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<th>19-SPPE-03</th>
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<td><strong>Project Title:</strong></td>
<td>Sequoia Data Center</td>
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<td><strong>TN #:</strong></td>
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<td><strong>Description:</strong></td>
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<td><strong>Filer:</strong></td>
<td>Steve Kerr</td>
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February 4, 2021

Ashley Gutierrez
Planner II (EFS)
CALIFORNIA ENERGY COMMISSION
Siting, Transmission & Environmental Protection (STEP) Division
1516 9th Street, MS-40
Sacramento, CA 95814

RE: ALUC Consistency determination for the Sequoia Data Center located at 2600 De La Cruz Boulevard in Santa Clara.

Dear Ms. Gutierrez:

On October 23, 2019, the ALUC considered the above referral for consistency with the policies of safety, height and noise contained within the San Jose International Airport (SJC) Comprehensive Land Use Plan (CLUP). On December 30, 2019, a letter of consistency was sent to the Applicant and the City of Santa Clara Planning Staff. On January 25, 2021, ALUC staff was made aware of modifications formally submitted by the project Applicant (See Attached file TN 236429.)

The proposed modification would add a Selective Catalytic Reduction (SCR) System (SCR) filtration system and would not increase generator stack heights, which would remain at a height of approximately 38 feet and 24 feet. Because of the need for increased capacity, the generator enclosures would increase a total of 7 feet, from 17 feet to 24 feet tall. No modifications would occur potentially creating plumes that could negatively affect aircraft approach and departures.

The following recommended conditions of the original ALUC consistency determination shall apply to the proposed modification:

- Prior to construction commencing, an Avigation Easement shall be granted to the City of San Jose on behalf of San Jose International Airport.

- The proposed 54-diesel fuel tanks shall be located underground to avoid any flammable safety risks. (See Attached Diagram).

- In the event that the industrial usage proposal changes a referral shall be sent to the ALUC prior to City of Santa Clara approval, including the condition that no part of the building or attachments, including trees, penetrate the Part 77 height limits.

Please note that pursuant to the Public Resources Code 21670, the City of Santa Clara has the option of overruling the ALUC’s determination. Overrules require a 2/3 vote of the entire body of the City of Santa Clara City Council. The notification process to the ALUC and Cal Trans Division of Aeronautics shall also be complied with.
If you have any questions, please feel free to contact ALUC staff, Mark Connolly, at 408-299-5786, or via e-mail at mark.connolly@pln.sccgov.org.

Sincerely,

Mark J. Connolly
Senior Planner

Cc: Elaheh Kerachian, Associate Planner
Planning Division | Community Development Department
1500 Warburton Avenue | Santa Clara, CA 95050
# DOCKETED

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<td>TN #:</td>
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<td>Document Title:</td>
<td>SBGF Revised Project Description and AQ Emissions - Tier 4</td>
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<tr>
<td>Description:</td>
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**Attachments:**

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**Docket Number:**

*19-SPPE-03*

**Project Title:**

*Sequoia Data Center*

**TN #:**

*236429*

**Document Title:**

*SBGF Revised Project Description and AQ Emissions - Tier 4*

**Description:**

*N/A*

**Filer:**

*Scott Galati*

**Organization:**

*DayZenLLC*

**Submitter Role:**

*Applicant Representative*

**Submission Date:**

*1/25/2021 7:52:52 AM*

**Docketed Date:**

*1/25/2021*
C1- Santa Clara LLC (C1) hereby files this Response to the Hearing Officer Memorandum dated January 20, 2021 ordering the Filing of a Revised Project Description its Sequoia Backup Generating Facility (SBGF) (TN 236380). Attached is a Revised Project Description prepared using redline/strikethrough of the original SBGF Project Description contained in the Small Power Plant Exemption (SPPE) Application including drawings and specification sheets for the generator enclosures, urea tank, and Miratech Selective Catalytic Reduction (SCR) system. Additionally, attached to the Project Description is a table comparing the emissions of the original Tier 2 generators to the proposed Tier 4 compliant generators and the original emissions tables provided in the SPPE Application provided in redline/strikethrough.

As we stated in our After Proposed Decision Status Report No. 1 no additional CEQA analysis is required for the modification as they do not cause any new impacts that were not previously analyzed in the Proposed Decision and Initial Study/Mitigated Negative Declaration (IS/MND) and in fact reduce emissions of NOx even those emissions were found to be less than significant for the original generators.

Neither CEQA nor the Commission SPPE regulations require additional evidentiary hearing to approve the modifications contained herein. We again urge the Committee
to proceed to the next available Commission Business Meeting for adoption of the Proposed Decision.

Dated: January 25, 2021

Respectfully Submitted,

Scott A. Galati
Counsel to C1-Santa Clara, LLC
2 PROJECT DESCRIPTION

2.3 Overview of Proposed Generating Facilities
SBGF would be a backup generating facility with a generation capacity of up to 96.5 MW to support the SDC’s purpose of providing uninterruptible power supply for its tenant’s servers. The SBGF would consist of 54 diesel-fired backup generators arranged in a generation yard located on the west and south sides of the SDC. Project elements will also include switchgear and distribution cabling to interconnect the generators to their respective portion of the buildings.

2.4 Generating Facility Description, Construction and Operation

2.4.1 Site Description
The proposed SDC site encompasses 15 acres and is located at 2600 De La Cruz Boulevard in the City, California, assessor’s parcel number (APN) 230-03-105. The property is zoned Heavy Industrial. The site was previously developed with a one-story recycled paperboard mill and warehouse. The mill utilized a combined-cycle cogeneration plant with a natural gas turbine. The majority of the site surfaces were paved. The initial development of the site appears to have been begun in the late 1940s and early 1950s. The site is currently vacant and unpaved.8

The property is bound to the north by an Enterprise Rent-a-Car Facility, to the south by a furniture warehouse, to the east by San Jose International Airport (SJC), and to the west by warehouse structures. The project area consists primarily of industrial land uses. Buildings in the area are generally similar in height and scale. SJC is approximately 100 feet east of the site. A list of all property owners within 1,000 feet of the site was generated by the City in July 2019 and is included as Appendix A.

2.4.2 General Site Arrangement and Layout
The 54 backup generators would be located in a generation yard along the west and south sides of the SDC building. Figure 2 shows the general arrangement and site layout of the SBGF within the SDC site.

Each backup generator is proposed as a fully independent package system with a dedicated and integrated fuel tank located below the bottom level of the generator. The generation yard would be electrically interconnected to the SDC building through above-ground cables to a location within the building that houses electrical distribution equipment.

