GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Jeffrey W. Cown, Director

Air Protection Branch
4244 International Parkway
Suite 120
Atlanta, Georgia 30354
404-363-7000

NARRATIVE

TO: Cynthia Dorrough

FROM: Bradley Prinsen

DATE: 4/30/2026

Facility Name:	**The Keep 2 Campus**
AIRS No.:	015-00156
Location:	Cartersville, GA (Bartow County)
Application #:	30076
Date of Application:	February 27, 2026

Background Information

The Keep 2 Campus, which is owned by Switch Ltd., operates an existing data center facility located in Cartersville, Georgia (Bartow County), which is in attainment for all criteria pollutants. The facility currently operates under Permit No. 7375-015-0156-E-01-0 (issued September 26, 2025) for the construction and operation of diesel-fired main and house emergency generators, a diesel-fired fire pump engine, and associated diesel fuel storage tanks within the data center campus. The diesel-fired emergency generator engines serve as a backup source in the case of power loss and will be used primarily in emergency situations and for maintenance and testing purposes. The facility is a major source under Title V [40 CFR 70] and requested a limit of facility-wide NOx emissions below 249 tpy to be classified as a synthetic minor source in respect to Prevention of Significant Deterioration (PSD) [40 CFR 52.21].

Purpose of Application

Application No. 30076 was submitted on February 27, 2026, for the construction and operation of additional diesel-fired house emergency generators and fire pump engines to be located at the facility, and the replacement of some permitted equipment with similar makes and models. All proposed emergency generators have been certified by the EPA to be 80 CFR Part 1039 compliant. The facility will continue to limit facility-wide NOx emissions to 249 tpy to avoid classification as a major source under PSD. Since NOx is the limiting pollutant, other criteria pollutants and hazardous air pollutants/toxic air pollutants fall below the major source threshold for SIP/Title V. The Keep 2 Campus is required to submit a complete application to the Division for a Part 70 (Title V) operating permit within twelve months of startup.

A public Advisory was issued March 25, 2026, and expired on April 24, 2026, with comments received by The Sierra Club that have been considered during the drafting of the permit and associated narrative.

Updated Equipment List

Source Code	Description	Installation Date	Construction Date
MGEN	Various Manufacturers Diesel-Fired Main Emergency Generators	--	2025
HGEN*	Various Manufacturers Diesel-Fired House Emergency Generators	--	2025-**2026***
FP*	Various Manufacturers Diesel-Fired Emergency Fire Pump Engine	--	2025-**2026***

* Units proposed in App. 30076

Emissions Summary

The proposed diesel-fired house generators and diesel-fired emergency fire pump will result in emissions of nitrogen oxides (NO_X), carbon monoxide (CO), particulate matter (PM), and volatile organic compounds (VOCs). The facility will continue to adhere to the facility-wide emissions limit of less than 250 tons per year (tpy) for NOx, the limiting pollutant. Although additional emergency engines are proposed as part of this project, the modification does not result in an increase in facility-wide potential emissions. Criteria pollutant and hazardous air pollutant (HAP) emissions remain unchanged since the facility will continue to operate in accordance with the existing permit limitations applicable to the emergency generators and fire pump. The following sections describe the emission calculation methodologies associated with the proposed sources at The Keep 2 Campus. Emission calculations are provided in Appendix C of the application.

Main Emergency Generators (Source Code: MGEN)

The main emergency generators are not being modified as part of this application.

House Emergency Generators (Source Code: HGEN)

NO_X, CO, PM, and VOC emissions for the proposed emergency house generators are calculated using emission factors provided by the manufacturer at 100% operational loads. SO_2 emissions are based on a fuel sulfur content of 15 ppm for USLD fuel, as defined under 40 CFR Part 1090, Subpart D, Section 1090.305. The SO_2 emission factor from AP-42 Section 3.4, Table 3.4-1 (10/96) is used in order to account for the sulfur content. PM_{10} and $PM_{2.5}$ emissions are conservatively assumed to be equal to PM emissions, as calculated using the manufacturer-provided emission factor. It is conservatively assumed the emission factor for VOC is equivalent to the emission factor for hydrocarbons (HC). Total HAP emissions are calculated using the emission factors (lb/MMBtu) obtained from AP-42, Section 3.4, Table 3.4-3, and Table 3.4-4 (10/96). Greenhouse Gas (GHG) emissions were calculated using 40 CFR Part 98 Table A-1, C-1, and C-2.

