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Air Quality

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PART 70
TECHNICAL SUPPORT DOCUMENT
(STATEMENT of BASIS)

APPLICATION FOR:
Operating Permit Renewal with Significant Revision

SUBMITTED BY
NV Energy

SGS Generating Station
Source ID: 1584

LOCATION:
15111 Apex Power Parkway
Las Vegas, Nevada 89124

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

March 22, 2022

EXECUTIVE SUMMARY

NV Energy's Silverhawk Generating Station (SGS) is an electrical power generating station located at 15111 Apex Power Parkway in North Las Vegas, Nevada. The legal description of the source location is as follows: portions of Township 18S, Range 63E, Section 5 in Apex Valley, County of Clark, State of Nevada. The source is situated in Hydrographic Area 216 (Garnett Valley). Garnett Valley is currently designated attainment for all regulated pollutants.

SGS is a major stationary source for PM_{10}, $PM_{2.5}$, NO_x, and CO and a minor source for SO_2, VOCs, and HAPs. The generating station operates two natural gas-fired combustion turbine generators, two heat recovery steam generators (HRSGs) with natural gas-fired duct burners, one steam turbine generator, one 3-cell, 6,600-gpm cooling tower, one 100-hp LPG-fired emergency generator, one 250-hp diesel-powered fire pump, and a 2,206-hp diesel emergency generator. 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 Section 12.2.2(j)(1) of the Clark County Air Quality Regulations (AQRs). SGS is also a source of greenhouse gas (GHG) pollutants.

The following table summarizes SGS's potential to emit (PTE) for each regulated air pollutant for all emission units identified by this Part 70 Operating (OP). These emission rates are for reference purposes only and are not intended to be enforced by direct measurement unless otherwise noted in Section III below.

Pollutant	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	HAPs	GHG[2]
Tons per year (tpy)	149.00	149.00	318.91	562.38	10.35	85.57	5.39	1,955,861
Major Source Thresholds (Title V)	100	100	100	100	100	100	10/25[1]	—
Major Stationary Source Thresholds (PSD) (Categorical)	100	100	100	100	100	100	10/25[1]	—
Major Stationary Source Threshold (Nonattainment)			100			100		

[1]Ten tons for any individual hazardous air pollutant, or 25 tons for the combination of all hazardous air pollutants.
[2]Metric tons per year, CO2e.

The Department of Environment and Sustainability (DES), Division of Air Quality (DAQ) will continue to require sources to estimate their GHG PTE in terms of each individual pollutant (CO_2, CH_4, N_2O, SF_6, etc.) during subsequent permitting actions and the TSD includes these PTEs for informational purposes.

The turbines are subject to the requirements of 40 CFR Part 60, Subparts A and GG, although Subpart GG shall no longer apply after the date the Combustion Turbine Upgrade Project (CTUP) is completed and the modified combustion turbines start operation. After the CTUP is completed and the modified turbines start operation, the turbines will be subject to the requirements of 40 CFR Part 60, Subpart KKKK. The HRSGs to the turbines are subject to 40 CFR Part 60, Subparts A and Da, although Subpart Da shall no longer apply after the date the CTUP is completed and the modified combustion turbines start operation. The fire pump and emergency generator are subject to 40 CFR Part 63, Subpart ZZZZ; the 2019 diesel emergency generator is subject to 40 CFR Part 60, Subpart IIII; and the facility is subject to 40 CFR Parts 72 and 75.

DAQ has received delegated authority from the U.S. Environmental Protection Agency to implement the requirements of the Part 70 OP. Based on the information submitted by the applicant and a technical review performed by DAQ staff, the draft revised Part 70 OP to NV Energy is proposed.

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I. ACRONYMS

Table I-1: List of Acronyms

Acronym	Definition
AQR	Clark County Air Quality Regulations
ATC	Authority to Construct
CAAA	Clean Air Act, as amended; 1990 Clean Air Act Amendments
CEMS	Continuous Emissions Monitoring System
CF_6	carbon fluoride
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
DAQ	Division of Air Quality
COMS	Continuous Opacity Monitoring System
dscf	dry standard cubic feet
DOM	date of manufacture
EPA	U.S. Environmental Protection Agency
EU	emission unit
GHG	greenhouse gases
HAP	hazardous air pollutant
HHV	high heating value
hp	horsepower
HRSG	heat recovery steam generator
MMBtu	Millions of British thermal units
MW	megawatt
N_2O	nitrous oxide
NAICS	North American Industry Classification System
NESHAP	National Emission Standard for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O_2	oxygen
OP	Operating Permit
$PM_{2.5}$	particulate matter less than 2.5 microns
PM_{10}	particulate matter less than 10 microns
ppmvd	parts per million, volumetric dry
PSD	Prevention of significant deterioration
PTE	Potential to Emit
QA/QC	quality assurance/quality control
QAP	Quality Assurance Plan
RATA	Relative Accuracy Test Audit
RMP	Risk Management Plan