8 The City of Santa Clara issued a demolition permit to C1 on February 7, 2019 and at the time of the filing of this SPPE, demolition activities have been completed for every project feature except for piping and miscellaneous infrastructure associated with the former cogeneration facility.
2.4.3 Generating Capacity

The following facts are relevant to determining the generating capacity of the SBGF.

1. The SBGF uses internal combustion engines.
2. The SBGF internal combustion engines have a peak rating and a continuous rating.
3. The SBGF through software technology and electronic devices is controlled exclusively by the SDC.
4. The SBGF has been designed with a “6 to make 5” design basis to ensure redundancy, making 9 generators redundant.
5. The SBGF would only be operated for maintenance and testing and during emergencies.
6. The SBGF during an emergency would only operate at a load equal to the demand by the SDC.
7. The SBGF would not be interconnected to the transmission grid or anything else, including connection through the SDC.

C1 offers the following methodologies for the Commission to use to determine generating capacity that would be reasonable, not arbitrary and capricious, and would take into account the unique features of a backup generating facility such as the SBGF.

Data Center Load Demand

The preferred and most accurate way to calculate the generating capacity of the SBGF is to recognize that the load of the backup generators would be completely dictated by the demand of the data center. Using this methodology reflects the most accurate way of describing the relationship between the SBGF and the SDC and describes the actual physical constraint to the generating capacity. In other words, the SDC would employ physical electronic devices and software technology (Automatic Transfer Switches, Building Load Management System) that limit the output of the SBGF.

The SDC would include load-shedding software and electronic equipment that would automatically adjust the output of the SBGF based only on the demand of the SDC. The demand of the data center is not some ethereal concept derived for purposes of determining generating capacity. It is instead a physical constraint not controlled by C1, but rather controlled through software and electronic control devices. The software and electronic control devices would match the output of the SBGF during an emergency where SVP cannot serve the SDC load. The fact that the SBGF is not electrically connected to anything other than the data center creates this unique factual circumstance.
This unique situation must be distinguished from the case of a conventional power facility that is interconnected to the transmission grid and responds to calls from the California Independent System Operator (CalSO). In the case of a conventional power facility, the CalSO can call on any portion of the generator’s capacity, including its maximum generating capacity, as the CalSO can direct the electricity to different parts of the system. For the SBGF, there would be one place the electricity can go – the SDC.

Therefore, the most accurate way of calculating generating capacity from a backup generating facility that solely supports a data center is to understand the potential load of the receiving data center. It is also important to note that the design demand of the SDC, which the SBGF has been designed to reliably supply with redundant components during an emergency, is based on the maximum Critical IT load occurring during the hottest hour in the last 20 years. Such conditions are possible but extremely unlikely to ever occur. The SDC load on that worst-case day is just under 97 MW, below the SPPE threshold.

Each set of 6 generators would be dedicated to serve the Critical IT requirement of a data hall. In addition, each set of six generators would share a portion of the overall building mechanical load, which is primarily driven by cooling of the data hall and the common space of the building (lobby, conference area, hallways, etc.). The SDC would have seven data halls, each designed to provide 7.5 MW of Critical IT as well as four data halls each designed to provide 3.75 MW of Critical IT, for a total Critical IT load of 67.5 MW. The total mechanical building load for the SDC for the hottest day in the last 20 years is 29 MW. Therefore, the maximum SDC building load would be 67.5 MW Critical IT plus 29 MW of Total Mechanical Building Load, or 96.5 MW.

It is important to note that while the SDC has been designed to accommodate full Critical IT load, it is C1’s experience that clients rarely utilize the entire Critical IT load available inside a data hall(s) that it rents. Also, the average ambient temperature conditions for a data center in the City area are much lower than the design day. The average Critical IT load is expected to be more on the order of 47 MW and the average total mechanical building load is expected to be approximately 11 MW.

The data center industry utilizes a factor called the Power Utilization Efficiency Factor (PUE) to estimate the efficiency of data centers. The PUE is calculated by dividing the total demand of the data center by the Critical IT load. For the worst-case day, the peak PUE for the SDC would be 1.43 (total 96.5 MW demand of building on worst-case day divided by 67.5 MW total Critical IT load). The average PUE for the SDC would be 1.23 (total 58 MW demand of building average conditions divided by 47 MW expected Critical IT load).

**Regulatory Capacity Restriction**

The Commission should also consider that C1 is currently in negotiations with SVP to supply electricity to the SDC. SVP has provided a will-serve letter (Appendix B) that confirms its ability to provide up to 99 MW to C1 for the SDC. C1 and SVP are currently negotiating an agreement that will contractually limit the amount of deliverable electricity to the SDC to less than 100 MW. In other words, if the SDC cannot take delivery of more than 100 MW from SVP, the SBGF, which replaces the electricity that SVP is unable to deliver, would never exceed 100 MW.
2.4.4 Backup Electrical System Design

Overview

To place the role of the SBGF into context, the following information about the overall SDC design is provided. The design objective of the backup electrical system is to provide sufficient equipment and redundancy to ensure that the servers housed in the SDC buildings would never be without electricity to support critical loads. The critical loads include the load systems to support the building operation in addition to the electricity consumed by the servers themselves. The largest of these building loads is the mechanical systems to provide cooling for the server rooms.

For backup supply for a data center, it is commonplace to build levels of systems and equipment redundancy and concurrent maintainability into the overall electrical and mechanical infrastructure. The base quantity of systems that are required to serve the design load of the facility is referred to as “N”. When reliability requirements dictate that redundant systems are added to the base quantity of systems, it is commonplace in the industry to refer to the number of redundant systems as “X” in the representation “N+X”.

Each electrical system would consist of a UPS system that would be supported by batteries, electrical switchgear, an electrical inverter, and portions of the SBGF backup generation. The UPS systems that would be deployed at the SDC would consist of one (1) 1500 kilo-volt ampere (KVA) UPS unit to provide “N Unit” of redundancy for a critical capacity of 1.5 MW. This UPS unit would power a potential 1.5 MW of critical load by employing load-sharing capabilities inherent to the UPS design. The power inputs of the UPS unit would be electrically connected to a single main switchboard. This main switchboard would be connected to a dedicated 2500 KVA utility transformer as well as dedicated to one of the SBGF backup generators.

Six 1.5 MW UPS systems would equally share a maximum 7.5 MW critical load. The system would work as a distributive redundant (6 to make 5) N+1 system such that if any single N system were to catastrophically fail, the surviving 5 would have sufficient capacity to provide power to the maximum critical load. There are nine of these 6-to-make-5 systems proposed in the SDC.

