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IN THE MATTER OF

PASSAIC VALLEY SEWERAGE COMMISSION

Project ID # 07329, BOP 190004

Title V Air Operating Permit Modification and Renewal BOP 210002, Standby Power Generating Facility

Environmental Justice Decision and Imposition of Special Conditions pursuant to Administrative Order No. 2021-25

The Passaic Valley Sewerage Commission (PVSC or Applicant) comes before the New Jersey Department of Environmental Protection (Department) in the above-referenced matter for a determination of its compliance with the environmental justice review process set forth in Department Administrative Order No. 2021-25 (AO).

The AO was issued in 2021 for the purpose of guiding environmental justice reviews during the Department's formal process to develop, propose, and adopt rules to effectuate the Environmental Justice Law, N.J.S.A. 13:1D-157 (EJ Law). The Environmental Justice Rules, N.J.A.C. 7:1C (EJ Rules), became effective on April 17, 2023. For applications deemed complete for Department review prior to April 17, 2023, environmental justice review in accordance with the AO is a prerequisite to an applicant's continued pursuit of a covered permit. The AO requires an applicant to undertake enhanced community engagement, assess facility impacts to environmental and public health stressors, and implement appropriate control measures to avoid or minimize adverse impacts from covered facilities that are proposed to operate in overburdened communities.

PVSC's application was deemed complete for Department review on July 2, 2021, environmental justice review in accordance with the AO has been completed, and this decision follows.

1. Background

PVSC operates one of the largest sewer systems in the United States, including a secondary wastewater treatment plant situated along Newark Bay at 600 Wilson Avenue in the City of Newark, Essex County, New Jersey. The treatment plant handles sewage generated in the PVSC district comprised of forty-eight municipalities across five counties in northeastern New Jersey. In short, PVSC provides daily sewage treatment by separating and disposing of biosolids, treating reclaimed wastewater to applicable water quality standards, and discharging the treated wastewater

into Newark Bay and New York Harbor.[1] This critical infrastructure is subject to Department regulation and oversight as the proper treatment of sewage is vital to preventing disease, improving public and environmental health, and maintaining the recreational, commercial, and natural resource benefits of waterways into which sewage treatment plant effluent is discharged.

In the present application, PVSC seeks to amend its Title V Air Operating Permit[2] to authorize the construction and operation of an on-site emergency standby power generating facility, the pursuit of which was motivated by PVSC's experience during Superstorm Sandy in 2012.[3]

Superstorm Sandy resulted in severe flooding of the sewage treatment plant and caused PVSC to lose both primary and backup power from its utility provider, PSE&G. Without power, the sewage treatment plant could not process wastewater flows or pump out floodwaters, triggering a diversion of approximately 840 million gallons of raw sewage into the Passaic River and Newark Bay and reports of sewage backups in nearby residences. Such a considerable discharge increases public health risks due to the numerous pathogens found in raw sewage, and such discharges exacerbate environmental and public health stressors known to adversely affect overburdened communities.

PVSC estimates that if it were forced to shut down again due to loss of power during a similar storm event, street-level flooding of raw sewage will likely occur in Newark, Bayonne, and Jersey City, potentially impacting thousands of residents.

In the aftermath of Superstorm Sandy and in accordance with Federal Emergency Management Agency (FEMA) guidance to implement resilience measures to protect critical infrastructure against 500-year storm events, PVSC worked with FEMA to develop a hazard mitigation proposal to protect against operational impacts from storm surge and power loss. The PVSC proposal included construction of over 14,000 linear feet of flood walls, reconfiguration of facility drainage systems, installation of flood water pumps, and the addition of an on-site emergency standby power generating facility (SPGF) capable of providing backup electrical power in the event of grid failure or other loss of power from its provider, PSE&G. Pursuant to the National Environmental Policy Act, FEMA issued a Finding of No Significant Impact concerning the PVSC hazard mitigation proposal in August 2014.

As part of the record in this matter, PVSC submitted documentation of PSE&G representations, including citations to Section 13.1 of the PSE&G Tariffs for Electric and Gas Service, that, despite making its own grid resilience improvements, PSE&G could not guarantee continuity of service in the event of extreme weather-related conditions, accidents, and equipment failure or damage.

On January 27, 2020, PVSC applied to the Department to modify its existing permit to authorize the construction and operation of the proposed SPGF. The SPGF would, in the event of a major storm event threatening energy reliability, ensure that the sewage treatment plant can continue to

[1] PVSC also provides wastewater treatment services to entities outside its district, whereby PVSC accepts and treats sewage sludge received from outside its sewer service area.

[2] PVSC's existing operations exceed the major source thresholds under the Air Pollution Control Act. As required by N.J.A.C. 7:27-22, PVSC holds an existing Title V Permit from the Department. That permit does not, however, currently authorize the construction or operation of the proposed on-site emergency standby power generating facility.

[3] Superstorm Sandy (a/k/a Hurricane Sandy) was a Category 3 Atlantic hurricane that affected the coastal Mid-Atlantic region of the United States in late October 2012, causing widespread power outages and unprecedented damage in New Jersey.

operate with full treatment capabilities to ensure it: (1) meets its permit conditions; (2) prevents backup of raw wastewater in the collection systems of PVSC's forty-eight member communities; and (3) avoids discharging untreated wastewater to nearby waterways.

