TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

Pump Station S-7
Facility ID No. 0990354

PROJECT

Project No. 0990354-009-AC
Application for an Air Construction Permit
Reduction of the facility-wide fuel cap

COUNTY

Palm Beach County, Florida

PERMITTING & COMPLIANCE AUTHORITY

Florida Department of Health Palm Beach County
Division of Environmental Public Health
Air & Waste Section
P.O. Box 29 (800 Clematis Street, 4th Floor)
West Palm Beach, FL 33402-0029

July 10, 2017

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control - General Provisions); 62-210 (Stationary Sources - General Requirements); 62-212 (Stationary Sources - Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources - Emissions Monitoring). Specifically, air construction permits are required pursuant to Chapters 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations in Rule 62-204.800, F.A.C.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Description and Location

SFWMD Pump Station S-7 is an existing Flood Control Pump Stations, which is categorized under Standard Industrial Classification Code No. 9511. The Pump Station S-7 is located in Palm Beach County at 23000 US Hwy 27 at Broward/ Palm Beach County line, Florida. The UTM coordinates of the facility are Zone 17, 546.181 km East, and 2912.928 km North; Latitude: 26° 20′ 08″ North and Longitude: 80° 32′ 12.3″ West. This site is in an area that is in attainment for all air pollutants subject to Ambient Air Quality Standards (AAQS).

The Pump station S-7 discharges stored water from STA 3/4 into Conservation Area No. 2 and, under extreme water level conditions, to tide via the North New River Canal. The pump station S-7 consists of three horizontal pumps, each rated for 830 cubic feet per second (cfs), for a total of 2,490 cfs. The pump station was designed to pump 0.75 inches of water per day from STA 3/4 within a 24-hour period. Pump station S-7 has operated since February 10, 1961.

This existing facility consists of three 800 brake horsepower (BHP) Fairbanks-Morse 5-cylinder opposed piston 2-cycle engines (FM model 38D8-1/8), two 380 BHP Cummins Onan emergency power generators, two 25,000 gallons above ground distillate oil fuel oil storage tanks, four 200 gallon above ground day tanks and miscellaneous surface coating activities, in addition to other insignificant /exempt activities. Ultra Low Sulfur (0.0015%S) diesel fuel is the primary fuel for all water pumps (3 main engines) and 2 emergency power generators.

The facility is presently classified as a synthetic-minor source under the Federal and State preconstruction review regulations (40 CFR 52.21, Chapters 62-210.300, 62-212.300, and 62-212.400, F.A.C.) based on potential emissions of nitrogen oxides more than 100 tons per year, but less than 250 tons per year. The facility is classified as a major source under the Title V operating permit program (40 CFR Part 70 and Chapter 62-210.200, F.A.C.). The facility is not subject to NSPS. The facility is further classified as a natural minor source of the Hazardous Air Pollutants (HAPs) with maximum individual HAP emissions less than 10 tons per year and total HAPs emissions of less than 25 tons per year. Nitrogen oxides (NOx) emissions, along with other products of combustion are generated during the operation of the internal combustion engines that can be fired on either distillate oil or low sulfur distillate oil.

The SFWMD had requested for removal of fuel monitoring requirements outlined in the Specific Condition III.A.8, III.A.13 (d) and Appendix D of Permit No. 0990354-006-AV.

Pump station S-7 had added Diesel Oxidation Catalyst (DOC) units on three 800-BHP engines per construction permit 0990354-007-AC, to comply with the reciprocating internal combustion engine (RICE) NESHAP (40 CFR 63, Subpart ZZZZ) that requires CO emissions limit of 23 ppm or a reduction of 70% in the exhaust. The sulfur content of the distillate fuel burned

by this facility is 0.0015% sulfur by weight, as required by 40 CFR Part 63 Subpart ZZZZ The compliance deadline for Subpart ZZZZ was May 3, 2013.

The Title V Air Operating Permit no. 0990354-008-AV for the facility was issued on December 20, 2012 with a fuel consumption limit of 912,591 gallons of diesel in any consecutive 12 months (Rolling) total.

The existing facility consists of the following emissions units.

EU ID No.	Status	Brief Description
001	*Inactive*	*EU No. 001 was divided into three separate emissions units EU 004, EU 005 and EU 006 in previous permit 0990354-007-AC. This was done because of emissions standards for Carbon Monoxide (CO) per Federal Regulation 40 CFR 63 Subpart ZZZZ*
002	Regulated	**Two 380-BHP emergency generators (RICE) -** These are diesel engines powering Cummins Onan emergency electrical generators. The emergency generators are capable of combusting distillate oil only.
003	Exempt	**Volatile Organic Liquid Storage Tanks –** • Two 25,000-gallon aboveground storage tanks; and • Four 200-gallon day tanks to store distillate fuel oil.
004	Regulated	**One 800-BHP Pump Engine (RICE)** This emissions unit is a Fairbanks-Morse 5-cylinder opposed piston 2-cycle engine (FM model 38D8-1/8). **(Serial Number 968909)**
005	Regulated	**One 800-BHP Pump Engine (RICE)** This emissions unit is a Fairbanks-Morse 5-cylinder opposed piston 2-cycle engine (FM model 38D8-1/8). **(Serial Number 968970)**
006	Regulated	**One 800-BHP Pump Engine (RICE)** This emissions unit is a Fairbanks-Morse 5-cylinder opposed piston 2-cycle engines (FM model 38D8-1/8). **(Serial Number 968973)**