UPS System and Batteries

The UPS System and Batteries are part of the SDC and are not part of the SBGF. However, the following description is provided to describe how the UPS would dispatch the individual generators of the SBGF. The UPS would protect the load against surges, sags, under voltage, and voltage fluctuation. The UPS would have built-in protection against permanent damage to itself and the connected load for all predictable types of malfunctions. The load would be automatically transferred to the bypass line without interruption in the event of an internal UPS malfunction. The status of protective devices would be indicated on a liquid crystal display (LCD) graphic display screen on the front of the UPS. The UPS would operate in the following modes:
• **Normal** – Insulated Gate Bipolar Transistor (IGBT) Rectifier converts alternating current (AC) input power to DC power for the inverter and for charging the batteries. The IGBT inverter supplies clean and stable AC power continuously to the critical load. The UPS inverter output shall be synchronized with the bypass AC source when the bypass source is within the AC input voltage and frequency specifications.

• **Loss of Main Power** - When main power is lost, the battery option shall automatically back up the inverter so there is no interruption of AC power to the critical load.

• **Return of Main Power or Generator Power** - The system shall recover to the Normal Operating Mode and shall cause no disturbance to the critical load while simultaneously recharging the backup battery.

• **Transfer to Bypass AC source** - If the UPS becomes overloaded, or an internal fault is detected, the UPS controls shall automatically transfer the critical load from the inverter output to the bypass AC source without interruption. When the overload or internal warning condition is removed, after a preset “hold” period the UPS will automatically re-transfer the critical load from the bypass to the inverter output without interruption of power to the critical load.

• **Maintenance Bypass** - An optional manual make-before-break maintenance bypass panel may be provided to electrically isolate the UPS for maintenance or test without affecting load operation.

Similarly, the batteries and battery banks would not be a part of the SBGF and are described here for informational purposes only. The batteries would be configured in banks of eight cabinets. The banks would be connected to the UPS units as described above. The batteries would have tab washers mounted on front terminal posts capable of accepting the wiring components of a battery monitoring system. Batteries would have a minimum design life of 10 years in float applications at 77 degrees Fahrenheit. The battery containers and covers are polypropylene, are hermetically sealed to provide leak resistance over the life of the product, and are flame retardant to meet UL standard 1778.9

The batteries would be configured in banks with matching stand-alone valve-regulated battery banks with the following characteristics.

- Each battery bank would provide a minimum of 10 minutes of backup at 75 percent rated inverter load of 1500 kilowatts (kW), at 77°F/25°C, end of life
- Internal cabinet temperature sensor to be wired back to the UPS module
- Conductor terminations will be NEMA two-hole long barrel compression lugs

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9 Underwriters Laboratories, or UL, is a national leader in producing electrical and fire safety standards.
## 2.4.5 Electrical Generation Equipment

Each of the 54 generators would be a Tier-42 standby diesel-fired generator equipped with the Miratch system which includes both Selective Catalytic Reduction (SCR) System and diesel particulate filters (DPF). The generators would be MTU model 16V4000 DS2250. The maximum peak rating of the DS2250 is 2250 kW with a steady-state continuous generating capacity of 1.91 MW. Specification sheets for each manufacturer and evidence of the steady-state continuous ratings of the generators are provided in Appendix C.

Each individual generator would be provided with its own package system. Within that package, the prime mover and alternator would be made ready for the immediate call for the request for power controlled by the UPS. The generator package would integrate a dedicated fuel tank with a capacity of 6,800 gallons and SCR to reduce NOx emissions. The SCR system will use urea which will be stored in one 1,500 gallon tank for each pair of generators. The generators would be located in a generator yard along the west and south sides of the building. The generator enclosures are approximately 113 feet wide, 347 feet long, and 2417 feet high. Each generator on the western side of the SDC would have a stack height of approximately 38 feet 9 inches. Each generator along the southern side of the SDC would have a stack height of approximately 24 feet 9 inches. Additionally, each generator package will be set below grade such that the diesel fuel tank will be entirely below grade in a concrete basin as outlined in the previously docketed letter from the Santa Clara County Airport Land Use Commission (ALUC) dated December 20, 2019 (TN 231355). Each of the urea tanks is approximately 4 feet wide and approximately 18 feet long and will also be placed below grade in the concrete basin between the two generators each tank will serve. When placed on slab, the generators they would would be spaced approximately 5 feet apart horizontally. The generator yards would have 20-foot-high precast concrete screen walls and 8-foot-high decorative metal fence.

## 2.4.6 Major Electrical Equipment and Systems

There would be a load disconnect breaker at the generator alternator that is normally closed while the generator is both in and out of operation. From that load disconnect, a 600-volt rated power cable bus would traverse from the generator into the data center facility (SDC building) terminating on a dedicated main generator input breaker. The power cable bus would be rated for the full ampacity output rating of the generator. The generator would also include a load bank connection, allowing each generator to be individually connected to a load bank for periodic maintenance and testing. The generator main breaker would be electrically interlocked with an adjacent utility transformer main breaker within the main switchboard, such that the generator main breaker can never close unless the utility transformer main breaker is in the open state. The generator main breaker would only close based upon a generator start request from a Programmable Logic Controller (PLC) control logic that indicates that:

- The utility transformer main breaker’s source power is unavailable,
- The generator has started and is producing 480-volt AC power, and
- The utility transformer main breaker is in the open state

1 See Appendix C for the Miratech system spec sheet.
Once the generator main breaker is closed, the power created from the individual generator is then transmitted to the dedicated load of the 1.5 MW critical UPS load system and connected mechanical equipment. This load would be the exact same load that the dedicated utility transformer was supplying power to prior to the utility interruption. Power from this individual generator could not be transferred to any other load or system or anywhere outside the facility.
2.4.7 Fuel System
The backup generators would use ultra-low sulfur diesel as fuel (<15 parts per million sulfur by weight). The 54 generators would have a combined diesel fuel storage capacity of 367,200 gallons, designed to provide 24 hours of emergency generation at full demand of the SDC.

2.4.8 Cooling System
Each generator would be air cooled independently as part of its integrated package and therefore there is no common cooling system for the SBGF.

2.4.9 Water Supply and Use
The SBGF would not require any consumption of water. The SDC will use approximately 5 acre-feet per year of potable water for domestic and irrigation uses to be supplied by the City via a new pipeline from the building to an interconnection with an existing water pipeline located in De La Cruz Boulevard. Chilled hydronic water piping would require an initial one-time water use of approximately 0.5 acre-feet prior to commercial operation.

2.4.10 Waste Management
The SBGF would not create any waste materials other than minor amounts of solid waste created during construction and maintenance activities. The SDC would generate sanitary sewage which would be sent via underground pipeline from the building to an interconnection with an existing sewer pipeline located in De La Cruz Boulevard.