Emergency Fire Pump (Source Code: FP)

NO_X, CO, PM, and VOC emissions factors for the proposed emergency fire pump are per manufacturer specifications using the maximum emission factors from the certificate data and rating data. SO_2 emissions are based on a fuel sulfur content of 15 ppm for USLD fuel, as defined under 40 CFR Part 1090, Subpart D, Section 1090.305. The SO_2 emission factor from AP-42 Section 3.4, Table 3.4-1 (10/96) is used in order

to account for the sulfur content. PM_{10} and $PM_{2.5}$ emissions are conservatively assumed to be equal to PM emissions, as calculated using the manufacturer-provided emission factor. It is conservatively assumed the emission factor for VOC is equivalent to the emission factor for hydrocarbons (HC). Total HAP emissions are calculated using the emission factors (lb/MMBtu) obtained from AP-42, Section 3.4, Table 3.4-3, and Table 3.4-4 (10/96). Greenhouse Gas (GHG) emissions were calculated using 40 CFR Part 98 Table A-1, C-1, and C-2.

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions		
	Before Mod.	After Mod.	Emissions Change
$PM/PM_{10}/PM_{2.5}$	1.65	1.65	0
NOx	249	249	0
SO_2	0.31	0.31	0
CO	15.41	15.41	0
VOC	4.51	4.51	0
Max. Individual HAP (benzene)	0.13	0.13	0
Total HAP	0.26	0.26	0
Total GHG (if applicable)	27,297.55	27,297.55	0

Regulatory Applicability

There are no changes to applicable rules and regulations due to this application.

Permit Conditions

Permit Condition 7.9 was revised to incorporate a facility-specific emissions calculation methodology based on unit-specific test data and defined load assignment procedures in the application.

Toxic Impact Assessment

EPD regulates the emissions of toxic air pollutants (TAP) under the provisions of Georgia Air Quality Rule 391-3-1.02(2)(a)3(ii). A TAP is defined as any substance that may have an adverse effect on public health, excluding any specific substance that is covered by a State or Federal ambient air quality standard. Procedures governing the EPDs review of toxic air pollutant emissions as part of air permit reviews are contained in EPD's *Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions*.[1]

The facility-wide emission rate (lb/yr) for each TAP was calculated using the sum of the annual TAP emissions for all diesel-fired emergency generators and the diesel-fired fire pumps. Emission factors for each of the TAPs are pulled from EPA's AP-42, Section 3.3 for Gasoline and Diesel Industrial Engines and Section 3.4 for Large Stationary Diesel and All Stationary Dual-Fuel Engines. This assessment conservatively includes the proposed fire pump engine although the proposed fire pump is exempt from air permitting. [2]

The only toxic emission sources at the site are point sources with vertical stacks equipped with a flapper lid to prevent rain from entering. The flapper lid is open when the engine is operating and is thus effectively an unobstructed vertical stack when operating. However, for the purpose of this analysis, it is conservatively presumed these release points to be obstructed by vertical stacks. Therefore, the air toxics which are part of this permit application will have their facility wide emissions evaluated and compared to 20% of the minimum emission rate (MER) threshold values to determine which toxic pollutants will require an evaluation.

Table 1-1 summarizes the facility-wide emission rates for each TAP and compares them to 20% of the respective MER.

