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air quality desert conservation PROGRAM sustainability

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PART 70
TECHNICAL SUPPORT DOCUMENT
(STATEMENT of BASIS)

APPLICATION FOR:
Operating Permit Renewal

SUBMITTED BY
San Diego Gas & Electric Company
P.O. Box 62470
Boulder City, Nevada 89006

FOR
Desert Star Energy Center
Source: 652

LOCATION:
701 El Dorado Valley Drive
Boulder City, Nevada 89005

SIC code 4911, "Electric Utility Services"
NAICS code 221112, "Fossil Fuel Electric Power Generation"

TSD Date: September 27, 2021

EXECUTIVE SUMMARY

San Diego Gas & Electric Company – Desert Star Energy Center (DSEC) is a major stationary source of NO_X, an SM80 source of PM_{10}, $PM_{2.5}$, and CO, and a minor source of SO_2, VOC and HAP. The source is also a source of greenhouse gases. All processes at the site are grouped under SIC 4911: Electric Services (NAICS 221112: Fossil Fuel Electric Power Generation). The DSEC is located at 701 El Dorado Valley Drive, Boulder City, Nevada 89005 in the Eldorado Valley airshed, hydrographic basin number 167. Hydrographic basin 167 is designated as an attainment area for all regulated air pollutants.

The potential electrical generating capacity of the source is above 250 MMBtu/hr. As a result, the source is a categorical source, as defined by AQR 12.2.2(j)(1). The source is a 500 MW natural gas power generating plant. The source has a two-on-one combined cycle configuration, consisting of two natural gas-fired stationary gas turbines, two Heat Recovery Steam Generators (HRSGs) with natural gas fired duct burners for supplemental firing and one steam turbine generator. The source also operates one diesel-fired emergency fire pump, one emergency generator, a gasoline dispensing facility, and several insignificant emission units or activities.

Table 1 summarizes the source potential to emit, for information only, for each regulated air pollutant:

Table 1: Source PTE

Pollutant	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	HAP[1]	GHG[2]
Tons/year	89.63	89.63	194.31	95.45	8.67	49.57	12.17	1,692,045
Major Source Thresholds (Title V)	100	100	100	100	100	100	10/25[1]	-
Major Stationary Source Thresholds (Categorical)	100	100	100	100	100	100	10/25[1]	-

[1]Ten tons for any individual HAP or 25 tons for combination of all HAPs.
[2]Metric tons per year, CO_{2e}

Clark County Department Environment and Sustainability, Division of Air Quality (DAQ) has received delegated authority from the United States Environmental Protection Agency to implement the requirement of the Part 70 OP. The most recent Part 70 OP renewal was issued on June 20, 2016. The permit was not revise since then. Based on the information submitted by the applicant, during the renewal application, and a technical review performed by the DAQ staff, the draft Part 70 OP renewal is proposed for DSEC.

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I. ACRONYMS

Table I-1: List of Acronyms

Acronym	Term
AQR	Clark County Air Quality Regulation
AST	Aboveground Storage Tank
ASTM	American Society for Testing Materials
ATC	Authority to Construct
CAAA	Clean Air Act, as amended, or Clean Air Act Amendments
CAM	Compliance Assurance Monitoring
CATEF	California Air Toxics Emission Factor
CEMS	Continuous Emissions Monitoring System
CF	control factor
CFC	Chlorofluorocarbon
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CD	control device
dscf	dry standard cubic feet
DAQ	Division of Air Quality
DES	Clark County Department of Environment and Sustainability
DOM	date of manufacture
EF	emissions factor
EPA	U.S. Environmental Protection Agency
EU	emission unit
GHG	greenhouse gas
HA	Hydrographic Area
HAP	hazardous air pollutant
HCFC	Hydrochlorofluorocarbon
HHV	High Heating Value
hp	horsepower
kg	kilogram
kW	kilowatts
LHV	Lower Heating Value
MEQ	Megawatt Equivalent
MMBtu/hr	Million British thermal units per hour
MW	megawatt
NAC	Nevada Administrative Code
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industry Classification System

Acronym	Term
NNSR	Nonattainment New Source Review
NO_X	nitrogen oxide(s)
NRS	Nevada Revised Statutes
$PM_{2.5}$	particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
ppm	Parts per million
ppmvd	Parts per million, volumetric dry
PSD	prevention of significant deterioration
PTE	potential to emit
QA	Quality Assurance
QIP	Quality Improvement Plan
RACT	Reasonably Achievable Control Technology
RATA	Relative Accuracy Test Audit
SCC	Source Classification Code
SDE	Status Determination Emissions
SIC	Standard Industrial Classification
SIP	State Implementation Plant
SO_2	sulfur dioxide
UTM	Universal Transverse Mercator
VOC	volatile organic compound

II. SOURCE INFORMATION

A. GENERAL

Permittee:	San Diego Gas & Electric Company
Mailing Address:	P.O. Box 62470, Boulder City, Nevada 89006
Responsible Official:	Kevin Lampman
Phone Number:	(702) 568-8203
Source Location:	701 El Dorado Valley Drive, Boulder City, Nevada 89005
Hydrographic Area:	167
SIC code:	4911, "Electric Utility Services"
NAICS code:	221112, "Fossil Fuel Electric Power Generation"

B. DESCRIPTION OF PROCESS

The San Diego Gas & Electric Company – Desert Star Energy Center (DSEC) has a two-on-one combined cycle configuration, consisting of two combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), one steam turbine generator and associated auxiliary systems and equipment. The plant is capable of generating a nominal 500 megawatts (MW) of gross electrical power with duct burning at a maximum ambient air temperature of 120°F and 15 percent humidity. The CTGs are heavy-duty, single-shaft turbines with a 165 MW (nominal) rating each.

The combustion system has dry low-NO_x combustion burner technology that accurately controls fuel flow to maintain turbine load and minimize turbine emissions. The turbines and duct burners combust only pipeline quality natural gas.

Each CTG is equipped with inlet air filtering with inlet air evaporative coolers. Combustion air for the turbine is filtered by media filters housed in an inlet filter compartment mounted adjacent to the turbine compartment. The filter housing also contains the evaporative cooling system. The evaporative coolers themselves do not have emissions to the outside air. Air flows through the air filter, evaporative cooler and associated inlet air ductwork of each CTG, into the turbine, and is then compressed. Natural gas is injected into the combustor section and ignited. The hot combustion gases expand through the turbine section to drive the entire CTG. The hot gases exit the turbine section and enter a HRSG dedicated to each combined turbine generator.

The Forney natural gas fired duct burners are installed immediately upstream of each HRSG. The duct burners are used for supplemental firing for additional power. The CTGs and HRSGs are in single train configuration and the exhaust gases from each HRSG passes through the ductwork to individual 100-foot exhaust stacks. The HRSGs are equipped with SCR and oxidation catalyst systems to reduce emissions.

In the HRSG, heat from the turbine exhaust gas is recovered by transferring the heat to water pumped into the HRSG, resulting in generation of steam. The steam from each HRSG is combined for use in a single steam turbine generator. The steam generator at EDE has a nominal output of 170 MW. The system is using a large air-cooled condenser.

There are also one 140 bhp emergency diesel fire pump, a 44 bhp emergency generator on site and one 280-gallon gasoline storage tank with dispenser.

Insignificant activities on site include two stationary diesel storage tanks (250- and 500-gallons), one 100-gallon portable diesel storage tank, an aqueous ammonia storage tank and lube oil tanks for the turbines.

Table II-B-1 lists the emission units covered by this operating permit.