PVSC subsequently withdrew and resubmitted applications on February 4, 2020, January 14, 2021, and June 10, 2021, modifying the project to reduce air emissions and improve efficiency. On July 2, 2021, PVSC submitted the present application, which was then declared complete for review.

2. EJ Review Applicability

Consistent with the EJ Law, the environmental justice review process under the AO applies where three specific criteria are present: (1) the proposed new or existing facility is one of eight (8) specific facility types identified in the rules (*e.g.*, major air sources, solid waste facilities); (2) the applicant seeks an individual permit under applicable Department regulations; and (3) the facility is located or proposed to be located, in whole or in part, in an overburdened community.

Here, the proposed project is subject to environmental justice review because the facility is: (1) a major air source; (2) seeking to modify its Title V Permit; and (3) is located in an overburdened block group due to percentage of population that qualifies as low income and minority as shown on the Department's Environmental Justice Mapping, Assessment and Protection Tool (EJMAP).

3. Public Process

The environmental justice review process under the AO requires enhanced public notice, an advanced public hearing, and community engagement to foster residents' meaningful participation in a permitting process that could affect their community, public health, and environment.

PVSC provided opportunities for meaningful participation by the overburdened community and general public, including by completing the following:

- PVSC posted a public notice on its website on March 30, 2022, and made hard copies of its permit application and compliance statement available at the Newark Public Library, Jersey City Public Library, Paterson Public Library, Johnson Public Library, and Elizabeth Public Library.

- PVSC held a dedicated public hearing, with at least thirty (30) days advanced notice, to present the project summary and receive comments from community members. The hearing was held virtually on April 26, 2022. At least 202 members of the public attended the virtual hearing. A transcript of the hearing was provided to the Department on May 5, 2022, and was posted on the Department's website.

- A written public comment period was held open for over sixty (60) days, from April 1, 2022, through June 3, 2022. A total of 499 comments were received, including 446 written comments and 53 oral comments. All comments were provided to the Department on September 9, 2022, and were posted on the Department's website.

  PVSC provided a "Response to Comments" document to the Department on September 9, 2022, and it is posted on the Department's website.

- The Department's additional comments, provided on December 22, 2022, and PVSC's further Response to Comments, provided January 11, 2023, were both also posted on the Department's website.

Consistent with AO environmental justice review process, PVSC submitted a final compliance statement on March 30, 2022, and held a virtual public hearing on April 26, 2022. At the public hearing, Spanish and Portuguese translations and closed captions were available to the public. PVSC received comments following that public hearing and submitted their Response to Public Comments on September 9, 2022. Following feedback from the Department regarding the Response to Public Comment document, PVSC submitted additional responses on December 22, 2022. Thereafter, in a letter dated June 15, 2023, the Ironbound Community Corporation, the New Jersey Environmental Justice Alliance, and Earthjustice articulated concerns that approval of PVSC's application could constitute discrimination on the basis of race, color or national origin in violation Title VI of the federal Civil Rights Act of 1964. Additionally, in letters dated April 26, 2022, March 17, 2023, and April 25, 2024, the elected representatives of State Legislative District 29 articulated their concerns that the proposed SPGF would adversely affect the overburdened community and requested that PVSC withdraw its permit application.

4. Proposed Project and Permits Sought

As proposed by PVSC, the standby power generating facility includes five components:

1. Three (3) 24 MW natural gas combustion turbine generators (CTGs) for emergency power generation, with state-of-the-art air pollution control equipment;
2. Two 2-MW black start natural gas engine generators (BSGs) to jump start the CTGs in the event of power loss;
3. Three electric motor driven fuel gas reciprocating compressors to maintain operational pressure throughout the system;
4. Two 164-kW diesel-powered emergency fire pump engines (FPE) for fire suppression; and
5. One 10,000-gallon aqueous ammonia (19% ammonia solution) storage tank for the air pollution control equipment.

In active emergencies, PVSC proposes to operate up to two of the CTGs for the duration of the emergency, with the third reserved for redundancy. Similarly, PVSC proposes to operate only one BSG and FPE during emergencies, with the second BSG and FPE reserved for redundancy.

PVSC's initial January 2020 submission sought authorization to operate the SPGF under four (4) scenarios:

Operational Scenario	Estimated Annual Operations (hours)
Storm Preparation *48 hours prior to a storm, 10 storms*	480 hours (two CTGs)/980 hours total
Testing and Maintenance	100 hours (three CTGs)/300 hours total
Demand Response *operation during grid peaks to offset load*	12 hours (two CTGs)/24 hours total
Peak Load Management *sell power back to grid*	360 hours (two CTGs)/720 hours total
Estimated Annual Operating Hours: 2,004 hours total (~5 hours daily)	

In its revised application of July 2, 2021, PVSC removed the request for peak load management authorization, reducing the maximum allowable operating hours by approximately 46%:

Operational Scenario	Estimated Annual Operation (hours)
Storm Preparation	480 hours (two CTGs)/980 hours total
Testing and Maintenance	100 hours (three CTGs)/300 hours total
Demand Response (operation during grid peaks to offset load)	12 hours (two CTGs)/24 hours total
Estimated Annual Operating Hours: 1,285 hours total (~3.5 hours daily)	

After submission of the July 2021 revision, PVSC further agreed to remove the Demand Response hours (24) and reduced the number of hours allocated for testing and maintenance from 100 hours per CTG to 96 hours per CTG or 288 hours total. As revised, the estimated annual operating hours would be 1,248 hours total (~3.4 hours daily).

