

**Technical Review and Evaluation
Of
Application for Air Quality Permit #30345**

I. INTRODUCTION

The Fairview Generating Station, located one mile north of Highway 80 on Sulphur Springs Road in Douglas, Arizona, is owned and operated by Arizona Public Service Company (APS). The station provides power to the electric grid on an as-needed basis, primarily during emergency situations such as interruption of the main power lines. The Fairview Generating Station was built to meet the energy demands of the City of Douglas in case the main electrical supply is interrupted.

A. Company Information

Facility Name:	Fairview Generating Station
Mailing Address:	P.O. Box 53933, Mail station 4552 Phoenix, AZ 85072-3933
Facility Address:	Sulphur Springs & Lawrence Douglas, Cochise County, AZ 85607

B. Attainment Classification

The source is in a non-attainment area for PM₁₀.

II. FACILITY DESCRIPTION

A. Description

Please refer to the Permit application.

B. Control Equipment

The Fairview generating station has no air pollution control equipment.

C. Parameters of Interest

Equipment:	Simple Cycle Combustion Turbine
Fuel:	Fuel oil#2
Power:	295 MMBtu/hr

Equipment:	Starting Diesel Engine
Fuel:	Fuel oil#2
Power:	500 hp

III. COMPLIANCE HISTORY

No compliance inspections or cases are listed for this source in ADEQ records.

IV. EMISSIONS

Pollutant	PM (tpy)	PM ₁₀ (tpy)	SO ₂ (tpy)	NO _x (tpy)	CO (tpy)	VOC (tpy)
Potential to Emit	155	15.55	1250	795	5.2	0.53

Table 1. PTEs from the facility

The emissions for PM, PM₁₀ and VOC were calculated using AP-42 factors (see attached calculations spreadsheet)

The emissions of NO_x and CO were calculated using source test data from year 2001 (see attached spreadsheet)

The emissions of SO₂ were calculated with stoichiometric calculations based on worst case sulfur content of 0.9% in the fuel oil as outlined below:

Assuming a heating value of 133,000 Btu/gal for fuel oil and taking into account the rated input capacity of the turbine at 295 MMBtu/hr, it translates to a fuel usage rate of 2218 gal/hr.

Assuming the density of fuel oil to be 7.15 lb/gal, the fuel usage rate is 15859 lb/hr.

Assuming worst case sulfur content of 0.9% in the fuel oil, mass rate of sulfur burnt is 142.73 lb/hr.

Assuming combustion of all sulfur to sulfur dioxide, 32 lbs of sulfur will yield 64 lbs of SO₂. With that assumption, 142.73 lbs per hour of sulfur will yield 285 lbs per hour of sulfur dioxide.

Assuming 8760 hours of operation, it will equate to 1250 tons per year of sulfur dioxide.

V. APPLICABLE REQUIREMENTS

UNIT ID	CONTROL EQUIPMENT	MONITORING EQUIPMENT	APPLICABLE REQUIREMENTS	VERIFICATION
Combustion Turbine and start up diesel engine	None	None	A.A.C.R18-2-719.B A.A.C.R18-2-719.C.1 A.A.C.R18-2-719.E A.A.C.R18-2-719.F A.A.C.R18-2-719.H A.A.C.R18-2-719.I A.A.C.R18-2-719.J A.A.C.R18-2-719.K	The turbine was installed on March 31, 1972 and has maximum power of 75 MMBtu per hour. The requirements of 40 CFR60 Subpart GG are applicable to turbines installed or reconstructed after October 3, 1977. This turbine has not been modified or reconstructed since 1972.
Non Point Sources	Reasonable precautions or any other method approved by the Director	None	A.A.C.R18-2-604.A, -604.B, -605.A, -605.B, -606, -607.A, -804.B.	Requirements for non-point sources are from Arizona Administrative Code.
Mobile Sources		None	A.A.C.R18-2-804.A.	Requirements for