Table II-B-1: Summary of Emission Units

EU	Description	Rating	Make	Model #	Serial #	SCC
A01	Stationary Gas Turbine, natural gas fired	1,616.53 MMBtu/hr 165 MW	Westinghouse	501FC+	37A8029-1	20100201
A01A	Duct Burner for HRSG EU: A01	175 MMBtu/hr	Forney	394671-01	N/A	10100601
A02	Stationary Gas Turbine, natural gas fired	1,616.53 MMBtu/hr 165 MW	Westinghouse	501FC+	37A8030-1	20100201
A02A	Duct Burner for HRSG EU: A02	175 MMBtu/hr	Forney	394671-01	N/A	10100601
A03	Emergency Fire Pump	126 bhp	Clark Detroit Diesel	PDF-P-06YT250F	U713787F	20200102
	Emergency Diesel Engine, DOM: 1998	140 bhp				
A07	Emergency Genset	33kW	Doosan	G40	NA	20200102
	Emergency Diesel Engine, DOM: 2011	44 bhp	Mitsubishi	S4S-Y362-IR	231875	
A08	Gasoline Dispensing Facility	280 gallons	Advanced Perfect Tank MFG. Ltd.	N/A	N/A	40600706

The following units or activities listed in in Table II-B-2 are present at this source, but are being deemed insignificant.

Table II-B-2: Insignificant Activities

Description
Diesel Storage Tank (100 gallons)
Diesel Storage Tank (200 gallons)
Diesel Storage Tank (500 gallons)
0.1 MMBtu/hr Diesel Powered Space Heater
0.1 MMBtu/hr Diesel Powered Space Heater
0.028 MMBtu/hr Diesel Powered Pressure Washer Heater (including 16 hp gasoline engine)
Inlet Air Filtration with Evaporative Intake Air Coolers
Aqueous Ammonia Storage and Distribution
Lube Oil Tanks

C. PERMITTING HISTORY

There have been no permitting actions since the last renewal of June 20, 2016.

D. CURRENT PERMITTING ACTION

Title V Renewal Application: DAQ received the Title V renewal application on June 17, 2020. The renewal application was received timely and therefore, the permittee is eligible for an application shield. The permittee initially proposed no physical changes, or changes to the method of operation. A request was made to declare the gasoline dispensing an insignificant unit. This request cannot be granted because the gasoline dispensing is subject to requirements in a CFR. A request was made to update/correct emission factors for VOC and HAP on a diesel engine (EU: A03). The application was deemed complete August 13, 2020.

Table II-D-1: Supplemental Submittals Received After the Renewal Application was Received

Date	Description
2/25/2021, 3/1/2021, 3/3/2021	Clarification of startup/shutdown emissions, function of air inlet evaporative coolers, confirmation of 40 CFR Part 60, Subpart GG ppmv value.

Table II-D-2: Actions Included by DAQ as Part of the Renewal Process

Description
Added nonroad engine section to the permit.
Added revised standard visible emissions check guideline language to the Monitoring section of the permit.
Added Quality Improvement Plan (QIP) language to the CAM section of the permit.
Deleted nonroad engines listed as insignificant units or activities.
Evaluated SDE (with AQR, CFR, and controls analysis included) to analyze source status.
Added universal recordkeeping condition for inspections, maintenance, and repairs.
Removed startup/shutdown emission rates from permit and TSD.
Removed gasoline dispensing open waste collection system condition from the permit.
Added universal reporting condition for sources whose actual NO_X or CO emissions exceed 25 tpy.

The permittee operates CEMS for NO_x during all operating times and therefore has numerical limits for operating modes outside normal operation. The existing NSPS-calculated NO_x limit of 124 ppmvd at 15% O_2 on a 4-hour average for normal operations, startup, and shutdown is being inserted into the permit. Startup and shutdown emission rates are removed from the permit and TSD in favor of using credible evidence when CEMS data is not available.

The Department of Environment and Sustainability, Division of Air Quality (DAQ) has identified this source as possibly emitting 25 tons or more of actual emissions for oxides of nitrogen (NO_X) and/or volatile organic compounds (VOCs) in any calendar year. Clark County was required to implement Section 182(a)(3)(B) of the Clean Air Act (CAA) which requires all ozone nonattainment areas to have in place a program that requires emissions statements from stationary sources of NO_X and/or VOCs.

Section 12.9.1 of the Clark County Air Quality Regulations (AQRs) codifies this requirement for Clark County and states the following:

a. The Responsible Official of each Stationary Source that emits 25 tons or more of NO_X and/or VOC shall submit an Annual Emissions Statement (Statement) to the department for the previous calendar year.

b. Pursuant to CAA Section 182, the Statement must include all actual emissions for all NO_X and VOC emitting activities.

c. The Statement shall be submitted to and received by the department on or before March 31 of each year or other date, upon prior notice by the Control Officer, and shall include a certification that the information contained in the Statement is accurate to the best knowledge of the individual certifying the Statement.

A condition requiring submittal of annual emission statement has been included in the permit.

E. OPERATING SCENARIOS

Stationary Gas Turbine Generators
The stationary gas turbines are heavy duty, single shaft, and natural gas-fired units with a nominal energy production rating of 165 MW each. The heat input for each stationary gas turbine, based on the lower heating value of natural gas, is limited to 1,652.94 MMBtu/hr. Determination of this heat input limit is based on operating at full load, 13.77 psia and 8°F. There is no limit on the hours of operation of the stationary gas turbines.

Duct Burners
Heat input for each duct burner, based on the lower heating value of natural gas, is limited to 175 MMBtu/hr and 692,000 MMBtu/year based on 12-month rolling average. Determination of these heat input limits are based on operating at full load. There is no limit on the hours of operation of the duct burners.

Emergency Fire Pump
The emergency engine-driven diesel fire pump is installed at the site to ensure the availability of fire-fighting water, even in the event of a power failure. The unit has a rating of 140 hp. The fire pump PTE is based on 500 hours of operation per year.

Emergency Generator
The emergency generator is installed at the site in the event of a power failure. The unit has a rating of 44 hp. The emergency generator PTE is based on 500 hours of operation per year.

Gasoline Dispensing
The 280-gallon, above-ground gasoline dispensing facility is installed at the site to serve on-site equipment. The PTE is based on 10,000 gallons per year throughput

III. EMISSIONS INFORMATION

A. SOURCE-WIDE PTE

DSEC is a major stationary source of NO_X, an SM80 source for PM_{10}, $PM_{2.5}$, and CO, and a minor source of SO_2, VOC and HAP. The source is also a source of greenhouse gases.

Table III-A-1: Source-wide PTE (tons per year)

PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOCs	HAPs	GHGs[1]
89.63	89.63	194.31	95.45	8.67	49.57	12.17	1,692,045

[1]Metric tons per year, CO_{2e}

B. ALLOWABLE EMISSIONS CALCULATIONS

PTE

This section describes the emission factors and methodology used to calculate the PTEs for various regulated air pollutants.

Stationary Gas Turbines and Duct Burners (EUs: A01/A01A and A02/A02A)
Hourly emission limits for all pollutants except HAP for each turbine (without duct burner) were taken from manufacturer's specifications obtained from GE and Westinghouse for models 7FA and 501FC, respectively. The worst case emission limit in pounds per hour was taken between 8°F and 67°F, each for 100% load. Hourly emission limits for the turbine and the duct burner combined were taken from manufacturer's specifications at 100 percent load and 116°F.

Annual emission limits for each turbine (without duct burner) were calculated by multiplying the hourly emission limit in pounds per hour by 8,760 hours per year. Annual emission limits for each turbine and duct burner combined were calculated by multiplying the hourly emission limit for the turbine alone at 67°F by 4,760 hours per year and adding it to the product of the turbine and duct burner hourly limit (at 116°F) and 4,000 hours per year, for calculation purposes.

PM_{10} example
A01 (turbine alone at 67°F) hourly limit: 9.00 lbs/hr
A01+A01A (turbine plus duct burner) hourly limit: 11.60 lbs/hr

A01 (turbine alone) annual limit:

$$9.00\frac{lbs}{hr} * 8{,}760\frac{hrs}{yr} * \frac{1}{2{,}000}\frac{ton}{lbs} = 39.42\frac{tons}{yr}$$

A01+A01A (turbine plus duct burner) annual limit:

$$\left(9.00\frac{lbs}{hr} * 4{,}760\frac{hrs}{yr} * \frac{1}{2{,}000}\frac{ton}{lbs}\right) + \left(11.6\frac{lbs}{hr} * 4{,}000\frac{hrs}{yr} * \frac{1}{2{,}000}\frac{ton}{lbs}\right) = 44.80\frac{tons}{yr}$$

The HAP emissions were calculated by using CATEF emission factors for all HAP except metals and lead which were calculated from EPA AP-42 emission factors.