Acronym	Definition
SCR	Selective Catalytic Reduction
SIC	Standard Industrial Classification
SIP	state implementation plan
SO_X	sulfur oxides
TDS	total dissolved solid
TSD	technical support document
U.S.C.	United States Code
VOC	volatile organic compound

II. SOURCE INFORMATION

A. GENERAL

Permittee:	Nevada Power Company
Mailing Address:	6226 West Sahara Avenue
Responsible Official:	Dariusz Rekowski
Phone Number:	702-402-5762
Hydrographic Area:	216 (Garnett Valley)

B. DESCRIPTION OF PROCESS

SGS operates two natural gas-fired combustion turbine generators, two heat recovery steam generators with natural gas-fired duct burners, one steam turbine generator, one 3-cell, 6,600-gpm cooling tower, one 100-hp LPG-fired emergency generator, one 250-hp diesel-powered fire pump, and a 2,206-hp diesel emergency generator.

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

Table II-B-1: Summary of Emission Units

EU	Description	Rating	Manufacturer	Model #	Serial #	SCC
A01	Natural Gas-Fired Turbine	175 MW; upgraded to 193 MW upon completion of CTUP	Westinghouse	501FD	37A-8193-1	20100201
A02	Duct-Burner Heat Recovery Steam Generator (associated w/A01)	530 MMBtu/hr	Alstom			10100601
A03	Natural Gas-Fired Turbine	175 MW upgraded to 193 MW upon completion of CTUP	Westinghouse	501FD	37A-8194-1	20100201
A04	Duct-Burner Heat Recovery Steam Generator (associated w/A03)	530 MMBtu/hr	Alstom			10100601

EU	Description	Rating	Manufacturer	Model #	Serial #	SCC
A05	Diesel-Powered Fire Pump; DOM: 2004	250 hp	Clarke	JU6HUF50	PE6068TF234110	20200102
A06	LPG-Powered Emergency Engine; DOM: 2004	100 hp	Generac	SG060	2072892	20201001
A07	Three-Cell Cooling Tower; 0.001% drift loss; 8,144 ppm TDS	6,600 gpm	International Cooling Tower	FCC-12-03	FCC-12-03-8434-03	38500101
A08	Emergency Generator	1,500 kW	Caterpillar	SR5	G2N02057	20200102
	Diesel-Powered Engine; DOM: 2019	2,206 hp		3512C	LYH00428	

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

Table II-B-2: Insignificant Activities

Description
Mobile Combustions Sources
Station Maintenance Activities
Maintenance Shop Activities (e.g., part washers, sand blasters, etc.)
Steam Cleaning Operations
LPG Tank, 500 gallons
Diesel Tank, 280 gallons
Lube oil sumps and vents
Portable gas-fired pump, 3.5 hp

C. PERMITTING HISTORY

The following table represents permitting activities since the previous renewal and prior to this permitting action:

Table II-C-1: Permit History

Issue Date	Description
07/20/2016	Part 70 permit issued
01/23/2020	Minor Revision—added new generator
10/20/2021	ATC for EUs: A01 and A03—CTUP

D. CURRENT PERMITTING ACTION

This is a renewal and significant revision to the Part 70 permit. The following changes were requested from the source.

Renewal Application (10/20/2020)

Condition III.B.2.a limits each combustion turbine to a heat input rating of 1,980 MMBtu per hour (HHV), and to a maximum heat input of 15,840,000 MMbtu per year during any consecutive 12-month period. However, the annual heat input limit for each combustion turbine does not correspond to an annual operation of 8,760 hours at the maximum hourly heat input rate. If the combustion turbines operated at their rated capacity of 1,980 MMBtu/hr to the maximum annual amount of 8,760 hours, the total heat input would equate to 17,334,800 MMBtu/yr. NVE believes that the slightly lower annual heat input limit of 15,840,000 MMBtu erroneously stems from a historic annual operating limit of 8000 hours per year that was previously removed (see Section II.E.1 of the Technical Support Document, dated June 2011). Because the facility and unit potential to emit emissions calculations were based on normal operation—including a portion of operation with duct firing—and an additional amount of startup and shutdown cycles, no changes in the PTE for any pollutants are necessary to accommodate a higher annual heat input limit. In fact, full utilization of the units at the annual heat input limit of 17,334,800 MMBtu would actually result in lower potential emissions than those used to calculate the permitted PTE because it necessarily demands no operation in startup or shutdown, thereby negating those emissions.