In the absence of a major storm event, there would be no need for storm preparation emergency operation and the SPGF would run a maximum of 288 hours annually (< 1 hour daily).

As revised, addition of the SPGF if operated to its full potential to emit under emergency conditions, would increase facility-wide emissions as listed in the following tables:

TABLE 1A	**Facility's Potential Emissions (tons per year)** *maximum allowable emissions, non-emergency*									
	VOC (total)	NO_x	CO	SO_2	TSP (total)	PM_{10} (total)	$PM_{2.5}$ (total)	Pb	HAPs (total)	CO_2e (total)
Current Permit	80.8	73.6	104	24.9	14.1	15.1	N/A	N/A	15.7	287,000
Proposed Modification	82.1	75.8	108.1	25.6	16.9	17.9	2.78	N/A	16.0	310,000
Change (+ / -)	+1.34	+2.21	+4.09	+0.67	+2.79	+2.78	+2.78	0	+0.27	+23,000

VOC	Volatile Organic Compounds	PM10	Particulates under 10 microns
NOx	Nitrogen Oxides	PM2.5	Particulates under 2.5 microns
CO	Carbon Monoxide	Pb	Lead
SO2	Sulfur Dioxide	HAPs	Hazardous Air Pollutants
TSP	Total Suspended Particulates	CO2 e	Carbon Dioxide equivalent

TABLE 1B	**Facility's Potential Emissions (tons per year)** *maximum allowable emissions, non-emergency*									
	Acet	Acrol	Acryl	NH_3	Benz	Buta	Chlor	Dichlo	Eth2B	Eth2C
Current Permit	0.3	0	0.04	0	0.39	0.412	4.42	2.52	0	1.84
Proposed Permit	0.3	0.011	0.04	1.31	0.39	0.412	4.42	2.52	0.000091	1.84
Change (+ / -)	0	+0.011	0	+1.31	0	0	0	0	+0.000091	0

Acet	Acetaldehyde	Buta	Butadiene (1,3-)
Acrol	Acrolein	Chlor	Chloroform
Acryl	Acrylonitrile	Dichlo	Dichlorobenzene (1,4-)
NH3	Ammonia	Eth2B	Ethylene dibromide
Benz	Benzene	Eth2C	Ethylene dichloride

TABLE 1C	**Facility's Potential Emissions (tons per year)** *maximum allowable emissions, non-emergency*						
	Form	HCl	Phen	Styre	Tetra	Vinyl	Xyle
Current Permit	0.25	1.06	0.051	1.37	0.076	0.1	2.84
Proposed Permit	0.51	1.06	0.051	1.37	0.076	0.1	2.84
Change (+ / -)	+0.26	0	0	0	0	0	0

Form Formaldehyde
HCl Hydrogen chloride
Phen Phenol
Styre Styrene
Tetra Tetrachloroethane (1,1,2,2-)
Vinyl Vinyl acetate
Xyle Xylene

Pursuant to the AO, PVSC was required to engage directly with individuals in the host overburdened community and solicit concerns regarding environmental or public health stressors posed by the project. During this engagement process, community members questioned the need for on-site emergency backup generation and the availability of renewable energy alternatives. In response, PVSC considered the feasibility of several additional alternatives to accomplish the core purpose of the proposed SPGF (*i.e.*, provision of reliable backup energy generation) before proceeding with the current proposal.

First, PVSC considered the option of connecting an alternative utility feeder to provide power to its facility. A utility feeder is a connection from the electric grid to the facility to provide electricity. PVSC did not pursue this option because it would not have satisfied the need for reliability in the event of a transmission grid failure as the alternative utility feeder would likely face the same outage risk as the existing utility connections.

Second, PVSC considered the feasibility of on-site, wind, battery, and solar generated electricity to meet its backup energy generation needs. PVSC submitted that it was not feasible to satisfy its full backup power need through renewable means due largely to spatial limitations. For example, height limitations given the facility's proximity to Newark Liberty International Airport, together with unreliable onshore wind patterns, generally render on-site wind power generation infeasible at the scale required. Further, PVSC estimates that 14 acres of property would be required to house batteries sufficient to provide the necessary 34 MW backup generation capacity,[4] which land area is not available at or adjacent to the site. Similarly, spatial limitations render solar power insufficient as a total replacement for natural gas-fired SPGF.