Emergency Fire Pump (EU: A03)
Short term emissions from the fire pump were provided by the source from the manufacturer. Annual PTE was calculated by multiplying the hourly emission limits by 500 hours per year.

Emergency Generator (EU: A07)
Short term emissions from the emergency generator were provided by the source from the manufacturer. Annual PTE was calculated by multiplying the hourly emission limits by 500 hours per year.

Table III-B-1a: Emission Unit PTE, Including Startups and Shutdowns (tons per year) [1]

EU	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP	NH_3
A01	39.42	39.42	96.50	45.55	4.30	22.78	---	58.00
A01+A01A	44.80	44.80	96.50	47.65	4.30	24.60	6.07	106.90
A02	39.42	39.42	96.50	45.55	4.30	22.78	---	58.00
A02+A02A	44.80	44.80	96.50	47.65	4.30	24.60	6.07	106.90
A03	0.02	0.02	1.17	0.05	0.05	0.04	0.01	0.00
A07	0.01	0.01	0.14	0.10	0.02	0.03	0.01	0
A08	0	0	0	0	0	0.30	0.01	0
Total PTE	89.63	89.63	194.31	95.45	8.67	49.57	12.17	213.80

[1] NH_3 is listed for information only.

Table III-B-1b: Emission Unit SDE, Including Startups and Shutdowns (tons per year)

EU	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP	NH_3[1]
A01	39.42	39.42	96.50	45.55	4.30	22.78	-	58.00
A01A[2]	11.96	11.96	0	4.67	0	4.04	6.07	108.67
A02	39.42	39.42	96.50	45.55	4.30	22.78	-	58.00
A02A[2]	11.96	11.96	0	4.67	0	4.04	6.07	108.67
A03	0.02	0.02	1.17	0.05	0.05	0.04	0.01	0.00
A07	0.01	0.01	0.14	0.10	0.02	0.03	0.01	0
A08	0	0	0	0	0	0.30	0.01	0
Total SDE	102.79	102.79	194.31	100.59	8.67	54.01	12.17	333.34

[1] NH_3 is listed for information only.
[2] Based on duct burners operating 100% instead of 47%, based on hourly fuel limit time, 8,760 hours/year.

Table III-B-2: Emission Unit PTE, Excluding Startups and Shutdowns (pounds per hour)

EU	**PM_{10}**	**NO_x**	**CO**	**SO_2**	**VOC**	**HAP**	**NH_3[1]**
A01	9.00	23.00	10.40	1.01	5.20	---	24.40
A01+A01A	11.60	23.00	13.10	1.01	6.60	1.36	24.40
A02	9.00	23.00	10.40	1.01	5.20	---	24.40
A02+A02A	11.60	23.00	13.10	1.01	6.60	1.36	24.40

[1] NH_3 is listed for information only.

Table III-C-3: Emission Rates/Concentrations Excluding Startups and Shutdowns

EU	**Averaging Period**	**O_2 Standard**	**NO_X (ppmvd)**	**CO (ppmvd)**	**NH_3[1] (ppmvd)**
A01	3-Hour	15%	3.5	2.6	10
A01+A01A	3-Hour	15%	3.7	3.5	10
A02	3-Hour	15%	3.5	2.6	10
A02+A02A	3-Hour	15%	3.7	3.5	10

[1] NH_3 is listed for information only.

Previous permits and TSDs have contained Startup and Shutdown emission values to use when the CEMS data is not available. These are being removed from the permit and the TSD, as it is preferred that the permittee use credible evidence to estimate emissions during startup, shutdown or malfunction. To date, DSEC has not had a situation that required estimating emission values. If such a situation develops that the ability of the CEMS to record data is in question, the Control Room Operator (CRO) would take manual control of the affected unit's ammonia supply flow control valve and place it in the last known "proper" position, based on their operating experience. If the other unit is not affected, the CRO would match the valve position to the other unit, if operating. The Environmental Compliance Coordinator (ECC) would then look at all available data to determine the best course of action. Additionally, the source may follow procedures described in 40 CFR 75 for data correction for periods when CEMS is down from service.

Table III-B-4: HAP PTE (tons per year)

Pollutant	Per Turbine with Duct Burning (pounds per hour)[1]	Per Turbine with Duct Burning (tons per year)
1,3 Butadiene	2.27E-04	0.01
Acetaldehyde	1.23E-01	0.54
Acrolein	4.24E-02	0.19
Arsenic	3.65E-04	0.01
Benzene	2.46E-02	0.11
Beryllium	2.15E-05	0.01
Ethylbenzene	3.21E-02	0.14
Formaldehyde	1.97E-01	0.86
Lead	8.94E-04	0.01
Naphthalene	2.97E-03	0.01
Propylene Oxide	8.54E-02	0.37
Toluene	1.27E-01	0.56
Xylenes	2.56E-01	1.15
Hexane	4.63E-01	2.03
Cadmium Compounds	1.97E-03	0.01
Chromium Compounds	2.50E-03	0.01
Cobalt Compounds	1.50E-04	0.01
Manganese Compounds	6.80E-04	0.01
Mercury Compounds	4.65E-04	0.01
Nickel Compounds	3.76E-03	0.02
HAP Emissions Subtotals	**1.36**	**6.07**

[1] Emission factors from CATEF for all pollutants except metals and lead which come from EPA AP-42.

Emergency Engines

a. The diesel generator shall not exceed the emission rates listed below. *40 CFR Part 60.4202 (Subpart IIII)*

Table III-B-5: Emission Limitations for the Diesel Generator (pounds per hour)

EU	Rating	PM_{10}	CO	VOC and NO_x
A07	44 bhp	0.02	0.40	0.54

Gasoline Dispensing

Emissions for the gasoline dispensing facility were calculated using EPA's AP-42, 10,000 gallons per year throughput, and Phase I vapor control, as provided by the applicant.

No single source-wide HAP emission will exceed ten tons per year and total source-wide HAP emissions will not exceed 25 tons per year. Therefore, this source is not subject to MACT for stationary gas turbines. The emergency fire pump is subject to a MACT standard (40 CFR Part 63, Subpart ZZZZ) because it is an existing reciprocating internal combustion engine operating at an area source of HAP emissions and installation date. The emergency generator is subject to a NSPS standard (40 CFR Part 60, Subpart IIII) due to its build date. The gasoline dispensing facility is subject to 40 CFR Part 63, Subpart CCCCCC.

Because HAP is below 10 tons per year individual/25 tons per year total, there will be no permit conditions for HAP.

The source has Phase I on the tank to maintain compliance with SIP version of AQR 52.

SDE

An SDE calculation was not done for this source in the past. An SDE was calculated with this renewal based on maximum hours of operation and control requirements from previous controls analysis. The only difference between PTE and SDE for this calculation is in the duct burners. In the PTE, the duct burners are limited to 175 MMBtu/hr and 692,000 MMBtu/year based on 12-month rolling average. Hourly MMBtu times 8,760 equals 1,533,000 MMBtu/year. This equates to 47% of available fuel consumption. When increased to 100% of available fuel consumption, the SDE emissions of PM_{10}, $PM_{2.5}$, and CO exceed 100 tpy. Therefore the source is classified as a synthetic minor of these pollutants. The PTE is within 80% of the major source threshold, so the source is classified SM80 for these pollutants. The permittee will have to report semiannually a monthly, 12-month rolling total hours of operation and emissions. The permittee is already collecting data to support this recordkeeping and reporting, and already submits semiannual reports as a major source of NO_X.