2.4.11 Hazardous Materials Management
The project would require the preparation of a Spill Prevention, Control and Countermeasure Plan (SPCC) to address the storage, use, and delivery of diesel fuel for the generators.

Each generator unit and its integrated fuel tanks have been designed with doublewalls. The interstitial space between the walls of each tank would be continuously monitored electronically for the presence of liquids. This monitoring system would be electronically linked to an alarm system in the security office. This system would alert personnel if a leak is detected. Additionally, the standby generator units would be housed within a self-sheltering enclosure that prevents the intrusion of storm water.

Diesel fuel would be delivered on an as-needed basis in a compartmentalized tanker truck with maximum capacity of 8,500 gallons. The tanker truck would park at the gated entrances to the generator yard for re-fueling.

The SBGF would not include loading/unloading racks or containment for re-fueling events; however, a spill catch basin would be located at each fill port for the generators. To prevent a release from entering the storm drain system, drains would be blocked off by the truck driver and/or facility staff during fueling events. Rubber pads or similar devices would be kept in the generation yard to allow quick blockage of the storm sewer drains during fueling events.
To further minimize the potential for diesel fuel to come into contact with stormwater, to the extent feasible, fueling operations would be scheduled at times when storm events are improbable.

Warning signs and/or wheel chocks would be used in the loading and/or unloading areas to prevent vehicles from departing before complete disconnection of flexible or fixed transfer lines. An emergency pump shut-off would be utilized if a pump hose breaks while fueling the tanks. Tanker truck loading and unloading procedures would be posted at the loading and unloading areas.

Additonally, the generator package will be set below grade such that the diesel fuel tank will be entirely below grade in a concrete basin as outlined in the previously docketed letter from the Santa Clara County Airport Land Use Commission (ALUC) dated December 20, 2019 (TN 231355).

To meet the Tier 4 emission standards, urea is used to enable the SCR system to achieve NOx emission reduction. Urea is required to be stored and managed appropriately. Urea does not trigger the CalARP Program and therefore neither an offsite consequence analysis nor Risk Management Plan are required. Since the urea tanks will be below grade in the concrete basin, its use complies with the ALUC Master Plan policies applicable to the site. A diagram of the urea tank is shown in Appendix C.

2.4.12  **SBGF Project Construction**

Construction activities for the SDC are expected to begin in January 2020 and are discussed in more detail in Section 2.5, Sequoia Data Center Facilities Description. Since the site preparation activities for the SDC would include the ground preparation and grading of the entire SDC site, the only construction activities for the SBGF would involve construction of the generation yard. This would include construction of concrete slabs, fencing, installation of above-ground conduit and electrical cabling to interconnect to the SDC Building switchgear, and placement and securing of the generators.

The generators themselves would be assembled offsite and delivered to the site by truck. Each generator would be placed within the generation yard by a crane.

Construction of the generation yard and placement of the generators is expected to take 6 months. Construction personnel are estimated to range from 10 to 15 workers including one crane operator.

2.4.13  **SBGF Facility Operation**

The backup generators would be run for short periods for testing and maintenance purposes. Other than maintenance and testing, the generators would not be operated unless there is a disturbance or interruption of the utility supply. The Bay Area Air Quality Management District (BAAQMD)’s Authority to Construct and the California Air Resources Board’s (CARB) Airborne Toxic Control Measures (ATCM) limits each engine to no more than 50 hours of operation annually for reliability purposes (i.e., testing and maintenance). However, it is C1’s experience that maintenance and testing of each engine rarely exceeds 10 hours annually. In addition, C1 will only operate one engine at a time for maintenance and testing activities. Please see Section 4.3, Air Quality for additional description of the testing and maintenance frequencies and loading proposed for the SBGF.
SPPE APPLICATION APPENDIX C

ADDITIONS

Drawings and Specification Sheets for Tier 4 Compliant Generators
PRELIMINARY

NOTES:

- Airflow direction is clockwise.
- Full assembled assembly enclosure to be anchored to the bare tank.
- Panel joints are skip welded and caulked.

ACOUSTICAL ENCLOSURE

- Designed to reduce the airborne equipment noise level by 5 dB(A) when measured at a distance of 23 feet from the enclosure and 5 1/2 feet above grade in a free field environment.
- The equipment noise does not exceed 124 dB.
- Based on a total airflow requirement of 117,022 CFM at less than 1/2" W.G. back pressure.
- Engine exhaust is not included.

ENCLOSURE CONSTRUCTION:

- Walls and roof - 14 gauge galvanized steel.
- Frame construction - A36 structural channel and A-500 tubing.
- Louvers - fixed inlet weather louvers with birdscreen.
- Baffles - 18" deep discharge panels.
- Inner liner - perforated galvanized steel.
- Insulation - mineral wool and poly liner.
- Doors - three double and three single access service doors with stainless steel handles and latches.

ELBOW:
- Discharge elbow with birdscreen.

ENCLOSURE CONSTRUCTION:
- Frame shipped loose.

PAINTING:
- Exterior galvanized surfaces to be solvent cleaned per SSPC-SP1 and painted as follows:
  - Primer - one coat industrial primer (2-4 mils oft).
  - Finish - one American Coatings Polyurethane (2-4 mils oft).
- Color - grey.

ELEVATION VIEW

- Package weight (dry tank with fuel overfill, alarm horn, dpa) - 112,000 lbs.
- Package weight (dry tank without fuel overfill, alarm horn, dpa) - 102,000 lbs.
MATERIAL DESCRIPTION

MODEL: EY 1 IAL

INNER DIAMETER: 46" ± 1/4"
OUTER DIAMETER: 47 1/2"
INNER LENGTH: 185.5 ± 1/2"
OUTER LENGTH: 215 ± 1/2"

1500 gallons @ 100% capacity

CODE: UL 142

FEATURES:

- 150 FULL COUPLING 4" Full Coupling
- 12" Full Coupling
- 12" Full Coupling
- 12" Full Coupling
- 6" Half Coupling
- 6" Full Coupling
- 6" Full Coupling
- 1/2" SCH 40 Pipe
- 1/2" SCH 40 Pipe
- 1/2" Full Coupling
- 1" Full Coupling
- 3" Full Coupling
- 4" Full Coupling

NOTES:

1. SEE SIDE VIEW FOR TRUE ORIENTATION OF ALL FITTINGS.
   ALL DIMENSIONS ± 1/2" TOLERANCE.
2. MATERIAL: 10 GA., 304 STAINLESS STEEL
3. TANK TO BE BUILT & LABELED PER UL 142 CODE.
4. TANK ESTIMATED DRY WEIGHT: 3,400 LBS.
5. TEST: 3 PSI. SOAP & WATER
6. TANK PAINTED WHITE