UNIT ID	CONTROL EQUIPMENT	MONITORING EQUIPMENT	APPLICABLE REQUIREMENTS	VERIFICATION
				mobile sources are from Arizona Administrative Code.
Periodic Activities				
Periodic Activities:				
Abrasive Blasting	Dust emission must be minimized through use of good modern practices.	None	A.A.C.R18-2-726	Requirements for abrasive blasting, spray painting, demolition and renovation and non-vehicle air conditioning maintenance are drawn from Arizona Administrative Code.
Spray Painting	Spray painting will be conducted in an enclosed area equipped with controls containing no less than 96% of the overspray.	None	A.A.C.R18-2-727	
Demolition and Renovation	None	None	A.A.C.R18-2-1101.A.8	
Non-vehicle Air Conditioner Maintenance and/or Services	None	None	40 CFR 82, Subpart F	

Table 2. Applicable Requirements

VI. PREVIOUS PERMITS

A. List of the permits

All of the permits issued to APS-Fairview are listed in the table below.

PERMIT NUMBER	LTF NUMBER	DATE PERMIT ISSUED	APPLICATION BASIS	DESCRIPTION
1001446	21526	11/2/2000	Permit Transfer	Facility's ownership was transferred from Arizona Public Service Company to Pinnacle West Energy Corporation.
1000149	24664	1/25/1999	Class I Permit	Title V permit for facility
0380-95	24663	7/21/1992	Operating Permit	Permit was superceded.

Table 3. List of Permits

B. Previous Permit Conditions

1. Permit #1000149

OPERATING PERMIT #1000149	DELETE	KEEP	REVISE	STREAMLINE	REMARKS
Attachment "A"			√		Attachment "A" has been updated.
Attachment "B". I					
I. A. 1		√			Particulate matter standards remain to be the same for the turbine and the starting engine.
I. A. 2		√			Sulfur dioxide emissions remain at one pound per MMBtu of heat input in the renewal permit.
I. A. 3		√			Opacity standards are kept at 40% in the renewal permit.
I. A. 4			√		Natural gas requirements have been removed from the renewal permit as per request of the source. Current permit will only authorize fuel oil usage by the source.
I. A. 5		√			Definition of heat input is kept in the renewal permit.
I. B		√			Non Point source requirement remain in the renewal permit.
I. C. 1 Abrasive Blasting		√			"Abrasive Blasting" requirements remain to be the same in the renewal permit.
I. C. 2 Use of Paints		√			Requirements for "Use of Paints" remain to be same in the renewal permit.
I. C. 3 Solvent Degreasing	√				Requirements for "Solvent Degreasing" have been removed from the renewal permit.
I. C. 4 Mobile Sources		√			Requirements for "Mobile Sources" include emission limitation and standards for roadway and site cleaning machinery and off-road machinery.
I. C. 5 Demolition/Renovation		√			Requirements for "Demolition/Renovation" remain the same in the renewal permit application.
Attachment "B". II. Monitoring, Recordkeeping And Reporting Requirements					

OPERATING PERMIT #1000149	DELETE	KEEP	REVISE	STREAMLINE	REMARKS
II. A		√			Source is required to submit reports of all of the required monitoring activities to be submitted with the compliance certification.
II. B. 1.a		√			Permittee is required to keep a copy of the fuel oil purchase specification sheet.
II. B.1.b		√			Same equation has been included in the renewal permit for calculating sulfur dioxide emission from the source.
II.B.1.c		√			Permittee is required to submit reports of any period during which sulfur content of fuel oil used exceeds 0.8 percent.
II. B. 1. d	√				The requirement to maintain a copy of FERC approved Tariff agreement for Natural gas has been removed from the permit since natural gas is no longer authorized by the permit.
II. B. 2.a		√			Source is still required to maintain a certified EPA Reference Method 9 reader on staff.
II. B. 2. b			√		Opacity Monitoring has been revised to include determination of baseline opacity by the Permittee. However, the frequency of opacity readings will remain the same in the renewal permit.
II. B. 2. c			√		Requirement to maintain a record of the hours that fuel oil is utilized has been removed from the permit since only fuel oil is the only authorized fuel for the facility. However, the facility is required to maintain a record of
II. B. 3. b				√	required to be maintained by the source.
II. C. 1		√			Requirement to maintain records of control and preventative