Table III-B-6: Source Classification (tons per year)

	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	HAP	NH_3	GHG[1]
Source Determination Emissions	102.79	102.79	194.31	100.59	8.67	54.01	12.17	333.34	-
Source PTE	89.63	89.63	194.31	95.45	8.67	49.57	12.17	-	1,692,045
Major Source Thresholds (Title V)	100	100	100	100	100	100	10/25[2]		-
Major Stationary Source Thresholds (PSD)	250	250	250	250	250	250	10/25[2]		-
Major Stationary Source Threshold (Nonattainment)	-	-	100	-	-	100	-		-
Status	Synthetic Minor	Synthetic Minor	Major	Synthetic Minor	Minor	Minor	Area		N/A

[1] GHG expressed as CO_2.

[2] 10 tpy individual HAP, 25 tpy total HAP.

C. OPERATIONAL LIMITS

There is no change in operational limits for this renewal, as summarized below:

- EUs A01 and A02 are limited to burning 14,479,755 MMBtu/yr each of pipeline grade natural gas.
- EUs A01A and A02A are limited to 692,000 MMBtu/yr each of pipeline grade natural gas.
- The emergency fire pump and emergency generator are limited to 100 hours/yr for testing and maintenance.
- The gasoline dispensing facility is limited to less than 10,000 gallons/yr.

D. CONTROL TECHNOLOGY

There is no change in control technology for this renewal.

To demonstrate continuous direct compliance with all emission limitations for NO_X specified in this permit, the source operates a continuous emission monitoring system (CEMS) for NO_X and O_2 on each stationary gas turbine unit in accordance with 40 CFR Part 75. The CEMS monitors and records the following parameters for each individual stationary gas turbine:

a. hours of operation;
b. electrical load;
c. fuel consumption and type;
d. exhaust gas flow rate (by direct or indirect methods);
e. exhaust gas concentration of NO_X and diluent O_2;
f. three-hour rolling average NO_X concentration;
g. the mass flow rate of NO_X;
h. daily and quarterly accumulated mass emissions of NO_X; and
i. hours of downtime of the CEMS.

Compliance with all emission limitations for CO shall be demonstrated with compliance assurance and monitoring plan for CO oxidation catalyst for each of turbine generators as well as with CO performance testing. The plan includes the following enforceable conditions:

a. the oxidation catalyst temperature thermocouple must be mounted in the inlet duct leading to the catalyst bed and must maintain an accuracy within five degrees Fahrenheit (5°F);
b. the thermocouple must be calibrated, maintained, and operated as directed by the manufacturer. The permittee shall maintain log of these activities; and
c. the catalyst bed must be visually inspected for degradation by trained professionals during plant downtime.

Compliance with all emission limitations for SO_2 shall be demonstrated via certification of fuel sulfur analysis from the fuel oil supplier for each delivery or the annual certification from the natural gas supplier or gas analysis. The sulfur content shall not exceed any consecutive 12-month average of 0.2 grains/100 dscf.

Required periodic audit procedures and QA/QC procedures for CEMS shall conform to the provisions of 40 CFR Part 60, Appendix F. Relative accuracy test audits (RATA) of the NO_X and O_2 CEMS shall be conducted at least annually.

E. MONITORING

There are no changes to the monitoring requirements as part of this renewal except the permittee must now follow the Visible Emission Guideline, and related conditions added to the permit.

F. PERFORMANCE TESTING

There are no changes proposed as part of this renewal. The RATA substitutes for subsequent NO_X performance testing.

G. CONTROLS ANALYSIS

There are no changes proposed with this renewal so no controls analysis is required.

IV. REGULATORY REVIEW

A. LOCAL REGULATORY REQUIREMENTS

DAQ has determined that the following public laws, statutes, and associated regulations are applicable:

- AQR 26, "Emission of Visible Air Contaminants"
- AQR 40, "Prohibitions of Nuisance"
- AQR 41, "Fugitive Dust", Subpart 41.1.2 only
- AQR 43, "Odors in the Ambient Air"
- AQR 70, "Emergency Procedures"
- AQR 80, "Circumvention"
- Clean Air Act, as amended (CAAA), Authority: 42 U.S.C. § 7401, et seq.;
- Title 40 of the Code of Federal Regulations (CFR);
- Nevada Revised Statutes (NRS), Chapter 445B;
- Portions of the AQR that are included in the State Implementation Plan (SIP) for Clark County, Nevada. SIP requirements are federally enforceable. All requirements from Authority to Construct permits Part 70 Operating Permits issued by DAQ are federally enforceable because these permits were issued pursuant to SIP-included sections of the AQR; and
- Portions of the AQR that are not included in the SIP. These locally applicable requirements are locally enforceable only.

The Nevada Revised Statutes (NRS) and the Clean Air Act Amendments (CAAA) are public laws that establish the general authority for the Regulations mentioned.

The DAQ Part 70 Operating Permit (Title V) Program received Final Approval on November 30, 2001 with publication of that approval appearing in the Federal Register December 5, 2001 Vol. 66, No. 234. AQR Section 12.5 – Part 70 Operating Permit Requirements details the Clark County Part 70 Operating Permit Program. These regulations may be accessed on the Internet at:

https://www.clarkcountynv.gov/government/departments/environment_and_sustainability/compliance/current_rules_and_regulations.php

Local regulations contain sections that are federally enforceable and sections that are locally enforceable only. Locally enforceable only rules have not been approved by EPA for inclusion into the State Implementation Plan (SIP). Requirements and conditions that appear in the Part 70 OP which are related only to non-SIP rules are notated as locally enforceable only.

B. FEDERALLY APPLICABLE REGULATIONS

DAQ has determined that the following federal regulations are applicable:

1. Clean Air Act, as amended (CAAA), Authority: 42 U.S.C. § 7401, et seq.
2. Title 40 of the Code of Federal Regulations (CFR).

40 CFR PART 60, STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart A—General Provisions

40 CFR Part 60.7: Notification and recordkeeping.

Discussion: This regulation requires notification to DAQ of modifications, opacity testing, records of malfunctions of process equipment and/or continuous monitoring device, CEMS data, and performance test data. These requirements are found in the Part 70 OP. DAQ requires records to be maintained for five years, a more stringent requirement than the two years required by 40 CFR Part 60.7.

40 CFR Part 60.8: Performance tests.

Discussion: These requirements are found in the Part 70 OP. Notice of intent to test, the applicable test methods, acceptable test method operating conditions, and the requirement for three runs are outlined in this regulation. DAQ requirements for initial performance testing are identical to 40 CFR Part 60.8. DAQ also requires periodic performance testing on emission units based upon throughput or usage. More discussion is in this document under the compliance section.

40 CFR Part 60.11: Compliance with standards and maintenance requirements.

Discussion: Compliance with various applicable standards will be demonstrated by performance tests unless otherwise specified in the standard. The source is subject to 40 CFR Part 60 Subpart GG which requires fuel monitoring and sampling to meet a standard. Subpart GG requirements are addressed in the Part 70 OP. AQR Section 26 is more stringent than the federal opacity standards, setting a maximum of 20 percent opacity for a period of more than 6 consecutive minutes. San Diego Gas & Electric Company shall operate in a manner consistent with this section of the regulation.

40 CFR Part 60.12: Circumvention.

Discussion: This prohibition is addressed in the Part 70 OP. This is also local rule AQR 80.1.

40 CFR Part 60.13 – Monitoring requirements

Discussion: This section requires that CEMS meet 40 CFR Part 75 Appendix B and 40 CFR Part 60 Appendix F standards of operation, testing and performance criteria. The Part 70 OP contains the CEMS conditions and citations to 40 CFR Part 75 Appendix B and 40 CFR Part 60 Appendix F. In addition, the QA plan approved for the CEMS follows the requirements outlined including span time and recording time.

Subpart Db—Standards of Performance for Industrial – Commercial – Institutional Steam Generating Units

40 CFR Part 60.40b: Applicability.

Discussion: The duct burners (EUs: A01A and A02A) are subject to the provisions of this subpart. They each have a rated capacity of 175 MMBtu/hr.