However, to reduce total potential emissions from the SPGF, it is feasible to install 5 MW of battery storage capacity at the facility, which would be capable of providing power for up to two hours, affording PVSC the ability to restart sewage treatment plant operations in the event of a complete loss of power (black start capability). Such supplemental battery capacity would also diversify the source of the SPGF's power, thereby reducing on-site facility electricity usage, and increasing resiliency during storms or other emergency events. Similarly, while on-site solar would

[4] The PVSC sewage treatment plant has a historical average and maximum electrical power demand of 23MW and 28 MW, respectively. PVSC has designed the proposed project to meet a demand of 34 MW to accommodate the implementation of new flood mitigation measures. The CTGs have been sized at 28 MW each to guarantee their ability to meet the 34-MW demand under all conditions including higher temperatures, at which a turbine's capacity to produce power is sharply reduced. The CTGs are designed to ensure production of at least 17 MW each at ambient temperatures of 99+ degrees Fahrenheit.

not provide the necessary firm capacity for sewage treatment plant operation, based on available on-site space, PVSC could supplement and further diversify its power supply through the addition of 5 MW of on-site solar generation.

Third, PVSC considered the feasibility of off-site SPGF alternatives, which PVSC contends would present similar limitations as connecting an alternative utility feeder. PVSC submits that the feasibility and cost of off-site property acquisition, barriers to off-site construction, and transmission reliability between sites support its contention. However, PVSC represented that it will explore additional adjacent, remote, and grid purchased solar power to reduce need and diversify supply. Such commitment would be in addition to PVSC's installation of all technically feasible on-site solar.

Finally, under the environmental justice review process, PVSC was required to evaluate facility-wide emissions and identify opportunities to avoid or minimize environmental or public health stressors in its host overburdened community. This assessment revealed that mandatory emissions reductions elsewhere on-site are feasible and readily achievable. Specifically, PVSC would implement an environmental justice compliance plan that includes the removal of the following existing combustion equipment and pursuit of other upgrades that, taken together, would reduce overall facility-wide emissions of air pollutants:

1. Removal of Operations and Maintenance Building Natural Gas Boilers No. 2 and No. 3;
2. Removal of the Head End Emergency Diesel Generator;
3. Removal of two Natural Gas Oxygen Production Boilers;
4. Removal of two Natural Gas Grit and Screening Boilers;
5. Installation of State-of-the-Art air pollution control equipment for CO, NOx, and VOCs to the four currently uncontrolled Natural Gas Sludge Heat Treatment ("Zimpro") Boilers;
6. Installation of up to 5 MW of solar panels at the PVSC Facility site; and
7. Installation of up to 5 MW of battery storage capacity (mitigate need for black start capability and supplement operating electricity).

5. Department Review and Decision

Analysis

As explained above, PVSC's 2021 application preceded the Department's 2023 adoption of the EJ Rules, which direct applicants to consider initial screening criteria as presented below. As a factual matter, however, the Department notes that the host overburdened community is subject to adverse cumulative environmental and public health stressors, including a density of permitted air pollution sites more than five times greater than the relevant point of geographic comparison and adverse stressors related to concentrated areas of air pollution, as each are defined by the EJ Rules.

Combined Stressor Total	
Block Group Value: Combined Stressor Total	**23**
County	14
State	13
Geographic Point of Comparison	**13**
Adverse Cumulative Stressors	**Yes**

Concentrated Areas of Air Pollution					
Stressor	Block Group Value	County Non OBC 50th	State Non OBC 50th	Geographic Point of Comparison	Adverse Stressor
Ground-Level Ozone (3-year average days above standard)	**0.594**	0.333	0.999	**0.333**	**Yes**
Fine Particulate Matter (PM 2.5) (3-year average days above standard)	**0.536**	0.667	0.333	**0.333**	**Yes**
Cancer Risk from Diesel Particulate Matter (estimated cancer risk/million)	**240.067**	153.792	82.000	**82.000**	**Yes**
Cancer Risk from Air Toxics Excluding Diesel Particulate Matter (estimated cancer risk/million)	**57.575**	44.808	33.994	**33.994**	**Yes**
Non-cancer Risk from Air Toxics (Combined Hazard Quotient)	**6.864**	3.820	1.841	**1.841**	**Yes**

Density/Proximity Stressors					
Stressor	Block Group Value	County Non OBC 50th	State Non OBC 50th	Geographic Point of Comparison	Adverse Stressor
Emergency Planning Sites (sites/square mile)	**0.8**	0.17	0.05	**0.05**	**Yes**
Permitted Air Sites (sites/sq. mile)	**4.65**	**1.5**	**0.8**	**0.8**	**Yes**

In reviewing PVSC's submission pursuant to the AO, the Department evaluated whether PVSC has taken measures sufficient to: (1) avoid adverse impacts to environmental and public health stressors from the proposed facility while achieving its primary purpose; (2) minimize adverse impacts that could not be fully avoided while achieving the primary purpose of the proposed facility; and (3) reduce other existing environmental and public health stressors affecting the overburdened community through additional on-site or off-site actions that improve environmental or public health conditions.

First, the Department evaluated PVSC's efforts to avoid adverse environmental and public health stressors while considering the primary purpose of the proposed facility, *i.e.*, to provide reliable backup power that would enable the continued treatment of sewage in the event of a power failure. To that end, the Department has determined that, while a no-build alternative would fully avoid the emission of air pollutants from the SPGF, the no-build alternative could compromise the essential services provided by the sewage treatment plant during an emergency storm event, including services for the host overburdened community, which are vital to preventing disease, improving public and environmental health, and maintaining the recreational, commercial, and natural resource benefits of waterways into which sewage treatment plant effluent is discharged.