OPERATING PERMIT #1000149	DELETE	KEEP	REVISE	STREAMLINE	REMARKS
					activities taken as control measure for non-point source emission is maintained and remains unchanged in the renewal permit.
II. C. 2		√			Permittee is required to maintain copies of all open burn permits on site. This requirement remains the same in the renewal and the pervious permit.
II. D. 1		√			Monitoring and record keeping requirements for "Abrasive Blasting activities" remain the same in the renewal permit.
II. D. 2		√			Monitoring and recordkeeping requirements for "Use of Paints" remain the same in the renewal permit.
II. D. 3		√			Monitoring and recordkeeping requirements for "Mobile Sources" remain the same in the renewal permit.
II. D. 4		√			Monitoring and recordkeeping requirements for "Demolition/Renovation" activities remain unchanged in the renewal permit.
II. D. 5		√			Monitoring and recordkeeping requirements for "Nonvehicle Air Conditioner Maintenance and/or Services" remain the same in the renewal permit.
III. A		√			The facility is required to be tested for nitrogen oxide and carbon monoxide when rolling total of each pollutant emission exceeds major source threshold of 100 tons per year.
III. B		√			Same test methods (Method 20 and Method 10) are required to be used for testing nitrogen oxide and carbon monoxide.
Attachment "C"	√				Permit shields are added to include the applicable requirements.
Attachment "D"		√			Equipment list remains the same in the renewal permit.

Table 4. Previous Permit Conditions

VII. MONITORING REQUIREMENTS

Particulate matter emission and opacity from simple cycle gas turbine and the starting diesel engine are monitored by setting up a baseline opacity standard and conducting visual surveys by a certified Method 9 observer. The Permittee is to set a baseline opacity within 90 days of the permit issuance by conducting Method 9 performance tests on the simple cycle gas turbine and the starting diesel engine while operating at normal representative working conditions. The average of three consecutive readings will be used to determine the baseline opacity for the stack. Since this plant is a peaking plant and is operated on as-needed basis, the opacity of the emissions from the stack of simple cycle gas turbine and the starting diesel engine will be monitored for every 80 hours of operation. If at any time, the opacity reading exceeds the baseline opacity, then the source is required to investigate the causes of this variation. These investigations will be conducted, recorded, and reported in accordance with the conditions set in Attachment B of the operating permit. Exceedances of the baseline opacity will not be considered non-compliance with permit limitation; however it will be used to determine a possible need for corrective action to be taken.

The facility is also required to maintain a copy of the fuel oil purchase specification sheet indicating the heating value and sulfur content of the fuel oil #2 combusted in the engine. Purchase specification sheet should indicate the method used to determine the sulfur content of the fuel oil #2 being combusted.

VIII. TESTING REQUIREMENTS

This operating permit does not contain emission limitations for NO_x and the allowable emissions for SO₂ (295 lb/hour assuming a heat input rate of 295 MMBtu/hr and an emission limitation of 1 lb/MMBtu) are higher than the potential to emit (based on worst case sulfur content in the diesel being combusted at 0.9%). As a result, the performance testing for these pollutants will be conducted if their emission exceeds 100 tons per year, in accordance with Arizona Testing Manual. The performance testing will be conducted within 90 days after the rolling twelve month rolling total, determined on a daily basis, exceeds 100 tons per year. The number of hours after which 100 tons per year of each pollutant is emitted can be calculated as follows:

$$\text{NO}_x: (100 \text{ tpy} * 8760 \text{ hrs/yr}) / 795 \text{ tpy} = 1102 \text{ hrs/yr}$$

$$\text{SO}_x: (100 \text{ tpy} * 8760 \text{ hrs/yr}) / 1251 \text{ tpy} = 700 \text{ hrs/yr}$$

$$\text{PM} : (100 \text{ tpy} * 8760 \text{ hrs/yr}) / 156 \text{ tpy} = 5615 \text{ hrs/yr}$$