Table 1-1: TAPs and MER Comparison

Pollutant	Minimum Emission Rate [3] (lb/yr)	20% Minimum Emission Rate [4]	Facility-Wide Potential Emissions (lb/yr)	Is PTE > 20% MER [4]
Benzene	31.6	6.33	257	**Yes**
Toluene	1,216,650	243,330	93.2	No
Xylenes	24,333	4,867	64	No
Formaldehyde	22.1	4.42	26.5	**Yes**
Acetaldehyde	1,107	221	8.6	No
Acrolein	85.1	17.02	2.64	No
Napthalene	730	146	43.1	No
1,3 – Butadiene	7.3	1.46	.013	No

Based on the comparison of TAPs emitted by the facility to 20% of the MERs, pollutants (Benzene and Formaldehyde) required further analysis.

[1] Guideline for Ambient Impact Assessment Impact Assessment of Toxic Air Pollutant Emissions. Georgia Department of Natural Resources, Environmental Protection Division, Air Protection Branch, Revised, May 2017.
[2] GRAQC 391-3-1-.03-(6)(b)13
[3] From Appendix A of EPD's Guideline for Ambient Impact Assessment Impact Assessment of Toxic Air Pollutant Emissions. Using updated MER for formaldehyde.
[4] The MER method is only valid for facilities with 80% or more of its TAP emissions being emitted via unobstructed vertical vents. As all of the proposed stacks at The Keep 2 Campus facility employs capped stacks. The Facility has opted to compare all project potential emissions to its respective MER multiplied by 20%.

SCREEN3 was used to evaluate the 1-hour concentration average for the pollutants. The modeled 1-hour average concentration was then converted to concentrations in both 15- minute and annual averaging periods for each pollutant. The flat terrain option of SCREEN3 was used for the analysis. Based on a review of the site plans for the proposed facility with respect to the area surrounding the sources, complex terrain is not expected to have a significant influence on modeled results since there are intentions to grade the acquired property to a similar elevation as the property develops in the future. Additionally, the stacks all have high exhaust flow rates and high exhaust temperatures which will lead to thermal buoyancy from the plume and result in a high plume rise.

There are six (6) types of engines proposed at the facility with unique stack parameters: main emergency generators, house emergency generators (model types 1, 2, and 3), and the emergency fire pump (model types 1 and 2). Pursuant to 4.1 of the *Guideline*, capped and horizontal stacks that are not subject to building downwash influences are allowed to apply a screening approach where the exit velocity is set to 0.001 m/s and the stack diameter is adjusted to keep the volume flow unchanged. This approach is highly conservative since the flapper lid on each of the proposed units is open when the engine is operating and is thus effectively an unobstructed vertical stack when operating. For the purpose of this analysis, all of the stacks for the engines were considered obstructed vertical stacks, and this screening method was utilized to account for the reduced air velocity from the "capped" stacks. All emissions from each stack type are assumed to be emitted from a single stack using the worst-case (shortest) minimum distance to the fence line. Per recent guidance supplied by EPD's Air Protection Branch Chief [5], building downwash analysis was not conducted since it was specified that building downwash analysis is not required for SCREEN3. As previously mentioned, the stacks all have high exhaust flow rates and high exhaust temperatures which will lead to thermal buoyancy from the plume and result in a high plume rise and will significantly mitigate any building downwash impacts on pollutant dispersion.

All emissions from each stack type are conservatively assumed to be emitted from a representative stack closest to the property line. The sum of the impacts from the 6 modeled stacks were combined and compared to the applicable AAC levels, following application of the published correction factors for converting hourly SCREEN3 result values to different averaging periods. This analysis is conservative since it assumes that individual stack sources will have coincident maximum ambient air impacts at the same time and place for each proposed stack type.

Pursuant to Section 3.3 of the *Guideline*, there are prescribed procedures for quantifying the maximum emission rate in units of grams per second (g/s) for processes that vary significantly over time, also known as "batch processes". The maximum short-term emission rate for 15-minute AAC evaluations is the emission rate during the highest emitting portion of the batch, where batch processes which routinely emit simultaneously should be considered together when determining the maximum emission rate to use in the evaluation. The maximum short-term emission rate for annual AAC evaluations is the total emissions from the worst-case batch times the maximum number per year divided by 8,760 hr./yr. As emergency stationary engines do not run continuously and are only operated intermittently throughout the year for testing and maintenance, these emission units are considered batch processes.