The Department also reviewed PVSC's assessment of off-site backup energy alternatives, which PVSC presented as infeasible given that each would rely upon transmission solutions subject to existing vulnerabilities. As the record does not contain additional feasible, non-speculative potential alternatives to meet the project's primary purpose, the Department has found PVSC's analysis sufficient insofar as the proposed project is intended to ensure off-site disruptions in electric generation do not result in a loss of the sewage treatment plant's capacity to operate and fulfill its primary purpose of protecting public health, safety and the environment by avoiding the backup and discharge of untreated sewage in the event of a power failure.

Second, the Department evaluated measures that could minimize potential adverse environmental and public health stressors. To this end, it is clear that several mandatory emissions reduction measures are feasible and readily achievable to reduce the impact of SPGF operations upon environmental and public health stressors affecting the host overburdened community. These measures include: (1) applying state-of-the-art air pollution control equipment to the CTGs to reduce Oxides of Nitrogen (NOx), carbon monoxide (CO), and Volatile Organic Compounds (VOCs), including the selective catalytic reduction (SCR) and oxidation catalyst (OC) control equipment; (2) restricting use of the SPGF to emergency operation, emergency preparation, and related maintenance uses only; (3) supplementing the black start natural gas engine generators with 5 MW of on-site battery storage to allow PVSC to start the CTGs in the event of a total loss of utility power, which would make use of the black start natural gas engine generators necessary only if the batteries fail.

More specifically, the proposed permit modification involves the installation and intermittent use of several new significant source operations:[5]

- Three natural gas-fired 28MW CTGs, only two of which would operate at a time. The exhaust of each CTG would be treated with SOTA air pollution equipment train consisting of an oxidation catalyst (OC) and selective catalytic reduction (SCR).
- Two 2MW natural gas-fired black start generators, only one of which would operate at a time to start the CTGs without utility electricity supply.
- Two 164-kW diesel fire pump engines, only one of which would operate at a time to pump water for fire suppression if hydrant pressure is not available.
- One 10,000-gallon aqueous ammonia (19% ammonia solution) storage tank for the SCR air pollution control equipment.

[5] "Significant source operations" have specific definitions for minor (N.J.A.C. 7:27-8) and major (N.J.A.C. 7:27-22) sources of air pollution. For explanatory purposes here, a significant source can be understood as a piece of equipment that must be included in an emission unit or batch process in an air permit to have specific conditions and requirements are applied. Such conditions could include monitoring, recordkeeping, operations limits, and, most importantly, emission limits. Newly constructed, reconstructed, or modified equipment and control apparatus that constitute a significant source operation shall incorporate advances in the art of air pollution control as developed for the kind and amount of air contaminant emitted by the applicant's equipment and control apparatus as provided at N.J.A.C. 7:27-8.12 and N.J.A.C 7:27-35.

"Insignificant source," as the name implies, is any source of air emissions that does not meet the definition of a significant source. In the case of a Title V (major source) facility, insignificant sources located at the facility are also listed in the permit, but operating parameters or emission limits are generally not applied to the insignificant sources. Emission estimates may be aggregated at a facility-wide level for informational purposes. In the case of preconstruction permit (minor source) facility, insignificant sources are not listed or identified in the permit unless the insignificant source is integrated into an air pollution release point with a significant source.

The Department considered each of the proposed emission reduction measures in turn:

(1) The Selective Catalytic Reduction (SCR) would reduce NOx and CO emissions more effectively than the dry low-NOx (DLN) combustion technique that is typical for simple-cycle emergency standby turbines. Here, the SCR is designed to achieve a steady-state NOx emission rate of 2.5 ppmvd (parts per million by volume, dry) (at 15% oxygen). The oxidation catalyst (OC) is designed to achieve a final CO emission rate of 3 ppmvd and VOC emission rate of 4 ppmvd, for steady-state operation (at 15% oxygen).

(2) Eliminating use of the SPGF for utility peak shaving avoids 700 hours of operation, further reducing potential emissions.

(3) Eliminating use of the SPGF for Demand Response avoids 24 hours of operation, further reducing emissions.

(4) Installing on-site battery storage for the black start generators will reduce emissions by ensuring that the BSGs are not put into use unless necessary (*i.e.*, if the batteries fail).[6]

Additionally, the Department notes that installation of SOTA air pollution equipment would reduce NOx and CO emission rates below the thresholds established by N.J.A.C. 7:27-8, Appendix 1, Table B, resulting in emissions lower than the Department's Major New Source Review Thresholds of 100 tons/year (and 25 tons/year for NOx & VOCs).

Accordingly, the Department has found the minimization measures sufficient insofar as they serve to reduce potential emissions from the SPGF as enumerated below.