Subpart GG—Standards of Performance for Stationary Gas Turbines

40 CFR Part 60.330: Applicability and designation of affected facility.

Discussion: Subpart GG applies to the two stationary gas turbines at this source (EUs: A01 and A02).

40 CFR Part 60.332: Standard for nitrogen oxides.

Discussion: The NSPS NO_X emission standard is calculated with a heat rate of 1.0548 kJ/Btu. Assuming that there are 8.29 Btu/Wh, the value of Y in this equation is 8.74 kJ/Wh. Because the facility uses natural gas, the F factor is zero.

Therefore:

- NO_x emission standard = 0.0075 (14.4 / Y) + F
- 0.0075 x 14.4/8.74 + 0 = 0.0124 percent by volume at 15 percent oxygen
- 0.0124 volume% x (10,000 ppm/volume %) = 124 ppmv NO_X at 15 percent oxygen

DSEC shall comply with this standard.

40 CFR Part 60.333: Standard for sulfur dioxide.

Discussion: The sole use of pipeline-quality natural gas with total sulfur content less than 0.8 percent (8,000 ppmw) satisfies this requirement. The sulfur is limited to 0.20 grains per 100 dry standard cubic feet in the permit.

40 CFR Part 60.334: Monitoring of operations.

Discussion: The requirements are stipulated in the Part 70 OP. Sulfur content shall be verified annually and based on data from the gas supplier.

40 CFR Part 60.335: Test methods and procedures.

Discussion: These requirements are found in the conditions for performance testing found in the Part 70 OP.

Subpart IIII—Standards of Performance of for Stationary Compression Ignition Internal Combustion Engines

40 CFR Part 60.4200: Applicability.

Discussion: Subpart IIII applies to the emergency generator at this source.

40 CFR Part 60.4202: Emission Standards for Manufacturers.

Discussion: The manufacturer's data sheet indicates that the manufacturer has met the emission standards.

40 CFR Part 60.4205: Emission Standards for Owners.

Discussion: The source will maintain a copy of the manufacturer's data sheet.

40 CFR Part 60.4207: Fuel Requirements.

Discussion: The source will use ultra-low sulfur fuel in this emission unit.

40 CFR Part 60.4211: Compliance Requirements.

Discussion: Performance testing is not required for emergency engines.

40 CFR Part 60.4214: Notification and Reports for Operators.

Discussion: By applying for a permit, the source has met the notification requirements.

Subpart KKKK—Standards of Performance for Stationary Combustion Turbines

40 CFR Part 60.4305: Applicability.

Discussion: Subpart KKKK does not apply to the turbines at this source because the turbines did not commence construction, modification, or reconstruction after February 18, 2005.

40 CFR PART 63, NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES:

Subpart ZZZZ—National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63.6585: Applicability.

Discussion: Subpart ZZZZ applies to the 140-hp emergency fire pump engine at this source. The generator will meet this requirement by complying with 40 CFR Part 60 Subpart IIII.

In accordance with 40 CFR Part 63, Subpart ZZZZ, the fire pump can only combust diesel fuel with a maximum sulfur content of 15 ppm and either a minimum cetane index of 40 or a maximum aromatic content of 35 percent by volume. ASTM D975 specifies, requires, and tests for all of these conditions. NRS 590.070, "Specifications of Motor Fuel Oil," and NAC 590.050, "Diesel Fuel Oils," both adopt ASTM D975 by reference and require using only diesel fuel that meets its requirements. Therefore, DSEC is not required to monitor or keep records of the sulfur content, cetane index, or aromatic content of the fuel burned.

40 CFR Part 63.6595: Date of Compliance.

Discussion: The emergency diesel fire pump must comply with the applicable emission limitations and operating limitations no later than May 3, 2013.

40 CFR Part 63.6603: Emission Limitations and Operating Limitations.

Discussion: The requirements are stipulated in the Part 70 OP.

40 CFR Part 63.6625: Monitoring, Installation, Collection, Operation and Maintenance Requirements

Discussion: The source must install a nonresettable hour meter if one is not already installed. The source must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop their

own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

Subpart CCCCCC—National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities

40 CFR Part 63.11110-11113: Applicability.

Discussion: The source has a gasoline dispensing facility and is an affected emission unit.

40 CFR Part 63.11115-11118: Emission Limits and Management Practices.

Discussion: With a throughput of less than 10,000 gallons/month, the emission unit is subject to management practices.

40 CFR Part 63.11124-11126: Notifications, Records and Reports.

Discussion: The source has notified DAQ that an affected unit is present, and will keep records to demonstrate status has not changed.

40 CFR PART 64, COMPLIANCE ASSURANCE MONITORING

40 CFR Part 64.2: Applicability.

Discussion: CAM requirements contained in 40 CFR Part 64 are only applicable for an emission unit when that unit meets all of the following:

- The unit must be located at a major source for which a Part 70 or 71 permit is required.
- The unit must be subject to an emission limitation or standard.
- The unit must have uncontrolled potential emissions of at least 100 percent of the major source amount.
- The unit must use a control device to achieve compliance.

The turbines with duct burners (EUs: A01/A01A and A02/A02A) are subject to the requirements of 40 CFR Part 64 for CO. The permittee shall use the oxidation catalyst operating temperature to demonstrate compliance with 40 CFR Part 64, Compliance Assurance Monitoring (CAM).

Additionally, certain exemptions under the CAM rule apply to those units that are subject to requirements and compliance demonstration provisions under Titles IV and V to the Clean Air Act (CAA).

40 CFR PART 72, ACID RAIN PERMITS REGULATION

Subpart A—Acid Rain Program General Provisions

40 CFR Part 72.6: Applicability.

Discussion: DSEC is defined as a utility unit in the definitions of 40 CFR 72; therefore, the provisions of this regulation apply.

40 CFR Part 72.9: Standard Requirements.

Discussion: DSEC has applied for all of the proper permits under this regulation.

Subpart B—Designated Representative

Discussion: DSEC has a Certificate of Representation for Designated Representative on file. They have fulfilled all requirements under this Subpart.

Subpart C—Acid Rain Permit Applications

Discussion: DSEC has applied for an acid rain permit.

Subpart D—Acid Rain Compliance Plan and Compliance Options

Discussion: This subpart discusses the individual requirements necessary for a complete compliance plan. A compliance plan exists for each stationary combustion turbine.

Subpart E—Acid Rain Permit Contents

Discussion: DSEC has applied for an acid rain permit, and it will contain all information necessary to demonstrate compliance with this Subpart.

40 CFR PART 73, ACID RAIN SULFUR DIOXIDE ALLOWANCE SYSTEM

Discussion: DSEC is an affected source pursuant to 40 CFR Part 72.6 because it fits the definition of a utility unit; therefore, this regulation shall apply.

Subpart B—Allowance Allocations

Discussion: DSEC is not listed on either Phase I or Phase II tables because it is a newer power plant; therefore, it will not have an initial allocation per 40 CFR Part 73.10.

Subpart C—Allowance Tracking System

Discussion: A complete certificate of representation has been received and an account has been established for this source. DSEC shall follow all guidelines and instructions presented in this Subpart while maintaining its allowance account.

Subpart D—Allowance Transfers

Discussion: When an allowance transfer is necessary, DSEC shall follow all procedures in this Subpart.

Subpart E—Auctions, Direct Sales and Independent Power Producers Written Guarantee

Discussion: This Subpart outlines the auction process for allowance credits.

Subpart F—Energy Conservation and Renewable Energy Reserve

Discussion: There are no qualified conservation measures or renewable energy generation processes at this source; therefore, this Subpart does not apply.