For PM, in addition to the above mentioned testing, the Permittee will be required to do an initial performance test within the first year of the permit term to show compliance with the emission standard specified in the permit.

IX. COMPLIANCE ASSURANCE MONITORING (CAM) (40 CFR 64):

The General Electric simple cycle combustion turbine does not have add-on emissions controls. Therefore, CAM does not apply. CAM only applies to emission units with an add-on control device.

X. INSIGNIFICANT ACTIVITIES

Source No.	Insignificant Activities	Pollutants	Insignificant	Governing Rule
1	Accidental Fires	PM ₁₀ , Combustion Products	Yes	A.A.C.R18-2-101.57.j
2	Acetylene, Butane, Propane Torches	Acetylene, Butane, Propane	Yes	A.A.C.R18-2-101.57.j
3	Acid Tank Vents (Deminerlizer and Cooling Tower)	Acid Vapor	Yes	A.A.C.R18-2-101.57.j
3	Activities Associated with Maintenance Repair or Dismantlement of an Emission Unit or other Equipment.	VOC's	Yes	A.A.C.R18-2-101.57.a
4	Aerosol Can Usage	VOC's and CFC's	Yes	A.A.C.R18-2-101.57.j
5	Brazing and Soldering Activities	PM ₁₀ , Fumes	Yes	A.A.C.R18-2-101.57.j
6	Cathodic Protection	Ozone	Yes	A.A.C.R18-2-101.57.j
7	Caulking Operations	Solvents	Yes	A.A.C.R18-2-101.57.j
8	Chemical Storage Barrels	Solvent Vapors	Yes	A.A.C.R18-2-101.57.j
9	Chemical Storage, Hazardous Products and staging Area	Solvent Vapors	Yes	A.A.C.R18-2-101.57.j
10	Corona	Ozone	Yes	A.A.C.R18-2-101.57.j
11	Electric Motors	Ozone	Yes	There is no fuel combustion in electric motors.
12	Emissions sampling and Associated Activities	Combustion Products	Yes	A.A.C.R18-2-101.57.j
13	Evaporative Coolers	Water Vapor	Yes	A.A.C.R18-2-101.57.j
14	Flammable Storage Cabinets	Solvent Vapors	Yes	A.A.C.R18-2-101.57.j
15	Flares Used to Indicate Danger to the Public	PM ₁₀ , Combustion Products	Yes	A.A.C.R18-2-101.57.j
16	Fuel Oil Piping Systems Including: Flanges, Valves, Pump Seals, Pressure Relief Valves and other Individual Components	Oil Vapor	Yes	A.A.C.R18-2-101.57.j
17	Fugitive Dust Emissions From the Operation of Passenger Vehicle	PM ₁₀	No	A.A.C.R18-2-610
18	Gas Turbine False Start Drain	VOCs	Yes	A.A.C.R18-2-101.57.j
19	Gas Turbine Lube Oil Vents	Oil Vapor	Yes	A.A.C.R18-2-101.57.j