TABLE 2	**Effect of Minimization Measures on** SPGF Potential Emissions (tons per year)									
	VOC (total)	NO_x	CO	SO_2	TSP (total)	PM_{10} (total)	$PM_{2.5}$ (total)	Pb	HAPs (total)	CO_2e (total)
Potential SPGF Emissions *as proposed prior to below minimization measures*	2.28	29.6	62.5	1.13	4.67	4.65	4.65	0	2.28	39,000
SCR and OC on CTGs[7]	0	-26.0	-54.6	0	0	0	0	0	0	0
Eliminating Peak Shaving	-0.40	-0.63	-1.10	-0.22	-0.92	-0.92	-0.92	0	-0.04	-7,670
Eliminating PJM Demand Response[8]	-0.04	-0.04	-0.27	-0.01	-0.05	-0.05	-0.05	0	0	-442
Change (+ / -)	1.84	2.92	6.54	0.89	3.70	3.68	3.68	0	2.24	30,888

[6] This represents an approach to limit the use of the BSGs during emergencies but would not reduce the potential emissions necessary for testing and maintenance of the units.

[7] These values represent the difference between uncontrolled emissions and emissions using state-of-the-art (SOTA) controls. As the Department would have required SOTA controls were they not proposed, the Department does not find that a commitment to SOTA would itself constitute a significant minimization effort pursuant to the AO.

[8] These values represent the reduction in potential emissions from the elimination of the PJM demand response without reducing the potential emissions necessary for testing and maintenance of the units.

Third, the Department evaluated additional on-site mandatory emission reductions that could improve environmental and public health stressors affecting the overburdened community. These reductions include:

1. Removal of Operations and Maintenance (O&M) Building Natural Gas Boilers #2 and #3;
2. Removal of the Head End Emergency Diesel Generator;
3. Removal of two Natural Gas Oxygen Production Boilers;
4. Removal of two Natural Gas Grit and Screening Boilers;
5. Installation of air pollution control equipment for CO, NOx, and VOCs to the four currently uncontrolled Natural Gas Sludge Heat Treatment ("Zimpro") Boilers;
6. Installation of up to 5 MW of solar panels at the PVSC Facility site; and
7. Installation of up to 5 MW of battery storage capacity to offset the need for black start capability and supplement operating electricity.

PVSC estimates that these additional on-site measures would reduce facility-wide emissions of air pollutants, which estimates the Department finds reasonable, as follows:

TABLE 3	**Effect of Facility-wide Mandatory Emission Reductions (tons per year)**									
	VOC (total)	NO_x	CO	SO_2	TSP (total)	PM_{10} (total)	$PM_{2.5}$ (total)	Pb	HAPs (total)	CO_2e (total)
Remove O&M Building Boilers	-0.11	-0.89	-1.01	-0.02	-0.19	-0.19	-0.19	0	0	-2,965
Remove 600-kW Engine Generator	-0.01	-0.03	-0.02	0	0	0	0	0	0	-3.3
Remove 2 Oxygen Production Boilers	-0.01	-0.16	-0.14	0	-0.02	-0.02	-0.02	0	0	-185
Remove 2 Grit and Screening Boilers	0	-0.17	-0.14	0	-0.02	-0.02	-0.02	0	0	-210
Add SCR and OC to Zimpro Boilers	-1.17	-10.3	-3.42	0	0	0	0	0	0	0
5% H2 in CTG Fuel	-0.01	0	-0.12	0	-0.01	-0.01	-0.01	0	0	-1,183
5 MW On-Site Solar Panels	0	0	0	0	0	0	0	0	0	-3,883
5 MW / 10 MWh Modular Batteries for Peak Load Management	0	0	0	0	0	0	0	0	0	-371
Change (+ / -)	-1.31	-11.55	-4.85	-0.02	-0.24	-0.24	-0.24	0	0	-8,800.3

Additionally, noting that operation of the SPGF may contribute to the facility's greenhouse gas emissions, PVSC has proposed to implement alternative fuel sources to supplement and partially replace its natural gas fired equipment, as well as implement renewable options for fuel sources as they become technologically feasible.

In summary, when considering the only regular operation of the SPGF proposed to be authorized, (*i.e.*, 288 hours per year for testing and maintenance to ensure emergency response readiness) and the proposed facility-wide reductions, a net overall reduction in the emission of air pollutants from the facility is projected, as follows:

TABLE 4	**Quantification of Net Impact of Additional Facility-wide Emission Reductions (tons per year)**									
	VOC (total)	NO_x	CO	SO_2	TSP (total)	PM_{10} (total)	$PM_{2.5}$ (total)	Pb	HAPs (total)	CO_2e (total)
Maximum SPGF maintenance operations (non-emergency)	0.48	0.78	2.24	0.16	0.68	0.66	0.66	0	0.18	5,553
Facility-wide Reductions	-1.31	-11.55	-4.85	-0.02	-0.24	-0.24	-0.24	0	0	-11,130.3
Net Emissions or Reduction (+/-)	-0.83	-10.77	-2.61	0.14	0.44	0.42	0.42	0	0.18	-5,577.3

Conclusion

The Department has reviewed the information provided by PVSC and third parties throughout the environmental justice review process, including, but not limited to, PVSC's Compliance Statement, public comments, PVSC's Response to Comments, details provided in response to the Department's requests for clarification, and other information relevant to this decision. Based upon the record presented, the Department finds that the SPGF as originally proposed would increase the emission of air pollutants from the PVSC facility, which could exacerbate adverse cumulative environmental and public health stressors affecting the host overburdened community. The Department also finds that, the foregoing avoidance and minimization measures, together with the on-site mandatory emission reductions detailed above, a net overall reduction in facility-wide emissions of air pollutants would be achieved under regular operating conditions.