40 CFR PART 75, CONTINUOUS EMISSION MONITORING

Discussion: DSEC is subject to the Acid Rain emission limitations of 40 CFR Part 72; therefore, the facility is subject to the monitoring requirements of this regulation. Each stationary gas turbine/duct burner has been equipped with a NO_X CEMS and a diluent oxygen monitor. Each stationary gas turbine is also equipped with a fuel flow monitor. The data from the CEMS is used to provide quarterly acid rain reports to both EPA and DAQ.

V. COMPLIANCE

A. COMPLIANCE CERTIFICATION

(a) Regardless of the date of issuance of this Part 70 OP, the schedule for the submittal of reports to the Control Officer shall be as follows:

Table V-A-1: Reporting Schedule[1]

Required Report	Applicable Period	Due Date
Semiannual Report for 1st half of the year.	January, February, March, April, May, June	July 30 each year[1]
Semiannual Report for 2nd half of the year. Any additional annual records required.	July, August, September, October, November, December	January 30 each year[1]
Annual Compliance Certification Report	Calendar Year	January 30 each year[1]
Annual Emission Inventory Report	Calendar Year	March 31 each year[1]
Annual Emission Statement[3]	Calendar Year	March 31 each year[1]
Excess Emission Notification	As Required	Within 24 hours of the time the permittee first learns of the excess emissions
Excess Emission Report	As Required	Within 72 hours of the notification
Deviation Report	As Required	Along with semiannual reports[1]
Excess Emissions that Pose a Potential Imminent and Substantial Danger	As Required	Within 12 hours of the permittee learns of the event
Performance Testing Protocol	As Required	No less than 45 days, but no more than 90 days, before the anticipated test date[1]
Performance Testing	As Required	Within 60 days from the end of the test[1]
RATA Testing	As Required	Within 45 days from the end of the test[1]

[1]Note the permittee is required to comply in accordance with reporting of the deviations from the CEMS for the Acid Rain Program.
[2]If the due date falls on a Saturday, Sunday or a Federal or Nevada holiday, then the submittal are due on the next regularly scheduled business day.
[3] Required only for stationary sources that emit 25 tons or more of nitrogen oxide (NO_X) and/or emit 25 tons or more of volatile organic compounds (VOC) during a calendar year.

(b) A statement of methods used for determining compliance, including a description of monitoring, recordkeeping, and reporting requirements and test methods.
(c) A schedule for submission of compliance certifications during the permit term.
(d) A statement indicating the permittee's compliance status with any applicable enhanced monitoring and compliance certification requirements of the Act.

B. COMPLIANCE SUMMARY

SDEC certified, through its renewal application and annual compliance certification, that the permittee is in compliance with all permit conditions and applicable requirements.

Table V-B-1: AQR Applicable to DSEC

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 0	Definitions	Applicable – DSEC will comply with all applicable definitions as they apply.	DSEC will meet all applicable test methods should new definitions apply.	DSEC complies with applicable requirements.
AQR Section 4	Control Officer	Applicable – The Control Officer or his representative may enter into DSEC property, with or without prior notice, at any reasonable time for purpose of establishing compliance with permit regulations	DSEC will allow Control Officer to enter property as required.	DSEC complies with applicable requirements.
AQR Section 12.5	Part 70 Operating Permits	Applicable – DSEC is a major stationary source and under Part 70. Renewal applications are due between 6 and 18 months prior to expiration. Revision applications will be submitted within 12 months of commencing operation of the new emission unit.	DSEC submitted the initial Part 70 permit application within 12 months of startup. The renewal application was submitted within the appropriate timeframe.	DSEC complies with applicable requirements.
AQR Section 13.2.(b)(82) Subpart ZZZZ	NESHAP – Stationary Reciprocating Internal Combustion Engines	Applicable – The DSEC fire pump is an affected unit.	Applicable monitoring requirements.	DSEC complies with applicable requirements.
AQR Section 13.2(b)(106) Subpart CCCCCC	NESHAP – National Emissions Standard for Hazardous Air Pollutants for Source Category – Gasoline Dispensing	Applicable – The DSEC has a gasoline dispensing facility.	No test methods required at the proposed throughput, but the source has Phase I controls and will demonstrate compliance with the control factor.	DSEC complies with applicable requirements.
AQR Section 14.1.(b)(1) Subpart A	NSPS – General Provisions	Applicable – DSEC is an affected facility under the regulations. Sec. 14.	Applicable monitoring, recordkeeping and reporting requirements.	DSEC complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 14.1(b)(4) Subpart Db	NSPS – Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced after September 18, 1978	Applicable – The DSEC duct burners are natural gas fired units with heat input between 100 and 250 MMBtu/hr.	All duct burners meet the applicable PM, SO_2 and NO_x emission standards. The duct burners also meet the opacity requirements.	DSEC complies with applicable requirements.
AQR Section 14.1(b)(40) Subpart GG	NSPS – Standards of Performance for Stationary Gas Turbines	Applicable – The DSEC stationary gas turbines are natural gas fired units with heat input greater than 10 MMBtu/hr.	All stationary gas turbines meet the applicable NO_x emission standard. When firing on natural gas, NO_x emissions shall not exceed 3.7 ppmv (dry, corrected to 15 percent oxygen). NO_x emissions determined by EPA Method 7E.	DSEC complies with applicable requirements.
AQR Section 14.1(b)(81) Subpart IIII	NSPS – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Applicable – The DSEC emergency generator is an affected unit	Applicable monitoring requirements.	DSEC complies with applicable requirements.
AQR Section 18	Permit and Technical Service Fees	Applicable – DSEC will be required to pay all required/applicable permit and technical service fees.	DSEC is required to pay all required/applicable permit and technical service fees.	DSEC complies with applicable requirements.
AQR Section 21	Acid Rain Permits	Applicable – DSEC is an affected facility. The stationary combustion turbines are applicable under the Acid Rain Program.	DSEC submitted required acid rain permit forms/applications.	DSEC complies with applicable requirements.
AQR Section 22	Acid Rain Continuous Emission Monitoring	Applicable – DSEC an affected facility and is required to meet the requirements for the monitoring, recordkeeping and reporting of flow rate.	DSEC submitted all required protocols/test plans per ATC prior to CEMS certification.	DSEC complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 25	Upset/Breakdown, Malfunctions	Applicable – Any upset, breakdown, emergency condition, or malfunction which causes emissions of regulated air pollutants in excess of any permit limits shall be reported to Control Officer. Section 25.1 is locally and federally enforceable.	Any upset, breakdown, emergency condition, or malfunction in which emissions exceed any permit limit shall be reported to the Control Officer within 1-hour of onset of such event.	The DSEC currently complies with applicable requirements.
AQR Section 26	Emissions of Visible Air Contaminants	Applicable – Opacity for the any emission unit may not exceed 20 percent for more than 6 consecutive minutes.	Compliance determined by EPA Method 9.	DSEC complies with applicable requirements.
AQR Section 27	Particulate Matter from Process Weight Rate	Applicable – The Station emission units are required to meet the maximum weight based on maximum design rate of equipment.	Compliance determined by meeting maximum particulate matter discharge rate based on process rate from AQR Table 27.1	DSEC complies with applicable requirements.
AQR Section 28	Fuel Burning Equipment	Applicable – The PM emission rates for all stationary gas turbines are well below those established based on Section 28 requirements.	Maximum allowable PM emission rate determined from equation in Section 28.	DSEC complies with applicable requirements.
AQR Section 29	Sulfur Content of Fuel Oil	Applicable – If fuel oil is used it must be low sulfur fuel with sulfur content less than 0.05 percent by weight. Section 29 is locally enforceable only.	Fuel sulfur content verification obtained from fuel oil supplier.	DSEC complies with applicable requirements.
AQR Section 40	Prohibition of Nuisance Conditions	Applicable – No person shall cause, suffer or allow the discharge from any source whatsoever such quantities of air contaminants or other material which cause a nuisance. Section 40 is locally enforceable only.	DSEC air contaminant emissions controlled by pollution control devices or good combustion and thus will not cause a nuisance.	DSEC complies with applicable requirements.
AQR Section 41.1.1	Fugitive Dust	Applicable – DSEC shall take necessary actions to abate fugitive dust from becoming airborne.	DSEC utilizes appropriate best practices to not allow airborne fugitive dust.	DSEC complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 42	Open Burning	Applicable – In event DSEC burns combustible material in any open areas, such burning activity will have been approved by Control Officer in advance. Section 42 is a locally enforceable rule only.	DSEC will contact DAQ and obtain approval in advance for applicable burning activities as identified in the rule.	DSEC complies with applicable requirements.
AQR Section 43	Odors in the Ambient Air	Applicable – An odor occurrence is a violation if the Control Officer is able to detect the odor twice within a period of an hour, if the odor causes a nuisance, and if the detection of odors is separated by at least 15 minutes. Section 43 is a local enforceable rule only.	DSEC is a predominantly natural gas-fired facility and is not expected to cause odors.	DSEC complies with applicable requirements.
AQR Section 52 – SIP version	Gasoline Dispensing Facilities	DSEC has a gasoline dispensing facility.	DSEC shall comply with 40 CFR Part 63, Subpart CCCCCC and also install Phase I to comply with SIP AQR 52.	DSEC complies with applicable requirements.
AQR Section 70.4	Emergency Procedures	Applicable – DSEC submitted an emergency standby plan for reducing or eliminating air pollutant emissions in the Section 16 Operating Permit Application.	DSEC submitted an emergency standby plan and received the Section 16 Operating Permit.	DSEC complies with applicable requirements.