Source No.	Insignificant Activities	Pollutants	Insignificant	Governing Rule
20	Gas Turbine Starting Diesel Engines	Combustion Products	Yes	A.A.C.R18-2-101.57.j
21	Hydraulic System Reservoirs	Oil Vapor	Yes	A.A.C.R18-2-101.57.j
22	Janitorial Activities	Chemical Fumes	Yes	A.A.C.R18-2-101.57.a
23	Landscaping Equipment	Combustion Products, PM10	Yes	A.A.C.R18-2-101.57.a
24	Lube Oil Storage Area (New Products)	Oil Vapors	Yes	A.A.C.R18-2-101.57.j
25	Maintenance Shop Heaters	Combustion Products	Yes	A.A.C.R18-2-101.57.j
26	Normal Usage of Misc. Consumer Products	CFC's and VOC's	Yes	A.A.C.R18-2-101.57.j
27	Oil Circuit Breakers	Ozone, Oil Vapor	Yes	A.A.C.R18-2-101.57.j
28	Oil Filter Draining	Oil Vapor	Yes	A.A.C.R18-2-101.57.j
29	Paint Storage Area	Solvents	Yes	A.A.C.R18-2-101.57.j
30	Painting	Solvents	No	A.A.C.R18-2-727
31	Pesticide/Herbicide Activity	Pesticide/Herbicide	Yes	A.A.C.R18-2-101.57.j
32	Portable Testing Equipment and Testing Activities	VOC's	Yes	A.A.C.R18-2-101.57.i
33	Portable Welder	PM ₁₀ , Combustion Engine	Yes	A.A.C.R18-2-101.57.j
34	Production of Hot Water Not Related to Industrial Process	Combustion Products	Yes	A.A.C.R18-2-101.57.j
35	Pump/Motor Oil Reservoirs	Oil Vapors	Yes	A.A.C.R18-2-101.57.j
36	PVC/ABS Pipe Weldings	Solvent	Yes	A.A.C.R18-2-101.57.j
37	Repair and Maintenance of Roads and Other Paved or Open Areas	PM ₁₀	No	A.A.C.R18-2-605.A
38	Safety Devices, Fire Extinguishers and Cardox System	PM ₁₀	Yes	A.A.C.R18-2-101.57.j
39	Sand Blasting	PM ₁₀	No	A.A.C.R18-2-726
40	Satellite Accumulation Barrels	Solvent Vapors	Yes	A.A.C.R18-2-101.57.j
41	Portable Toilette	Methane	Yes	A.A.C.R18-2-101.57.j
42	Cooling Service Water and Piping	Water Vapors	Yes	A.A.C.R18-2-101.57.j
43	Small Equipment fueling Area	VOCs	Yes	A.A.C.R18-2-101.57.j
44	Smoking Area	Tobacco Smoke	Yes	A.A.C.R18-2-101.57.j

Source No.	Insignificant Activities	Pollutants	Insignificant	Governing Rule
45	Solvent Cleaning Tank (Maintenance Shop)	Solvent Vapor	Yes	A.A.C.R18-2-101.57.j
46	Station Transformer	Oil Vapor	Yes	A.A.C.R18-2-101.57.j
47	Steam Cleaners	Water and VOCs	Yes	A.A.C.R18-2-101.57.j
48	Combustion Turbine Battery Tank	Acid Vapor	Yes	A.A.C.R18-2-101.57.j
49	Steam Oil Tank Vents	Oil Vapor	Yes	A.A.C.R18-2-101.57.j
50	Storage Tank for fuel Oil #2, 20,000 BBL	Fuel Oil Vapor	Yes	A.A.C.R18-2-101.57.j
51	Storm Water Drainage Area	Water Vapor	Yes	A.A.C.R18-2-101.57.j
52	Used Oil Storage Area	Oil Vapor	Yes	A.A.C.R18-2-101.57.j
53	Welding	PM ₁₀	Yes	A.A.C.R18-2-101.57.j

Table 6. Insignificant Activities

XI. LIST OF ABBREVIATIONS

ADEQ..... Arizona Department of Environmental Quality
 PM.....Particulate Matter
 SO₂.....Sulfur Dioxide
 NO_x.....Nitrogen Oxide
 CO.....Carbon Monoxide
 VOC.....Volatile Organic Compounds