The Department acknowledges that, in the event of a storm that triggers emergency operation of the SGPF, and depending upon the extent of emergency operations, a net overall reduction in facility-wide emissions of air pollutants may not be achieved. Such conditions would necessarily be time limited. The Department also acknowledges that PVSC's stated commitments to transition to low- or zero-carbon fuels at the facility may further reduce overall greenhouse gas emissions from its operations.

Lastly, the Department recognizes the Ironbound Community Corporation, New Jersey Environmental Justice Alliance, and Earthjustice letter of June 15, 2023, asserting that Departmental approval of the SPGF could constitute discrimination on the basis of race, color or national origin in violation Title VI of the federal Civil Rights Act of 1964. As discussed above, the Department has taken care to thoroughly evaluate, avoid, and minimize potentially adverse impacts of its decision upon the host overburdened community, including any potential disparate impacts upon protected classes of persons consist with Title VI requirements. As explained herein, should PVSC proceed with its proposed permit modification, the Department's environmental justice review has ensured the imposition of special conditions that results in a net overall reduction of facility-wide emissions of air pollutants under regular operating conditions. These special conditions would be indefinite in their effect, and subject to routine Department enforcement.

Accordingly, in consideration of community concerns expressed throughout the environmental justice review process, and in view of the public importance of maintaining the safe and reliable treatment of sewage in the event of a storm emergency, the Department hereby determines that PVSC may pursue the proposed modification of its Title V Permit subject to the following special conditions designed to best control emissions from the SPGF, ensure additional on-site mandatory emission reductions, and support a future low- or zero-carbon operating environment at PVSC.

6. Special Conditions Attendant to All Future Permits or Approvals

Any permit or approvals issued the Department related to the facility shall reference or otherwise incorporate the following special conditions, which are intended to reduce environmental and public health stressors affecting the host overburdened community as discussed herein. These special conditions shall be in addition to, but shall not be superseded by, all other relevant conditions as may be required pursuant to applicable law, regulation, or agreement.

Special Condition 1: PVSC is authorized to operate the combustion gas turbine generators (CTGs) under the following conditions:

a. Up to forty-eight (48) hours in advance of a storm event with notice to the Department via 1-877-WARN DEP, the Ironbound Community Corporation and through a public notice on PVSC's website.
    i. "Storm event" is defined as: storms determined by the New Jersey Office of Emergency Management as having the capability of disrupting power service to the facility.
    ii. Maximum annual hours: 960 total (2 units x 10 storm events)
b. Emergency Operation where a power outage has occurred because of an emergency; or a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu with notice to the Department via 1-877-WARN DEP, the Ironbound Community Corporation and through a public notice on PVSC's website.
    i. An emergency is defined as any situation that arises from sudden and reasonably unforeseeable events beyond the control of an owner or operator of a facility, such as an unforeseen system capacity shortage caused by an act of God, that requires immediate corrective action to prevent system collapse or to restore normal operations at the facility.
c. Once per month for necessary maintenance and testing upon 48 hours' notice to the Department via 1-877-WARN DEP, the Ironbound Community Corporation and through a public notice on PVSC's website.
    i. Maintenance and testing operations shall be conducted each month but are not authorized for a unit in months where that unit has already operated.
    ii. Maximum annual hours: 288 (96 per unit)
        i. Maximum monthly hours: 24
        ii. Maximum daily hours: 8 per unit

d. Maximum total annual hours of CTG operation for storm event preparation and testing and maintenance are not to exceed 1,248 hours.

e. CTG operation, including black start capability, under (a) and (b) above may only be commenced where options for utilization of onsite renewable energy source (i.e. battery, solar or other future installations) have been exhausted. This does not apply to the operation of the CTGs during storm preparation mode.

Special Condition 2: Decommission Operations and Maintenance (O&M) Building Boilers #2 and #3 listed as U11 in PVSC's Title V Air Pollution Control Operating Permit by December 31, 2027, unless a written request is submitted to and approved, in writing, by the Department. PVSC shall provide proof of decommissioning to the Department, the Ironbound Community Corporation and through a public notice on PVSC's website. If PVSC chooses to replace the equipment, the new equipment must be powered by a renewable energy source.

Special Condition 3: Decommission the Head End Emergency Generator (600-kilowatt (kW) diesel engine generator) listed as U102 OS1 "CAT 600" in PVSC's Title V Permit within 120 days of completing commissioning of the SPGF, unless a written request is submitted to and approved, in writing, by the Department. PVSC shall provide proof of decommissioning to the Department, the Ironbound Community Corporation and through a public notice on PVSC's website. If PVSC chooses to replace the equipment, the replacement must be powered by a renewable energy source.