The modeling results are presented below in Table 1-2. The maximum 1-hour impact equals the modeled 1-hour impacts at 1.00 g/s multiplied by the actual emission rate of each source/source group. The resulting maximum impact was adjusted using the multiplying factors in the Guideline to obtain the estimated

[5] TAP Modeling Guideline presentation on December 10, 2024, at the GIEC Air Workshop, Jim Boylan (Chief, Air Protection Branch) stating that building downwash analysis is not required for SCREEN3.

maximum impacts for the 15-minute and annual averaging periods. Annualized emissions rates were used to derive annual impact while short-term emission rates were used to derive 15-minute impact. Total facility-wide impact is the sum of impacts from 3 modeled stacks.

As shown in the table below, the impacts of benzene and formaldehyde from the facility are below the annual and 15-minute AACs. Further discussion for the Toxic Impact Analysis (TIA) is provided in Section 5 of Application No. 30076.

Table 1-2: Modeling Results and AAC Comparison

Source	Maximum 1-Hour Concentration Distance (m)	Modeled Maximum 1-Hour Impact at 1 g/s (µg/m^3)	Maximum 1-Hour Impact Using Short-Term Emission Rates (µg/m^3)	Maximum 1-Hour Impact Using Annualized Emission Rates (µg/m^3)	Calculated 15-Minute Impact [6] (µg/m^3)	15-Minute AAC [6] (µg/m^3)	Impact AAC? (Yes/No)	Calculated Annual Impact [6] (µg/m^3)	Annual AAC [6] (µg/m^3)	Exceed AAC? (Yes/No)
Benzene										
1	103	389.0	507.83	1.39	670.3	--	--	0.111	--	--
2	152	215.8	1.03	1.18E-02	1.4	--	--	9.44E-04	--	--
3	280	82.1	0.16	1.83E-03	0.2	--	--	1.47E-04	--	--
4	150	146.4	0.69	7.88E-03	0.9	--	--	6.30E-04	--	--
5	69	1476.0	0.25	2.85E-03	0.3	--	--	2.28E-04	--	--
6	380	252.8	0.05	6.27E-04	0.1	--	--	5.02E-05	--	--
Total	--	2562.1	510.02	1.41	673.2	1600	No	0.113	0.130	No
Formaldehyde										
1	103	389.0	51.63	0.141	68.16	--	--	0.011	--	--
2	152	215.8	0.11	1.20E-03	1.39E-01	--	--	9.60E-05	--	--
3	280	82.1	0.02	1.86E-04	2.16E-02	--	--	1.49E-05	--	--
4	150	146.4	0.07	8.01E-04	9.26E-02	--	--	6.41E-05	--	--
5	69	1476.0	0.32	3.60E-03	4.17E-01	--	--	2.88E-04	--	--
6	380	252.8	0.07	7.94E-04	9.18E-02	--	--	6.35E-05	--	--
Total	--	2562.1	52.21	0.148	68.9	245		0.012	0.091	No

[6] From Appendix A of EPD's Guideline for Ambient Impact Assessment of Toxic Air Pollutants. Using updated annual AAC for formaldehyde.

Calculated 15-Minute Impact = Maximum 1-Hour Impact Using Short-Term Emission Rates * 1.32
Calculated Annual Impact = Maximum 1-Hour Impact Using Annualized Emission Rates * 0.08

Summary & Recommendations

I recommend issuance of Permit Amendment No. 7375-015-0156-E-01-1 to The Keep 2 Campus located in Cartersville, Georgia for the construction operation of additional diesel-fired emergency generators and fire pump engines. The facility is considered a major source under Title V [40 CFR 70] and a synthetic minor source in respect to PSD [40 CFR 52.21]. The facility is required to submit an initial Title V Permit application within 12 months of the startup. A public advisory (PA) was issued due to the construction of new emission units. The PA period ended on April 24, 2026.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//