DRAWN BY: JDS
REVISED

SIMPLEX TECHNOLOGY SERIES
1500 GALLON DUAL WALL

277481

SIMPLEX FABRICATION FUEL OIL DAY TANK
Application & Performance Warranty Data

Project Information
- Site Location: CA
- Project Name: Interstate Power Cyrus One Sequoia Miracube
- Application: Standby Power
- Number Of Engines: 1
- Operating Hours per Year: 200

Engine Specifications
- Engine Manufacturer: MTU
- Model Number: 16V4000G84S
- Rated Speed: 1800 RPM
- Type of Fuel: Ultra-Low Sulfur Diesel (ULSD)
- Type of Lube Oil: 1 wt% sulfated ash or less
- Lube Oil Consumption: 0.1 % Fuel Consumption
- Number of Exhaust Manifolds: 1

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<td>Rated</td>
<td>2,500</td>
<td>14,327</td>
<td>501</td>
<td>8.5</td>
<td>1.7</td>
<td>0.29</td>
<td>0.09</td>
<td>10</td>
<td>12.5</td>
<td></td>
</tr>
</tbody>
</table>

Emission Data (100% Load)

<table>
<thead>
<tr>
<th>Emission</th>
<th>Raw Engine Emissions</th>
<th>Target Outlet Emissions</th>
<th>Calculated Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/bhp-hr</td>
<td>tons/yr</td>
<td>ppmvd @ 15% O2</td>
</tr>
<tr>
<td>NOx*</td>
<td>6.34</td>
<td>4.69</td>
<td>579</td>
</tr>
<tr>
<td>CO</td>
<td>1.27</td>
<td>0.94</td>
<td>190</td>
</tr>
<tr>
<td>NMNEHC**</td>
<td>0.22</td>
<td>0.16</td>
<td>57</td>
</tr>
<tr>
<td>PM10</td>
<td>0.07</td>
<td>0.05</td>
<td>23</td>
</tr>
</tbody>
</table>

* MW referenced as NO2
** MW referenced as CH4. Propane in the exhaust shall not exceed 15% by volume of the NMNEHC compounds in the exhaust, excluding aldehydes. The 15% (vol.) shall be established on a wet basis, reported on a methane molecular weight basis. The measurement of exhaust NMNEHC composition shall be based upon EPA method 320 (FTIR), and shall exclude formaldehyde.
System Specifications

SCR/DOC/DPF System Specifications (M3Z-56-64-20120094-XR4, ACIS-3 Lite, Commissioning & Startup)

Design Exhaust Flow Rate: 14,327 kg/hr
Design Exhaust Temperature: 501°C
Total Catalyst Volume: 41 cubic feet
SCR Catalyst Volume: 41 cubic feet
System Pressure Loss: 16.0 inches of WC (Clean) (39.9 mBar)
Sound Attenuation: Critical Grade
Exhaust Temperature Limits: 572 – 977°F (300 – 525°C)
Minimum Regeneration Temperature: 500°F (260°C)
Reactant: Urea
Percent Concentration: 32.5%
System Dosing Capacity: 60 L/hr
Estimated Reactant Consumption: 13.8 gal/hr (52.3 L/hr) / Per Engine

Sound Data

<table>
<thead>
<tr>
<th>Raw Engine Exhaust Sound Levels</th>
<th>Octave Band Center Frequency (OBCF)</th>
<th>Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hz</td>
<td>31.5</td>
</tr>
<tr>
<td>Sound Pressure</td>
<td>dB</td>
<td>108.7</td>
</tr>
<tr>
<td>Calculated Sound Power</td>
<td>dB</td>
<td>116.7</td>
</tr>
<tr>
<td>Calculated Sound Pressure</td>
<td>dB</td>
<td>108.6</td>
</tr>
</tbody>
</table>

Requested Sound Target

| Overall Sound Pressure        | 75.0 | 90° | 23 feet |
| Calculated Target Overall Sound Pressure | 91.9 | 90° | 3.3 feet |

Sound Performance Estimations (M3Z-56-64-20120094-XR4)

| Estimated Sound Attenuation   | dB     | 12.0 | 17.5 | 24.5 | 31.8 | 37.5 | 45.3 | 56.5 | 66.8 | 70.3 | 34.9 |
| Estimated Sound Power         | dB     | 104.7 | 100.7 | 101.5 | 95.6 | 86.5 | 73.2 | 60.2 | 41.0 | 17.5 | 90.4 |
| Estimated Sound Pressure      | dB     | 79.8 | 75.8 | 76.6 | 70.7 | 61.6 | 48.3 | 35.3 | 16.1 | -7.4 | 65.5 |
| Warranted Sound Level         |       | 91.9 | 90° | 3.3 feet |

- Computed noise levels at each distance and frequency is based on a free field condition.
- Site conditions have not been taken into account in acoustic predictions.
- The ambient sound level must be at least 10 dBA below the requested sound target.
- MIRATECH does not warrant Sound Performance Estimations.
- Warranted sound level is of the primary silencer only.
- For all distance noise propagation, free field dispersion rule of 6 dB is used every time distance is doubled.
<table>
<thead>
<tr>
<th>MIRATECH Scope of Supply &amp; Equipment Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model Number</strong></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>SCR/DOC/DPF Housing</strong></td>
</tr>
<tr>
<td>M3Z-56-64-20120094-XR4</td>
</tr>
<tr>
<td>M3Z-56-64-20120094-HSG</td>
</tr>
<tr>
<td><strong>SCR Tray Set</strong></td>
</tr>
<tr>
<td><strong>DPF Tray Set</strong></td>
</tr>
<tr>
<td><strong>DPF Block</strong></td>
</tr>
<tr>
<td><strong>SCR Catalyst</strong></td>
</tr>
<tr>
<td><strong>Oxidation Element</strong></td>
</tr>
<tr>
<td><strong>System Sound</strong></td>
</tr>
<tr>
<td><strong>SCR Control System</strong></td>
</tr>
<tr>
<td><strong>SCR Controller</strong></td>
</tr>
<tr>
<td><strong>Dosing Box</strong></td>
</tr>
<tr>
<td><strong>Reactant Pump</strong></td>
</tr>
<tr>
<td><strong>Reactant Filter</strong></td>
</tr>
<tr>
<td><strong>Injector</strong></td>
</tr>
<tr>
<td><strong>Differential Pressure Sensor</strong></td>
</tr>
<tr>
<td><strong>Temperature Sensor</strong></td>
</tr>
<tr>
<td><strong>Air Compressor</strong></td>
</tr>
<tr>
<td>Model Number</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>21.445 W x 26.772 H x 15.748 D</td>
</tr>
<tr>
<td>82 lbs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analyzer Charges</th>
<th>Expense Charges</th>
<th>Labor Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzer Charges</td>
<td>Expense Charges</td>
<td>Labor Charges</td>
</tr>
<tr>
<td>1 / engine</td>
<td>1 / engine</td>
<td>1 / engine</td>
</tr>
</tbody>
</table>