Special Condition 4: Decommission two Oxygen Production Boilers designated as U5 Oxygen Production Boilers 1 & 2 in the Title V Permit by December 31, 2027, unless a written request to extend completion of the Oxygen Production Facility Replacement Project is submitted to and approved in writing by the Department. PVSC shall provide proof of decommissioning to the Department, the Ironbound Community Corporation and through a public notice on PVSC's website. If PVSC chooses to replace the equipment, the new equipment must be powered by a renewable energy source.

Special Condition 5: Decommission two Grit and Screening Boilers designated as U7 Grit and Screening Boilers 1 & 2 in the Title V Permit by December 31, 2025, unless a written request is submitted to and approved, in writing, by the Department. PVSC shall provide proof of decommissioning to the Department, the Ironbound Community Corporation and through a public notice on PVSC's website. If PVSC chooses to replace the equipment, the new equipment must be powered by a renewable energy source.

Special Condition 6: Install air pollution control equipment to the four currently uncontrolled Sludge Heat Treatment ("Zimpro") Boilers listed as U20 in the Title V Permit by December 31, 2027, unless a written extension request is submitted to and approved by the Department. PVSC shall submit an application to the Department to install and operate State-of-the-Art air pollution control devices, including, but not limited to, selective catalytic reduction (SCR) and oxidation catalyst (OC) systems by June 30, 2026, unless a written extension request is submitted to and approved, in writing, by the Department. If PVSC chooses to replace any of the four boilers, the new units must be powered by a renewable energy source.

Special Condition 7: Install the maximum feasible and no less than five (5) MW of solar panels at the PVSC Facility by December 31, 2026, unless a written extension request is submitted to and approved by the Department. By or before June 30, 2025, PVSC shall submit to the Department a feasibility study analyzing the maximum feasible solar capacity and proposing an installation schedule for the Facility. The feasibility study shall be distributed to the Ironbound Community Corporation and through a public notice on PVSC's website.

Special Condition 8: Install the maximum feasible and no less than five (5) MW of battery storage capacity at the PVSC Facility by December 31, 2026, unless a written request is submitted to and approved, in writing, by the Department. By or before June 30, 2025, PVSC shall submit to the Department a feasibility study analyzing the maximum feasible battery storage capacity and proposing an installation schedule for the Facility. The feasibility study shall be distributed to the Ironbound Community Corporation and through a public notice on PVSC's website.

Special Condition 9: PVSC shall initiate the transition of the CTGs from natural gas to green hydrogen or another technically feasible renewable fuel source within 120 days of commissioning the SPGF, unless a written request is submitted to and approved, in writing, by the Department. By or before June 30, 2025, PVSC shall submit to the Department a feasibility study analyzing the transition options and proposing a transition schedule for the Facility. The feasibility study shall be distributed to the Ironbound Community Corporation and through a public notice on PVSC's website.

Special Condition 10: PVSC shall submit a semi-annual Environmental Justice Compliance Report (Report) to the Department on January 31 and July 31 of each year. The Report shall address each Special Condition and include (a) a restatement of the condition, (b) a summary of PVSC's efforts to fulfill the condition, (c) a detailed explanation of the compliance activities undertaken during the preceding six month reporting period, and (d) a description of compliance activities anticipated in the forthcoming six month reporting period. PVSC shall distribute each Report to the Ironbound Community Corporation and through a public notice on PVSC's website. The semi-annual reporting will be deemed complete once all Special Conditions have been met.

Special Condition 11: Failure to comply with any Special Condition shall be deemed an ongoing violation of PVSC's Title V Permit that constitutes grounds for revocation of authority to operate the SPGF.

7. Notices

This decision does not constitute a permit to construct or operate the proposed SPGF or authorize any activity otherwise regulated by the Department.

This decision serves only to summarize and complete the Department's environmental justice review for the proposed SPGF project. The current application for the proposed SPGF project shall now proceed to preparation of a full draft Title V permit modification document, which permit must include all special conditions in section 6 above. Pursuant to applicable rules, N.J.A.C. 7:27-22.11 and -22.12, the draft permit shall be subject to public review and comment, as well as review by the U.S. Environmental Protection Agency prior to issuance of a final permit by the Department.

The special conditions in section 6 above shall survive any future permit modifications and must be applied to any and all later Departmental authorizations related to the facility unless, where applicable, a special condition has been implemented to completion as intended by this decision. All special conditions shall be subject to routine Department compliance assurance and, where necessary, enforcement action.

As the special conditions set forth above constitute the outcome of the Department's environmental justice review of the proposed SPGF project, future permit modifications or renewals that may be necessary to implement the special conditions shall not require additional environmental justice review pursuant to the AO or N.J.A.C. 7:1C.

Any regulated activities or equipment at the facility not fully addressed in the course of this environmental justice review shall be subject to N.J.A.C. 7:1C where applicable.

Any questions about this decision should be directed to the Department's Division of Air Quality and Radiation, Air Quality Permitting and Planning, Bureau of Stationary Sources, which can be reached at (609) 633-8248 or aqppls@dep.nj.gov.

Dated: July 18, 2024

Shawn M. LaTourette, Commissioner
Department of Environmental Protection