Response: These limits were included in the permit based on the original NSR analysis. This proposed change would trigger reanalysis of NSR, therefore this change was denied by DAQ.

Condition III.B.2.c limits the duct burner operation to a maximum of 2,000 hours per year during any consecutive 12-month period. However, the duct burners already have an annual limit of 1,060,000 MMBtu, as stated in Condition III.B.2.b. The facility and unit potential to emit emission calculations were based on the annual heat input of the duct burners, not the number of hours of operation. Therefore, a limit on the annual hours of operation is not necessary to ensure compliance with the emission limits, and NVE respectfully requests removal of this condition from the permit. Additionally, the reporting requirement associated with the duct burner operating hours, Condition III.E.2.c, will no longer be necessary and is requested for removal in conjunction with this revision.

Response: These limits were included in the permit based on the original NSR analysis. This proposed change would trigger reanalysis of NSR, therefore this change was denied by DAQ.

NVE requests that the last sentence in Condition III.B.2.d be reworded to be consistent with other similar NVE permits regarding the language defining a shutdown: "Shutdown means the period ~~beginning with the lowering of the electric load of a turbine below 50 percent of nameplate capacity and ending when combustion has ceased~~ immediately preceding the cessation of firing of a turbine, not to exceed 60 minutes."

Response: This request to remove the strikethrough portion of the condition will be incorporated.

NVE notes that Condition III.C.5 specifies RATA of the CEMS "at least annually." This is in conflict with the preceding Condition III.C.4, which allows for RATAs to be performed at intervals greater than a calendar year when the facility experiences a fourth quarter of non-operation, as allowed by rule in Part 60. As the units are subject to the CEMS requirements of 40 CFR 60 and 40 CFR 75, which specify RATA deadlines that take into account events such as unit non-operation, NV Energy requests that both Conditions III.C.4 and III.C.5 be revised and combined.

Response: Condition III.C.5 (III.D.16 in the proposed permit) has been revised.

NV Energy requests an annual visible emissions observation requirement, rather than the quarterly testing currently stipulated in Condition III.C.11. Annual visible emissions observations would be in line with the fact that the turbines are fueled with natural gas and the emergency engines have very limited operations. Furthermore, this is consistent with the requirement in 40 CFR 60, Subpart Db, applicable to the heat recovery steam generators.

Response: DAQ changed the requirement as requested.

NV Energy requests the recordkeeping requirement in Condition III.E.1.n be revised to specify that recordkeeping of the TDS content of the cooling tower circulation water be required only on operating days.

Response: DAQ changed the requirement as requested.

NV Energy requests the recordkeeping/reporting requirement in Condition III.E.2.e be revised for consistency with other DAQ-issued permits for NV Energy generating stations as shown here: "monthly and consecutive 12-month period total quantity of NO_x and CO emissions for all turbines in tons per year;"

Response: DAQ changed the requirement as requested.

NV Energy requests updates to the permit shield as presented in the renewal permit application.

Response: DAQ will incorporate the appropriate permit shield relevant to the ATC issued for the NSPS change from NSPS—Subpart GG to NSPS—Subpart KKKK and the significant revision application, which will address compliance with the most stringent standard in the permit.

NV Energy requests an alternative operating scenario for testing/tuning events. During any testing/tuning events, NV Energy is expecting higher than normal emission rates for NO_x and CO.

Response: DAQ will incorporate an alternative operating scenario for testing/tuning events as presented in the renewal permit application. The alternative operating scenario is described in detail in Section E below.

Significant Revision Application to Part 70 Permit (12/22/2020)

An AQR 12.4 ATC was issued on October 20, 2021, to install upgraded components to the two Westinghouse 501FD natural gas-fired combustion turbines (EUs A01 and A03). The significant revision requested incorporation of terms and conditions of the ATC in the permit.

The proposed upgrades addressed by the ATC are:

1. Gas Turbine Optimization Package, generation 7;
2. AutoTune 3.0;
3. Inlet Bleed Heat System; and
4. Part Load Performance.