Table V-B-2: Federal Air Quality Regulations Applicable to DSEC

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR Part 52.21	Prevention of Significant Deterioration (PSD)	Applicable – DSEC PTE > 100 TPY and is listed as one of the 28 source categories.	BACT analysis, air quality analysis using modeling, and visibility and additional impact analysis performed for original ATC permits.	DSEC complies with applicable sections as required by PSD regulations.
40 CFR Part 52.1470	SIP Rules	Applicable – DSEC is classified as a Title V source, and SIP rules apply.	Applicable monitoring and recordkeeping of emissions data.	DSEC is in compliance with applicable state SIP requirements including monitoring and recordkeeping of emissions data.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR Part 60, Subpart A	Standards of Performance for New Stationary Sources (NSPS) – General Provisions	Applicable – DSEC is an affected facility under the regulations.	Applicable monitoring, recordkeeping and reporting requirements.	DSEC complies with applicable requirements.
40 CFR Part 60, Subpart Db	Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978	Applicable – The DSEC stationary gas turbines are applicable subject to the requirements of this Subpart.	Applicable monitoring, recordkeeping and reporting requirements.	DSEC complies with applicable requirements.
40 CFR Part 60, Subpart GG	Standards of Performance for New Stationary Sources (NSPS) – Stationary Gas Turbines	Applicable – The DSEC stationary gas turbines are natural gas- fired units with heat input greater than 10 MMBtu/hr.	Applicable monitoring, recordkeeping and reporting requirements.	DSEC complies with applicable requirements.
40 CFR Part 60, Subpart IIII	NSPS – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Applicable – The DSEC emergency generator is an affected unit	Applicable monitoring requirements.	DSEC complies with applicable requirements.
40 CFR Part 60	Appendix A, Method 9 or equivalent, (Opacity)	Applicable – Emissions from stacks are subject to opacity standards.	Opacity determined by EPA Method 9.	DSEC complies with applicable requirements.
40 CFR Part 63, Subpart ZZZZ	Emission Standards for Hazardous Air Pollutants	Applicable – The DSEC diesel emergency fire pump is subject to the requirements of this subpart	Applicable monitoring, recordkeeping and reporting requirements.	DSEC must be in compliance with the applicable requirements on and after May 3, 2013.
AQR Section 13.1.106, Subpart CCCCCC	NESHAP – National Emissions Standard for Hazardous Air Pollutants for Source Category – Gasoline Dispensing	Applicable – The DSEC has a gasoline dispensing facility.	No test methods required at the proposed throughput, but the source has Phase I controls and will demonstrate compliance with the control factor.	DSEC complies with applicable requirements.
40 CFR Part 64	Compliance Assurance Monitoring	Applicable – DSEC has CAM Plan to demonstrate compliance with CO emissions.	DSEC monitors temperature of the CO oxidizer.	DSEC complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR Part 70	Federally Mandated Operating Permits	Applicable – DSEC is a major stationary source and under Part 70 the initial Title V permit application was submitted as required. Renewal applications are due between 6 and 18 months prior to expiration. Revision applications will be submitted within 12 months or commencing operation of any new emission unit.	DSEC submitted a renewal application on June 17, 2020. Applications for new units will be submitted within 12 months of startup.	DSEC complies with applicable requirements.
40 CFR Part 72	Acid Rain Permits Regulation	Applicable – DSEC is applicable to the requirements under this regulation.	DSEC has submitted the required application and notifications.	DSEC complies with applicable requirements.
40 CFR Part 73	Acid Rain Sulfur Dioxide Allowance System	Applicable – DSEC is applicable to the requirements under this regulation.	DSEC will obtain SO_2 allowances based on the actual emissions recorded annually by the CEMS.	DSEC complies with applicable requirements.
40 CFR Part 75	Acid Rain CEMS	Applicable – DSEC is applicable to the requirements under this regulation.	DSEC will comply with all monitoring, recordkeeping and reporting for SO_2, NO_X and CO_2 emissions and flow rate from affected units under the Acid Rain Program.	DSEC complies with applicable requirements.
40 CFR Part 82	Protection of Stratospheric Ozone	Applicable – DSEC is subject to stratospheric ozone regulations based on 40 CFR 82.4.	Applicable.	Applicable.
40 CFR Part 98	Mandatory Greenhouse Gas Reporting – Electricity Generation	Applicable – The DSEC is subject to the requirements under this regulation.	Applicable reporting requirements.	DSEC complies with applicable requirements.

C. SUMMARY OF MONITORING FOR COMPLIANCE

Table V-C-1: Summary of Monitoring for Compliance

EU	Process Description	Monitored Pollutants	Applicable Subsection Title	Requirements	Compliance Monitoring
A01 and A02	Stationary Gas Turbines	CO, NO_x, SO_2, PM_{10}, VOC, HAPs	AQR Sections 12.5 40 CFR Part 60 Subpart GG	Annual and short-term emission limits.	CEMS for NO_x. Stack testing for CO, VOC, and opacity as outlined in Part 70 OP. Compliance for PM_{10}, SO_2 and HAPs shall be based on sole use of natural gas as fuel and emission factors. Recording is required for compliance demonstration.
A01 and A02	Stationary Gas Turbines	Opacity	AQR Section 26	Less than 20% opacity.	Use of natural gas as fuel and good combustion practices as well as EPA Method 9 performance testing upon the request of the Control Officer.
A01A and A02A	Duct Burners	CO, NO_x, SO_2, PM_{10}, VOC, HAPs	AQR Section 12.5 40 CFR Part 60 Subpart Db	Annual and short-term emission limits.	CEMS for NO_x. Stack testing for CO, VOC, and opacity as outlined in Part 70 OP. Compliance for PM_{10}, SO_2, and HAPs shall be based on sole use of natural gas as fuel and emission factors. Recording is required for compliance demonstration.
A01A and A02A	Duct Burners	Opacity	AQR Section 26	Less than 20% opacity.	Use of natural gas as fuel and good combustion practices as well as visual emission checks as outline in Part 70 OP.
A03	Diesel Fire Pump	CO, NO_x, SO_2, PM_{10}, VOC, HAPs	AQR Section 12.5 40 CFR Part 63 Subpart ZZZZ	Annual and short-term emission limits.	Compliance for regulated pollutants shall be based on sole use of low-sulfur diesel fuel and emission factors. Recording is required for compliance demonstration.
A03	Diesel Fire Pump	Opacity	AQR Section 26	Less than 20% opacity.	Sole use of low-sulfur diesel fuel and quarterly visual emission checks as outlined in Part 70 OP.
A07	Diesel Emergency Generator	CO, NO_x, SO_2, PM_{10}, VOC, HAPs	AQR Section 12.5 40 CFR Part 60 Subpart IIII	Annual and short-term emission limits.	Compliance for regulated pollutants shall be based on sole use of low-sulfur diesel fuel and emission factors. Records of manufacturer's guarantees
A07	Diesel Emergency Generator	Opacity	AQR Section 26	Less than 20% opacity.	Sole use of low-sulfur diesel fuel and quarterly visual emission checks as outlined in Part 70 OP.
A08	Gasoline Dispensing Facility	VOC, HAP	AQR 12.5 40 CFR Part 63, Subpart CCCCCC	Management Practices	Throughput monitoring, equipment inspection and performance testing of Phase I control.