Facility Regulatory Categories

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility does not operate units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C. (For pollutant NOx)
- The facility is not a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C. (This facility escapes PSD regulations by taking a limit on annual diesel fuel consumption.)
- The diesel engines in this facility are not subject to the Major Source NOx RACT requirements in accordance with guidance issued by the Florida Department of Environmental Protection.
- The facility is not subject to any requirements of 40 CFR 60 (NSPS).
- The facility is subject to the requirements of 40 CFR 63 Subpart ZZZZ "National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE)" and 40 CFR 61 Subpart M, Asbestos.

Project Description

The South Florida Water Management District is requesting to reduce the existing facility-wide distillate fuel oil cap from 912,591 gallons to **885,660** gallons per any consecutive 12 months (Rolling) total to limit **NOx** emissions to **235.12 TPY**, which is below the major source threshold for PSD applicability (250 TPY). The reduction of the fuel cap is associated with an increase in the NOx emissions factor from 3.73 lb/mmbtu to 3.85 lb/mmbtu resulting from emission verification testing conducted on March 28, 2017.

Processing Schedule

05/01/2017: Received the application for concurrent processing of an air construction permit and renewal of Title v air operation permit.

2. PSD APPLICABILITY

The project is located in Palm Beach County which is in an area that is currently in attainment with the AAQS. The proposed project will not increase emissions for any PSD pollutant; therefore, the project is not subject to a PSD preconstruction review.

3. DEPARTMENT REVIEW

The South Florida Water Management District is requesting to reduce the existing facility-wide distillate fuel oil cap from 912,591 gallons to 885,660 gallons per any consecutive 12 months (Rolling) total for this project to limit NOx emissions to 235.12 TPY, which is below the major source threshold for PSD applicability (250 TPY). The reduction of the fuel cap is associated with an increase in the NOx emissions factor from 3.73 lb/mmbtu to 3.85 lb/mmbtu resulting from emission verification testing conducted on March 28, 2017. To provide reasonable assurance that the requested fuel cap is appropriate for the operation of this facility, a historical annual fuel consumption from 2004 to 2016 was reviewed and indicated that the highest year's consumption (2005) was 26% of requested annual fuel cap of 885,660 gallons.

POTENTIAL EMISSIONS:
Since the potential emissions of nitrogen oxides (NOx) will be 235.12 tons per year, corresponding to the new fuel consumption limit, pump station S-7 will retain its synthetic-minor source status under the Prevention of Significant Deterioration (PSD) program.

In Table 1, the historical annual fuel consumption is compared to the annual fuel consumption.

Table 1 – Historical Annual Fuel Consumption for Pump Station S-7

Year	Proposed Annual Fuel Consumption Limit (Gallons)	Actual Annual Fuel Consumption (Gallons)	Percent Actual/Proposed Fuel Consumption
2004	885,660	139,164	16%
2005	885,660	228,569	**26%**
2006	885,660	127,831	14%
2007	885,660	56,487	6%
2008	885,660	206,852	23%
2009	885,660	200,037	23%
2010	885,660	100,392	11%
2011	885,660	80,236	9%
2012	885,660	171,675	19%
2013	885,660	160,461	18%
2014	885,660	98,027	11%
2015	885,660	28,524	3%
2016	885,660	165,917	19%

The emissions are calculated using the emissions factor as shown below:

Pollutant	Unit	EU No. 002- Generators SCC : 2-03-001-01		EU No. 004,005 & 006 – Pump Engines SCC : 2-02-004-01	
		Emission Factor	**Remarks**	**Emissions Factor**	**Remarks**
Nitrogen Oxide (Uncontrolled)	lb/MMBtu	4.41	AP-42, Table 3.3-1	3.85	NOx emissions verification test conducted on **3/28/2017**
Carbon Monoxide	lb/MMBtu	0.95	AP-42, Table 3.3-1	0.85	AP-42, Table 3.4-1
Particulate Matter	lb/MMBtu	0.31	AP-42, Table 3.3-1	0.1	AP-42, Table 3.4-1
PM_{10}	lb/MMBtu	0.31	AP-42, Table 3.3-1	0.0573	AP-42, Table 3.4-2
Volatile Organic Compounds	Lb/MMBtu	0.35	AP-42, Table 3.3-1	0.08	AP-42, NMOC, Table 3.4-1
Sulfur Dioxide *(0.0015% S -- for SCC 2-02-004-01)*	lb/MMBtu	0.29	AP-42, Table 3.3-1	0.001515	AP-42, Table 3.4-1
Benzene	lb/MMBtu	9.33E-04	AP-42, Table 3.3-2	7.76E-04	AP-42, Table 3.4-3
Toluene	lb/MMBtu	4.09E-04	AP-42, Table 3.3-2	2.81E-04	AP-42, Table 3.4-3
Xylene	lb/MMBtu	2.85E-04	AP-42, Table 3.3-2	1.93E-04	AP-42, Table 3.4-3
Formaldehyde	lb/MMBtu	1.18E-03	AP-42, Table 3.3-2	7.89E-05	AP-42, Table 3.4-3
Acetaldehyde	lb/MMBtu	7.67E-04	AP-42, Table 3.3-2	2.52E-06	AP-42, Table 3.4-3
Acrolein	lb/MMBtu	9.25E-05	AP-42, Table 3.3-2	7.88E-06	AP-42, Table 3.4-3
PAH	lb/MMBtu	1.68E-04	AP-42, Table 3.3-2	2.12E-04	AP-42, Table 3.4-4
Total HAPs	lb/MMBtu	0.004		0.004	AP-42

Other pollutants associated with the fuel combustion, including sulfur dioxide, particulate matter (TSP and PM_{10}), and volatile organic compounds, will also be indirectly capped at levels of less than 50% of the PSD Major Source thresholds. Synthetically-limited potential emissions are as follows:

Summary of Potential-to-Emit (PTE) Pump Station S-7:

Pollutants	Proposed Potential Emissions (TPY)	PSD Major Source Threshold (TPY)	PSD Major Source?	Subject to PSD?
Nitrogen Oxide	235.12	250	No	No
Carbon Monoxide	51.85[1]	250	No	No
Particulate Matter	6.63	250	No	No
PM 10	4.15	250	No	No
Volatile Organic Compounds	5.69	250	No	No
Sulfur Dioxide	0.86	250	No	No
Benzene	0.048	NA	No	No
Toluene	0.017	NA	No	No
Xylene	0.012	NA	No	No
Formaldehyde	0.008	NA	No	No
Acetaldehyde	0.004	NA	No	No
Acrolein	0.001	NA	No	No
PAH	0.013	NA	No	No
Total HAPs	0.24	NA	No	No

Potential emissions are based on a combined fuel consumption of 885,660 gallons per any consecutive 12-months total for three 800-BHP engines, two 380-BHP emergency generators. Emission rates for NOx for 800-BHP engines are based on the emissions factor verification test conducted at the facility on **03/28/2017**, while all other remaining emissions rates are from AP-42 emission factors.

[1]Potential Emission of Carbon Monoxide (51.85 TPY) is based on emissions prior to meeting the 23 ppm threshold limit or the minimum 70% reduction as required by 40 CFR 63, Subpart ZZZZ. After the compliance date (initial test 08/29/2013 and 2nd test 06/19/15), the actual CO emissions shall meet the requirements (23 ppmvd @ 15% O2 or reduce by 70% or more).

State Requirements

The facility shall comply with all applicable provisions of the Florida Administrative Code and, specifically, the following chapters and rules:

- F.A.C. Chapter 62-4 - Permitting Requirements.
- F.A.C. Chapter 62-204 - Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference
- F.A.C. Chapter 62-210 - Required Permits, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms
- F.A.C. Chapter 62-212 - General Preconstruction Review Requirements, PSD Requirements
- F.A.C. Chapter 62-213 - Operation Permits for Major Sources of Air Pollution
- F.A.C. Rule 62-296 - General Pollutant Emission Limiting Standards.
- F.A.C. Rule 62-297 - Test Methods
- F.A.C. Chapter 62-256 - Open Burning and Frost Protection Fires
- F.A.C. Rule 62-257 - Asbestos Program

Federal NSPS Provisions

The facility is not subject to NSPS.

Federal NESHAP Provisions

The generator engines are subject to 40 CFR 63 Subpart ZZZZ.

Other Draft Permit Requirements

The facility-wide Diesel Fuel oil consumption is limited to 885,660 gallons per any 12-month rolling total period. The permittee must monitor the fuel consumption on a monthly basis when the rolling 12-month total consumption is less than 80% of the fuel limit. When the fuel consumption exceeds 80% (709,000) in any 12-month period, the permittee shall monitor the fuel consumption on a daily basis. When the rolling 365-day total does not exceed 709,000 gallons for 30 consecutive days, monthly monitoring can be resumed. The highest fuel consumption at the facility occurred in 2005 at 228,569 gallons (26% of requested annual fuel cap of 885,660 gallons).

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Kajal Bhavsar is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Florida Department of Health Palm Beach County, Division of Environmental Public Health, Air & Waste Section, P.O. Box 29 (800 Clematis Street), West Palm Beach, FL 33402-0029, phone 561-837-5974, or by email Kajal.bhavsar@flhealth.gov.