The ATC addressed the proposed changes to the two existing combustion turbines. Due to the upgrade changes, these existing turbines will be subject to the requirements of 40 CFR Part 60, Subpart KKKK (NSPS KKKK), since they will be modified after February 18, 2005. Therefore, this action will incorporate the applicable provisions of NSPS KKKK into the Part 70 Operating Permit. With the incorporation of NSPS KKKK, the existing standards of 40 CFR Part 60, Subpart GG (NSPS GG) will remain in effect with provisions until the CTUP is completed and the turbines start operation. This renewal permit will have conditions where the turbines can operate prior to the upgrade and after the upgrade.

This action will also incorporate a permit shield for NSPS KKKK.

This action also incorporated the following changes to the permit by DAQ:

1. Removed startup/shutdown emission rates from the permit and TSD.

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 because it is preferred the permittee use credible evidence to estimate emissions during startup, shutdown, or malfunction. To date, NV Energy has not had a situation that required estimating emission values. In a situation where 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 the CRO's operating experience. If the other unit was not affected and still operating, the CRO would match the valve position to that unit. The Environmental Compliance Coordinator (ECC) would then look at all available data to determine the best course of action. Additionally, the source may follow the procedures in 40 CFR Part 75 for data correction during periods the CEMS is out of service.

2. Added reporting condition for sources whose actual NO_x or VOC emissions exceed 25 tpy, pursuant to Section 182(a)(3)(B) of the Clean Air Act (CAA).

DAQ has identified this source as possibly emitting 25 tons or more of actual emissions for NO_x and/or VOCs in any calendar year. Clark County was required to implement Section 182(a)(3)(B) of the 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.

AQR 12.9.1 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.

E. ALTERNATIVE OPERATING SCENARIO

NV Energy is proposing alternative operating scenarios for testing/tuning events in this Part 70 Operating Permit renewal application.

While there are multiple reasons testing and/or tuning operations may be necessary, a few key examples are tuning to optimize combustion dynamics—which includes minimizing emissions—after an outage or maintenance event, tuning or testing to commission new equipment, and requisite grid reliability testing. Careful combustion tuning minimizes emissions.

Regulatory entities can require testing or tuning. Several organizations that work with NV Energy to mitigate risk and ensure the reliability and security of the electrical power grid may require the utility to perform certain testing: the Federal Energy Regulatory Commission, North American Electric Reliability Corporation, and Western Electricity Coordinating Council. Each one develops and regularly updates standards that require real-time operational testing and tuning of the generators, including some that may require operation at low loads where the combustion turbines are not tuned to operate for extended periods. Regulatory testing requirements are constantly evolving with new grid requirements related to increased renewable penetration and cybersecurity requirements, with testing pushing ever closer to air permit compliance limitations.

This request was made as a minor permit revision within the renewal application, as it does not violate any applicable requirement; does not involve significant changes to existing monitoring, reporting, or recordkeeping requirements; does not require or change a case-by-case determination of an emission limitation or other standard, or a visibility or increment analysis; does not seek to establish or change a permit term or condition assumed to avoid an applicable requirement; is not a modification under CAA Title I; and is not a modification subject to AQR 12.4.3.1(a)(8).

Testing/tuning is defined as planned operation outside of applicable normal emission limitations for data collection, diagnostics, or operational adjustment. This proposed alternative is a non-normal operating scenario (using current permit parlance) distinct from existing permit-referenced scenarios of normal operation, startup, and shutdown.

The CEMS will measure NO_x and CO emissions during testing/tuning, when numeric emission limits for these pollutants are proposed. Because the CEMS cannot distinguish the duct burner emissions from the turbine emissions, the duct burner emissions are included in the proposed limits on emissions during testing/tuning.

The current SGS Part 70 Operating Permit includes both numeric and non-numeric emission limitations for the turbine units. EPA guidance on non-numeric emission limitations is consistent with existing SGS emission limitations. Table E-1 lists the existing NO_x emission limitations already in effect at SGS, required for compliance with NSPS GG, which will also be applicable during testing/tuning. The difference between this and the previous standard is explained in the paragraphs below.

Table E-1: Emission Rate Limitations for NO_x during Testing/Tuning

EU	NO_x @ 15% O_2[1], NSPS GG
A01/A03 (Turbine Unit 5)	103
A02/A04 (Turbine Unit 6)	103

[1] Based on a 4-hour rolling average.