D. STREAMLINING DEMONSTRATION

Table V-D-1: 40 CFR Part 60 Subparts Db and GG Streamlining Demonstration

EU	Regulation (40 CFR Part)	Regulatory Standard	Permit Limit	Value Comparison (in Units of the Permit Limit)			Averaging Period Comparison			Streamlining Statement for Shielding Purposes
				Standard Value	Permit Limit Value	Is Permit Limit Equal or More Stringent?	Standard Averaging Period	Permit Limit Averaging Period	Is Permit Limit Equal or More Stringent?	
A01/A02	60.332 (GG)	124 ppmvd NO_x @ 15% O_2	124 ppmvd NO_x @ 15% O_2	124	124	Yes	4 hours	3 hours	Yes	This is the not to exceed limit calculated according to GG. It would apply at all time the lower permit limits for normal operation shown below do not apply
A01/ A02	60.332 (GG)	75 ppmvd NO_x @ 15% O_2 (1)	3.7 ppmvd NO_x @ 15% O_2	75 (1)	3.7	Yes	4 hours	3 hours	Yes	The permit limits are more stringent than the standard based upon both concentration and averaging time. Compliance with the permit demonstrates compliance with the standard.
A01/ A02	60.332 (GG)	75 ppmvd (117 lbs/hr) NO_x @ 15% O_2 (1)	23.0 lb NO_x/hr	117	23.0	Yes	4 hours	3 hours	Yes	
A01/ A02	60.333 (GG)	150 ppmvd (326 lbs/hr) SO_2 @ 15% O_2	1.01 lbs/hr SO_2 @ 15% O_2 (natural gas)	326	1.01	Yes	4 hours	3 hours	Yes	
A01/ A02	60.333 (GG)	0.8% Sulfur by weight (280 gr/100 scf)	0.2 gr/100 scf	280	0.2	Yes	4 hours	rolling 12-month	Yes	
A01A/ A02A	60.42 (Db)	0.03 lb PM/MMBtu	2.60 lbs PM_{10}/hr	5.25	2.6	Yes	30-day rolling	3 hours	Yes	The permit limits are more stringent than the standard based upon both concentration and averaging time. Compliance with the permit demonstrates
A01A/ A02A	60.42 (Db)	20% Opacity	20% Opacity	20	20	Yes	60-minute period, excepting 6 minutes	60-minute period, excepting 6 minutes	Yes	

EU	Regulation (40 CFR Part)	Regulatory Standard	Permit Limit	Value Comparison (in Units of the Permit Limit)			Averaging Period Comparison			Streamlining Statement for Shielding Purposes
				Standard Value	Permit Limit Value	Is Permit Limit Equal or More Stringent?	Standard Averaging Period	Permit Limit Averaging Period	Is Permit Limit Equal or More Stringent?	
A01A/ A02A	60.43 (Db)	0.20 lb SO_2/MMBtu	1.01 lb SO_2/hr	35	1.01	Yes	30-day rolling	3 hours	Yes	compliance with the standard.
A01A/ A02A	60.44 (Db)	0.20 lb NO_X/MMBtu	23.0 lb NO_X/hr	35	23.0	Yes	30-day rolling	3 hours	Yes	

[1] The 60.332 NO_x standard is the following formula: STD = 0.0075 * (14.4)/Y + F; the calculated value (75 ppmvd) is the minimum possible value of the standard for any emission unit.

Where:

STD = allowable ISO corrected NO_X emission concentration (percent by volume at 15 percent oxygen and on a dry basis);

Y = manufacturer's rated heat at manufacturer's rated load or actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour (for the purposes of obtaining the minimum possible value of the standard, Y = 14.4; and

F = NO_X emission allowance for fuel-bound nitrogen (N = the nitrogen content of the fuel). For the purposes of obtaining the minimum possible value of the standard, F = 0.

Fuel-bound nitrogen (percent by weight)	F (NO_X percent by volume)
N ≤ .015	0
0.015 < N≤ 0.1	0.04 (N)
0.1 < N ≤ 0.25	0.004+0.0067(N–0.1)
N > 0.25	0.005

[2]Sulfur content was converted from percent by weight to grains per 100 scf as follows: 0.8% sulfur = 56 gr sulfur per lb natural gas. AP-42 defines natural gas as generally more than 85 percent methane and varying amounts of ethane propane, butane, and inerts (typically nitrogen, carbon dioxide, and helium). Assuming an average molecular weight of 18 lb/lb-mol, 1 lb natural gas = 20 scf. Lastly, 56 grains sulfur per 20 scf natural gas = 280 gr/100 scf

VI. EMISSION REDUCTION CREDITS (OFFSETS)

The source is subject to offset requirements in accordance with AQR 12.7. Offset requirements and associated mitigation are pollutant-specific.

VII. MODELING

Desert Star Energy Center is a major source in Hydrographic Area 167 (Eldorado Valley). Permitted emission units include two turbines, one generator and one fire pump. Since minor source baseline dates for PM_{10} (July 9, 1997), NO_2 (July 9, 1997) and SO_2 (January 19, 2004) have been triggered, Prevention of Significant Deterioration (PSD) increment analysis is required.

DAQ modeled the source using AERMOD to track the increment consumption. Stack data submitted by the applicant were supplemented with information available for similar emission units. Five years (2011 to 2015) of meteorological data from the McCarran Station were used in the model. U.S. Geological Survey National Elevation Dataset terrain data were used to calculate elevations. Table VII-1 shows the location of the maximum impact and the potential PSD increment consumed by the source at that location. The impacts are below the PSD increment limits.

Table VII-1: PSD Increment Consumption

Pollutant	Averaging Period	Source's PSD Increment Consumption (µg/m^3)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO_2	3-hour	9.76[1]	681140	3962356
SO_2	24-hour	2.10[1]	681675	3962650
SO_2	Annual	0.51	681585	3962840
NO_2	Annual	1.28	681496	3962840
PM_{10}	24-hour	9.52[1]	681496	3961980
PM_{10}	Annual	0.60	681496	3962840

[1] Highest Second High Concentration.

VIII. ADMINISTRATIVE REQUIREMENTS

AQR Section 12.5 requires that DAQ identify the original authority for each term or condition in the Part 70 OP. Such reference of origin or citation is denoted by *[italic text in brackets]* after each Part 70 OP condition.

DAQ proposes to issue the Part 70 OP conditions on the following basis:

Legal:
On December 5, 2001, in Federal Register Volume 66, Number 234, the EPA fully approved the Title V Operating Permit Program submitted for the purpose of complying with the Title V requirements of the 1990 Clean Air Act Amendments and implementing Part 70 of Title 40 Code of Federal Regulations.

Factual:
DSEC has supplied all the necessary information for DAQ to draft Part 70 OP conditions encompassing all applicable requirements and corresponding compliance.

Conclusion:
DAQ has determined DSEC will continue to determine compliance through the use of CEMS, performance testing, reporting, and recordkeeping, coupled with annual certifications of compliance. DAQ proceeds with the preliminary decision that a Part 70 OP should be issued as drafted to DSEC for a period not to exceed 5 years.

IX. ATTACHMENTS

None.

All calculations are shown in the renewal application.