### Optional Content MIRATECH Scope of Supply & Equipment Details

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACTORY-INSTALLED</td>
<td>1 / engine</td>
</tr>
<tr>
<td>SP-SKID-20120095</td>
<td>1 / engine</td>
</tr>
</tbody>
</table>

### Customer Scope Of Supply

- Support Structure
- Attachment to Support Structure (Bolts, Nuts, Levels, etc.)
- Expansion Joints
- Exhaust Piping
- Inlet Pipe Bolts, Nuts, & Gasket
- Outlet Pipe Bolts, Nuts, & Gasket
- Insulation for Exhaust Piping
- Insulation for Housing
- Installation, Fabrication, and Installation of Mounting Frame for Particulate Filters
- Power Input (230 VAC, 60 Hz, Single Phase)
- Component Installation Including External Tubing and Wiring
- Isolated Engine Load Signal to MIRATECH Equipment (4-20 mA)
- Dry Contact (N.O.) for Engine Run Signal to MIRATECH Equipment
- Heat Tracing of Reactant Lines (Required when Ambient Temperatures are Below 40 °F)
- Heat Tracing of Sample Lines (Required when Ambient Temperatures are Below 32 °F)
- Design for Structural Support and Thermal Expansion
- Reactant Storage Tank
1. For housings and exhaust components that are insulated, internally or externally, please refer to Section 7.1 of the General Terms and Conditions of Sale to prevent voiding MIRATECH product warranty.

   - **Emission Equipment:**
     - Carbon steel is suitable for temperatures up to 900°F / 482°C continuously, when covered with external insulation or a heat shield. For continuous operation above 900°F / 482°C, where the equipment is externally insulated or has a heat shield, stainless steel should be used.

   - **Silencers, Accessories and Exhaust Piping:**
     - **Aluminized Steel:**
       - Aluminized steel is suitable for temperatures up to 1100°F / 593°C continuously when covered with insulation or a heat shield.
     - **Carbon Steel:**
       - Carbon steel is suitable for temperatures up to 1100°F / 593°C in intermittent use, i.e., less than 500 hours per year, when covered with external insulation or a heat shield.
       - Silencers (plain carbon steel or aluminized) with internal insulation, and without external insulation or heat shield, are suitable for temperatures up to 1100°F / 593°C continuously.
     - **Stainless Steel:**
       - Stainless steel should be used when the exhaust temperature will exceed 1100°F / 593°C continuously and product is internally or externally insulated.

2. Diesel Particulate Filters depend on exhaust temperature to keep soot regenerated and the filter back pressure within acceptable levels. If the engine will be operated consistently at low loads/flow exhaust temperatures, the customer should make provisions to add load via facility operations or a load bank. Refer to the included *Guidelines for Successful Operation of LTR™ DPF*.

   - A packed silencer installed upstream of the MIRATECH catalyst system will void MIRATECH's limited warranty.

   - Final catalyst housings are dependent on engine output and required emission reductions. Changes may be made to optimize the system design at the time of order.

   - Any drawings included with this proposal are preliminary in nature and could change depending on final product selection.

   - Any sound attenuation listed in this proposal is based on housing with catalyst elements installed.

   - MIRATECH Corporation warrants that the emissions reductions requested for this inquiry will be achieved at the design and test load point as outlined in the proposal. Tier 4 is an engine certificate designation, not an actual tons/yr or g/bhp-hr measurement. MIRATECH will utilize the engine manufacturer’s emission data at 100% load to provide our warranty. This is the maximum volume potential point for pollutants to be emitted. Permitting is normally done on a mass flow or tons per year basis, therefore the system will be sized accordingly. The MIRATECH design is to achieve the blended Tier 4 emission targets from the D2 test cycle, measured at 100% engine load conditions.

   - Any emission reductions listed in this proposal are based on housing with catalyst elements installed.

   - MIRATECH will confirm shipping location upon placement of order.
NOTES:
- POWER CONSUMPTION: 5.75 W MAX
- POWER SUPPLIED FROM SNG CONTROLLER
- OPERATION TEMPERATURE: 0°-104°F
- NO DEW DROPS ALLOWED
- OPERATING PRESSURE: REACTANT - 3.8 BAR (53.5 PSI)
- AIR - 1 BAR (14.5 PSI)

INSTALLATION INSTRUCTIONS:
- IF UNIT IS INSTALLED IN AN ENCLOSURE, THE ENCLOSURE MUST BE VENTILATED AND TEMPERATURE CONTROLLED TO MAINTAIN PROPER OPERATION TEMPERATURE.
- UNIT TO BE MOUNTED SO THAT IT IS ACCESSIBLE WHILE ENGINE IS IN OPERATION AND NO MORE THAN 6.5 FEET FROM DOSING INJECTOR.
- UREA LINES SHOULD BE HEAT TRACED IF AMBIENT CONDITIONS FALL BELOW 40°F.

PROJECT NAME: 
PROPOSAL NUMBER: 
SALES ORDER NO: 
CUSTOMER F.O.: 

PROPRIETARY AND CONFIDENTIAL
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DIMENSIONS ARE APPROXIMATE IN INCHES UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING

DRAWN: JFS DATE: 08/22/2011
REVISED BY: AJM DATE: 08/22/2011

SENI0 Dosing Box
Sales Drawing

WAFFLE
WEIGHT: 28 lb
SCALE: 1:12
SHEET 1 OF 1
NOTES:

- POWER CONSUMPTION: 1300 W MAX
- VOLTAGE: 230 VAC, 7-/10%, SINGLE PHASE, 60 Hz
- CURRENT DRAW: 9.5 A
- OPERATION TEMPERATURE: 32°F - 104°F

INSTALLATION INSTRUCTIONS:

- IF UNIT IS INSTALLED IN AN ENCLOSURE, THE ENCLOSURE MUST BE VENTILATED AND TEMPERATURE CONTROLLED TO MAINTAIN PROPER OPERATION TEMPERATURE.
<table>
<thead>
<tr>
<th><strong>DOCKETED</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Docket Number:</strong></td>
<td>19-SPPE-03</td>
</tr>
<tr>
<td><strong>Project Title:</strong></td>
<td>Sequoia Data Center</td>
</tr>
<tr>
<td><strong>TN #:</strong></td>
<td>231355</td>
</tr>
<tr>
<td><strong>Document Title:</strong></td>
<td>ALUC Final Consistency Determination - SDC</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Filer:</strong></td>
<td>Scott Galati</td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
<td>DayZenLLC</td>
</tr>
<tr>
<td><strong>Submitter Role:</strong></td>
<td>Applicant Representative</td>
</tr>
<tr>
<td><strong>Submission Date:</strong></td>
<td>12/30/2019 5:14:08 PM</td>
</tr>
<tr>
<td><strong>Docketed Date:</strong></td>
<td>12/31/2019</td>
</tr>
</tbody>
</table>
December 30, 2019

Elaheh Kerachian, Associate Planner
Planning Division | Community Development Department
1500 Warburton Avenue | Santa Clara, CA 95050

RE: ALUC Consistency determination for the Sequoia Data Center located at 2600 De La Cruz Boulevard in Santa Clara.

