilized the steady state (continuous operations) emission rates representative of actual operations as listed below. Note that for emergency equipment, the NDEP modeling methodology (e.g., 1 out of 8 engines operating) and annualization were both not applied to the 1-hr NO2 model.[9]

- Fulcrum
  - Steady state emission rates were utilized for all models. NO_2 emissions were annualized, for emergency equipment, as appropriate for 1-hr NO2.
- AWS
  - Per NDEP modeling methodology, 1 out of 8 emergency engines that provide backup power to the data center buildings were modeled as operating simultaneously. All other sources such as emergency house generators, fire pump engines, etc. were also included as operating simultaneously. The worst-case emissions between the variable loads were utilized to conservatively account for modeling impacts across all loads. Time of day restrictions from Hour 10 through Hour 19 were included for applicable engines. NO2 emissions were annualized, for emergency equipment, as appropriate for 1-hr NO2.
- Tract
  - The Tract facility includes a power plant with 136 prime power engines and 6 black start engines supporting the power plant in case of emergencies, 4 data center buildings with 82 emergency generators, and 12 CNG PRS units. Utilizing a similar and conservative, actual modeling methodology as the AWS data center model, the Tract model included all 136 prime power engines, 11 of the 80 data center emergency generators, and all 12 CNG PRS units operating simultaneously. The model assumed the 6 black start engines were not operating simultaneously with the rest of the facility (operate in emergency only when the 136 prime power engines are down) and utilized the same ratio of data center emergency generators operating simultaneously as was utilized for AWS. NO2 emissions were annualized, for emergency equipment, as appropriate for 1-hr NO2.
- Novva
  - Per NDEP modeling methodology, a select number of data center backup engines were modeled as operating simultaneously to demonstrate modeling of conservative, actual emissions. Time of day restrictions from Hour 7 through Hour 17 were included for applicable engines. NO2 emissions were annualized, for emergency equipment, as appropriate for 1-hr NO2.
- EdgeCore

[9] Modeling methodology for off-site sources discussed with Scott Speckart (NDEP) on 7/30 and the specific methodology for the AWS and Fulcrum facilities was confirmed via the 7/31 email from Scott Speckart.

- Per NDEP modeling methodology, certain models (1-hr NO2 and 24-hr PM2.5) only included emissions from 3 of the 128 data center backup engines. All other models included all 128 engines running simultaneously, even though some models could be refined to include only 14 of the 128 engines operating simultaneously per NDEP modeling guidance. Time of day restrictions were included for applicable engines from Hour 8 – Hour 18. NO2 emissions were annualized, for emergency equipment, as appropriate for 1-hr NO2.

- CASS
  - All emission units were modeled at the provided PTE, annualized as appropriate for 1-hr NO2.
- Western 102
  - All emission units were modeled at the provided PTE, annualized as appropriate for 1-hr NO2.
- ABTC
  - All emission units were modeled at the provided PTE, annualized as appropriate for 1-hr NO2.

As described in Section 1.10 impacts from facilities do not need to account for locations within their fenceline. As needed, SIL exceeding receptors located in an off-site source's fenceline did not include the contribution of that off-site source's impacts (e.g., contributions from the off-site source were not accounted for within their fenceline).

1.15 Ozone Modeling

O_3 is a secondary pollutant formed by photochemical reactions from O_3 precursor pollutants. While several pollutants may result in O_3 formation, VOC and NO_x are the two greatest contributors. Per NDEP's Modeling Guidelines, Switch has shown compliance with the 8-hour O_3 standard using the screening technique developed by the U.S. EPA entitled, *VOC/NOx Point Source Screening Tables, by Richard D. Scheffe.*

The Scheffe method uses a screening method based on VOC and NO_x emissions to determine the expected model impact. Table 1 of the paper indicates the Rural based ozone increment (ppm) as a function of the non-methane hydrocarbon (NMOC) emissions and NMOC/NO_x ratios. Facility wide emission calculations are shown in the Application. For this analysis, we are conservatively assuming that VOC emissions are equal to NMOC emissions. Table 1-4 shows the Facility is below relevant NAAQS and NVAAQS threshold levels; no further analysis is required. The detailed Scheffe model will be provided upon request.

Table 1-4. Facility Wide Ozone

NMOC (tpy)	NO_x (tpy)	NMOC/NO_x	Table 1 Ozone Increment	Ozone NAAQS/NVAAQS (8-hour averaging period)	Exceed Thresholds?
14.56	191.97	0.08 tons/ton	0.011 ppm	0.070 ppm	No

1.16 Secondary $PM_{2.5}$ Assessment

Emissions of primary NO_x and SO_2 can undergo a transformation in the ambient atmosphere to form particulate matter, particularly $PM_{2.5}$. A similar case is true for ozone, of which NO_x and VOC are precursors. EPA released guidance[10] in 2019 (the MERPs guidance) describing a methodology for accounting for this

[10] "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program" (04/30/2019, EPA-454-R-19-003)

secondary formation of $PM_{2.5}$ and ozone. Secondary formation of $PM_{2.5}$ and ozone are accounted for in this analysis according to the MERPs guidance.

Representative MERPs data in Churchill County, Nevada are obtained from the EPA View Qlik website.[11] MERPs use technically credible air quality modeling to relate precursor emissions and peak secondary pollutant impacts from hypothetical sources. In developing the MERPs, the EPA uses photochemical grid modeling (PGM) platforms for the hypothetical sources that use current state-of-the-science algorithms and equations to evaluate plume dispersion and chemical transformations. The EPA uses emission rates of 3,000 tpy, 1,000 tpy, and 500 tpy of NO_x, SO_2, or VOC, as well as stack heights of 10 meters (approximately 30 ft) and 90 meters (approximately 300 ft) for the PGM evaluations.

Pursuant to the EPA guidance, the data available for the only Nevada hypothetical source in EPA's View Qlik website is used. The hypothetical source has a 500 tpy emission rate and 90 m and 10 m stack heights. The more conservative value was used between the two stack heights. Secondary $PM_{2.5}$ is based on estimates of annual site-wide potential primary NO_x and SO_2 emissions as represented in the Table below. These secondary contributions calculated using MERP concentrations are added to modeled impacts of Facility-wide $PM_{2.5}$ sources.

Table 1-5. Preliminary Estimates of Secondary Contribution Impacts of $PM_{2.5}$

Precursor Pollutant	Facility Emissions (tpy)	Secondary Contribution	
		$PM_{2.5}$ Daily ($\mu g/m^3$)	$PM_{2.5}$ Annual ($\mu g/m^3$)
NO_x	191.97	0.017	0.0007
SO_2	0.20	0.0002	0.000003
Total		**0.018**	**0.00071**

[11] Obtained from EPA MERPS ViewQlik website on July 9, 2026 (https://www.epa.gov/scram/merps-view-qlik)

1.17 Modeling Results

The SIL model results are presented in Table 1-6. The modeled ground-level concentrations using the approach described throughout this report for the NVAAQS/NAAQS modeling are presented in Table 1-7. The concentrations presented represent the worst-case result from all the different model scenarios (e.g., varying loads at off-site sources). Note the highest-first high concentrations are reported for SIL model while the modeled concentrations for NAAQS/NVAAQS are reported in the form of the standard listed in Table 1-1.

As shown in Table 1-7, the emission levels from the Facility demonstrate full compliance with the applicable standards for all pollutants and averaging periods.

Table 1-6. Model Results Compared to Applicable Standards

Year Modeled	Pollutant	Exceed SIL?
2019	24-hr PM_{10}	Yes
2019	24-hr $PM_{2.5}$	Yes
2019	Annual $PM_{2.5}$	No
2019	1-hr NO_2	Yes
2019	Annual NO_2	Yes
2019	1-hr CO	Yes
2019	8-hr CO	Yes
2019	1-hr SO_2	Yes
2019	3-hr SO_2	No
2019	24-hr SO_2	Yes
2019	Annual SO_2	No

Table 1-7. NAAQS/NVAAQS Model Results Compared to Applicable Standards

Year Modeled	Pollutant	Model Results[1] ($\mu g/m^3$)	Background ($\mu g/m^3$)	Secondary Formation ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	Standard ($\mu g/m^3$)	% of Standard
2019	24-hr PM_{10}	129.95	10.2	-	140.15	150	93%
2019	24-hr $PM_{2.5}$	25.67	8.0	0.018	33.69	35	96%
2019	1-hr NO_2	183.72	-	-	183.72	188	98%
2019	Annual NO_2	13.80	-	-	13.80	100	14%
2019	1-hr CO	21,448.16	-	-	21,448.16	40,500	53%
2019	8-hr CO	2,741.73	-	-	2,741.73	10,500	26%
2019	1-hr SO_2	101.72	-	-	101.72	196	52%
2019	24-hr SO_2	7.33	-	-	7.33	365	2%

1.18 Electronic Files

The air dispersion modeling input and output electronic data files are provided to NDEP via a USB flash drive. The downwash files and terrain data files utilized in the analysis are also provided in electronic form on the USB flash drive. Each model folder contains an AERMOD input file and an AERMOD output file.

1.19 Source Inputs

The Tables below contain the modeled sources orientations, locations, and elevations.