Dear Ms. Kerachian:

On October 23, 2019, the ALUC considered the above referral for consistency with the policies of safety, height and noise contained within the San Jose International Airport (SJC) Comprehensive Land Use Plan (CLUP).

The ALUC found the referral Consistent with the CLUP policies as defined in the SJC Comprehensive Land Use Plans (CLUPs), subject to the following recommended conditions:

- Prior to construction commencing, an Avigation Easement shall be granted to the City of San Jose on behalf of San Jose International Airport.

- The proposed 54-diesel fuel tanks shall be located underground to avoid any flammable safety risks. (See Attached Diagram).

- In the event that the industrial usage proposal changes a referral shall be sent to the ALUC prior to City of Santa Clara approval, including the condition that no part of the building or attachments, including trees, penetrate the Part 77 height limits.

Please note that pursuant to the Public Resources Code 21670, the City of Santa Clara has the option of overruling the ALUC’s determination. Overrules require a 2/3 vote of the entire body of the City of Santa Clara City Council. The notification process to the ALUC and Cal Trans Division of Aeronautics shall also be complied with.

If you have any questions, please feel free to contact ALUC staff, Mark Connolly, at 408-299-5786, or via e-mail at mark.connolly@pln.sccgov.org.

Sincerely,

Mark J. Connolly
Senior Planner
OVERHEAD CABLE BUS
REMOVABLE GALVANIZED STEEL GRATING
6" TALL HOUSEKEEPING PAD
CONCRETE STEM WALL
STRUCTURAL MAT SLAB
PRIMARY AND REDUNDANT MANUALLY OPERATED SWAMP PUMPS ON EMERGENCY POWER SUPPLY FOR USE TO DRAIN DEPRESSED SLAB AREA
DISCHARGE PIPED TO 1500 GALLON CAPACITY SAND OIL / WATER SEPARATOR
OIL SHEEN LINE PIPED BETWEEN UNITS & MOUNTED ON THE WALL
GRAVITY EMERGENCY OVERFLOW 3' FROM BOTTOM
PUMP SURFACE OUTLET TO DRIVE AISLES
BACK UP GENERATOR
6,500 GALLON UL 2085 FUEL TANKS DOUBLE STEEL WALLS W/ CONCRETE WITHIN INTERSTITIAL SPACE AND BUILT-IN CONTINUOUS MONITORING FOR LEAKS, DIRECT FILL WITHIN ENCLOSURE COMPLETE OVERFILL PROTECTION AND INTEGRAL 10 GALLON CONTAINMENT BASIN FOR FILL CONNECTION
PRECAST CONCRETE SAND OIL / WATER SEPARATOR PROVIDE WITH (2) MAINWAY ACCESS CHAMBERS COMPLETE WITH EXTENSION RINGS AND TRAFFIC RATED MANHOLE COVERS
BACK UP GENERATOR
6,500 GALLON UL 2085 FUEL TANKS DOUBLE STEEL WALLS W/ CONCRETE WITHIN INTERSTITIAL SPACE AND BUILT-IN CONTINUOUS MONITORING FOR LEAKS, DIRECT FILL WITHIN ENCLOSURE COMPLETE OVERFILL PROTECTION AND INTEGRAL 10 GALLON CONTAINMENT BASIN FOR FILL CONNECTION
PUMP OUTLET TO SEPARATOR IN CASE OF OIL SHEEN
CONCRETE PAVING
BACK UP GENERATOR
6,500 GALLON UL 2085 FUEL TANKS DOUBLE STEEL WALLS W/ CONCRETE WITHIN INTERSTITIAL SPACE AND BUILT-IN CONTINUOUS MONITORING FOR LEAKS, DIRECT FILL WITHIN ENCLOSURE COMPLETE OVERFILL PROTECTION AND INTEGRAL 10 GALLON CONTAINMENT BASIN FOR FILL CONNECTION
PRECAST CONCRETE SAND OIL / WATER SEPARATOR PROVIDE WITH (2) MAINWAY ACCESS CHAMBERS COMPLETE WITH EXTENSION RINGS AND TRAFFIC RATED MANHOLE COVERS
BACK UP GENERATOR
6,500 GALLON UL 2085 FUEL TANKS DOUBLE STEEL WALLS W/ CONCRETE WITHIN INTERSTITIAL SPACE AND BUILT-IN CONTINUOUS MONITORING FOR LEAKS, DIRECT FILL WITHIN ENCLOSURE COMPLETE OVERFILL PROTECTION AND INTEGRAL 10 GALLON CONTAINMENT BASIN FOR FILL CONNECTION
PRECAST CONCRETE SAND OIL / WATER SEPARATOR PROVIDE WITH (2) MAINWAY ACCESS CHAMBERS COMPLETE WITH EXTENSION RINGS AND TRAFFIC RATED MANHOLE COVERS
REVISED EMISSIONS TABLES

Tier 4 Compliant Generators
The following table provides a comparison of the annual NOx emissions of the proposed Tier 4 compliant generators to the original Tier 2 generators.

<table>
<thead>
<tr>
<th>NOx Emissions Comparison</th>
<th>Units</th>
<th>Tier 2</th>
<th>Tier 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission Factor</td>
<td>g/kW-hr</td>
<td>5.37</td>
<td>0.67</td>
</tr>
<tr>
<td>Emissions per Generator (Testing and Maintenance)</td>
<td>ton/yr</td>
<td>0.67</td>
<td>0.08</td>
</tr>
<tr>
<td>Emissions Phase 1 (Testing and Maintenance)</td>
<td>ton/yr</td>
<td>18.65</td>
<td>2.33</td>
</tr>
<tr>
<td>Emissions Full Buildout (Testing and Maintenance)</td>
<td>ton/yr</td>
<td>35.96</td>
<td>4.49</td>
</tr>
<tr>
<td>Emissions Full Buildout (Testing and Maintenance and emergency operation required by BAAQMD emissions offsets screening rules)</td>
<td>ton/yr</td>
<td>107.88</td>
<td>13.46</td>
</tr>
</tbody>
</table>

The following tables from the SPPE Application have been revised for the Revised Project Description modification to Tier 4 compliant generators.

**Table 4.3-6 Criteria Pollutant Emissions from All Backup Generators for Maintenance and Testing (tons per year)**

<table>
<thead>
<tr>
<th>Evaluation Period</th>
<th>Pollutant</th>
<th>Emissions</th>
<th>BAAQMD Thresholds</th>
<th>Exceeds Threshold?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Annual Emissions (tons per year)</td>
<td>NOx(^b)</td>
<td>364.5</td>
<td>10</td>
<td>Yes No</td>
</tr>
<tr>
<td></td>
<td>VOCs</td>
<td>0.5</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>CO(^c)</td>
<td>2.7</td>
<td>--</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>PM(_{10})</td>
<td>0.16</td>
<td>15</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>PM(_{2.5})</td>
<td>0.16</td>
<td>10</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Ramboll, 2019

\(^a\) The maximum annual emissions were estimated assuming that all 54 backup generators would operate 50 hours per year even though this estimate is extremely conservative as C1 estimates normal maintenance and testing would be on the order of less than 11 hours per year.

\(^b\) NOx emissions from maintenance and testing would be fully offset through the air permitting process with the BAAQMD.

\(^c\) In the absence of a mass-based threshold, CO impacts were evaluated through air dispersion modeling.

-- = No mass-based threshold has been adopted for this pollutant

N/A = Not applicable because no mass-based threshold is available.
### Table 4.3-7 Criteria Pollutant Emissions from All Backup Generators for Emergency and Maintenance and Testing (tons per year)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emissions (Includes Emergency Periods)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx(^b)</td>
<td>40813</td>
</tr>
<tr>
<td>VOCs</td>
<td>1.6</td>
</tr>
<tr>
<td>CO(^c)</td>
<td>8.0</td>
</tr>
<tr>
<td>PM(_{10})</td>
<td>0.48</td>
</tr>
<tr>
<td>PM(_{2.5})</td>
<td>0.48</td>
</tr>
</tbody>
</table>

Source: Ramboll, 2019

\(^a\) The maximum annual emissions for emergency use and maintenance and testing were estimated assuming that all 54 backup generators would operate 150 hours per year (100 hours of emergency use and 50 hours of maintenance and testing). This estimate is extremely conservative as C1 estimates normal maintenance and testing would be on the order of less than 11 hours per year and SVP power outages are very rare.

\(^b\) NOx emissions from maintenance and testing would be fully offset through the air permitting process with the BAAQMD.

### Table 4.3-8 Maximum Daily Criteria Pollutant Emissions from a Single Backup Generator

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emissions (lb/day)</th>
<th>BAAQMD BACT Thresholds (lb/day)</th>
<th>Exceeds Threshold?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>63980</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>VOCs</td>
<td>9.55</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>CO</td>
<td>47.6</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>SO(_{2})</td>
<td>0.35</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>PM(_{10})</td>
<td>2.86</td>
<td>10</td>
<td>No</td>
</tr>
<tr>
<td>PM(_{2.5})</td>
<td>2.86</td>
<td>10</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Ramboll, 2019

Notes: The maximum daily emissions were derived assuming 24 hours of operation in one day.
### Table 4.3-9 Toxic Air Contaminant Emissions from All Backup Generators

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Pollutant is a Federal HAP?</th>
<th>Hourly Emissions (lb/hr)&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Annual Emissions (tons/year)&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel PM&lt;sup&gt;c&lt;/sup&gt;</td>
<td>No</td>
<td>2.94</td>
<td>0.537</td>
</tr>
<tr>
<td>1,3-Butadiene</td>
<td>Yes</td>
<td>0.00560</td>
<td>0.00102</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>Yes</td>
<td>0.216</td>
<td>0.0395</td>
</tr>
<tr>
<td>Benzene</td>
<td>Yes</td>
<td>0.0589</td>
<td>0.0107</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Yes</td>
<td>0.00913</td>
<td>0.00167</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>Yes</td>
<td>0.433</td>
<td>0.0791</td>
</tr>
<tr>
<td>n-Hexane</td>
<td>Yes</td>
<td>0.00471</td>
<td>0.000860</td>
</tr>
<tr>
<td>Methanol</td>
<td>Yes</td>
<td>0.00088</td>
<td>0.00016</td>
</tr>
<tr>
<td>Methyl Ethyl Ketone</td>
<td>No</td>
<td>0.0436</td>
<td>0.00795</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>Yes</td>
<td>0.00265</td>
<td>0.00048</td>
</tr>
<tr>
<td>Propylene</td>
<td>No</td>
<td>0.0766</td>
<td>0.0140</td>
</tr>
<tr>
<td>Styrene</td>
<td>Yes</td>
<td>0.00177</td>
<td>0.000322</td>
</tr>
<tr>
<td>Toluene</td>
<td>Yes</td>
<td>0.0433</td>
<td>0.00790</td>
</tr>
<tr>
<td>m-Xylene</td>
<td>Yes</td>
<td>0.0180</td>
<td>0.00328</td>
</tr>
<tr>
<td>o-Xylene</td>
<td>Yes</td>
<td>0.0100</td>
<td>0.00183</td>
</tr>
<tr>
<td>p-Xylene</td>
<td>Yes</td>
<td>0.00294</td>
<td>0.000537</td>
</tr>
<tr>
<td><strong>Ammonia</strong></td>
<td>No</td>
<td><strong>10.54</strong></td>
<td><strong>0.264</strong></td>
</tr>
<tr>
<td><strong>Total HAP Emissions</strong></td>
<td></td>
<td><strong>0.147</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Ramboll, 2019

<sup>a</sup> Hourly emissions were estimated assuming that all 54 backup generators could be operated concurrently. However, C1 commits to standard operating procedures that would limit testing to one backup generator at a time. **Ammonia emissions are calculated as one generator operating at a time, consistent with how the generators will be operated.**

<sup>b</sup> The annual emissions were estimated assuming that all 54 backup generators would operate 50 hours per year.

<sup>c</sup> Diesel particulate matter (DPM) emissions were assumed equal to exhaust PM10 emissions.

<sup>d</sup> Emissions of ammonia do not exceed trigger levels in BAAQMD Rule 2-5, so additional health risk assessments are not necessary. lb/hr = pound(s) per hour PAH = Polycyclic Aromatic Hydrocarbons