Formula for NSPS GG Standard

NSPS GG Standard for Nitrogen Oxides

No owner or operator subject to the provisions of NSPS GG can cause to be discharged into the atmosphere, from any stationary gas turbine, any gases containing nitrogen oxides in excess of {STD = 0.0075*(14.4)/Y+F}

where:

- STD = Allowance ISO corrected (if required as given in 40 CFR Part 60.335(b)(1)) NO_x emission concentration (percent by volume at 15% oxygen on a dry basis);
- Y = Manufacturer's rated heat rate at manufacturer's rated load (in kilojoules per watt hour), or actual measured heat rate based on the LHV of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour; and
- F = NO_x emission allowance for fuel-bound nitrogen, as defined in paragraph (a)(4) of this regulation.

The following calculation provides a new standard referenced in Table E-2 that, as explained in the “Assumptions” section below, is based on the actual measured heat rate based on the LVH of fuel as measured at actual peak load for the facility.

Table E-2: New NSPS GG Standard

SGS Combustion Turbine NSPS GG Calculations			
Max Heat Rate, LHV, Measured at Peak Load (BTU/kWh)	Y (kJ/W-hr)	STD % by vol, 15% O_2, dry	STD ppmvd @ 15% O_2
9936	10.48304	0.0103024	103

Assumptions:

- F = 0
- 1 BTU = 1.055056 kj
- Y = Actual measured heat rate based on the LHV as measured at actual peak load of the facility, which shall not exceed 14.4 kJ/watt-hr.

This value is equal to the NSPS GG NO_x standard for these units: 103 ppm volumetric dry (ppmvd) @ 15% O_2 based on a 4-hour average. As shown, this value was calculated from the actual measured heat rate based on the LHV as measured at peak load (9,936 BTU/kWh) for each turbine.

The NO_x standard of 60.332 in the previous permit was not calculated; the source used the minimum possible value of the standard for any emission unit, which is 75 ppmvd.

Table E-3 lists the proposed hourly mass emission limit for CO during alternative operating scenarios for testing/tuning events.

Table E-3: CO Emission Rate Limitations during Testing/Tuning

EU	CO[1]
A01/A02 (Turbine Unit 5)	400
A02/A04 (Turbine Unit 6)	400

[1] In lbs per clock hour.

The proposed numeric emission limitation per unit for CO during periods of testing/tuning is 400 lbs in a clock hour. NV Energy used a historical event that occurred at its Walter M. Higgins III Generating Station on April 10, 2018, when a bad signal from the controls locked the Unit 2 inlet guide vanes fully open. This dataset was chosen to derive the testing/tuning CO emission limit because it represents operation of a combined cycle combustion turbine (CCCT) under load with excess oxygen—a worst-case scenario for conditions under which testing or tuning could be required to occur. The emission limit is deemed representative for combined cycle combustion turbines and includes the duct burners, which are not expected to operate during testing/tuning of the associated gas turbine. The historical CEMS data and associated emission limit calculation are provided in the application submittal.

The source proposes non-numeric emission limitations for pollutants whose measurement during alternative operating scenarios is not reasonably feasible (VOCs, PM_{10}/$PM_{2.5}$, SO_2). The emissions from the combustion turbines during testing/tuning will be bound by a limit of 600 minutes per calendar year per turbine. Given the various testing/tuning needs and requirements, coupled with the relatively small proposed annual duration limit (equaling 10 hours in total, approximately 0.1% of the hours in a year), DAQ will incorporate NV Energy's testing/tuning duration limit of 600 minutes into this permitting action.

NV Energy stated that it conducted an NSR screening calculation to assess the impact of the maximum possible emission increase due to the adoption of the proposed testing/tuning scenarios. The calculation assumed 10 total hours of operation per turbine unit in the alternative operating scenario (600 minutes of testing/tuning), utilizing the maximum permitted values of the NSPS—GG standard for NO_x at the operating level with the highest expected NO_x emissions, as well as the maximum hourly CO emission rate for the scenario. The alternative operating scenario, if utilized to its full extent, has the cumulative potential to increase NO_x emissions by 4.6 tons per year and CO emissions by 4.00 tons per year above current operations for both turbine units combined. These potential increases for NO_x and CO are below the NSR significance levels specified in AQR 12.2.2(uu) of 40 tons and 100 tons, respectively. Therefore, the change is not a major modification and BACT is not applicable to this proposed change.

While the proposed alternative operating scenario allows for these potential emissions, NV Energy does not request any change to the annual PTE of the combustion turbines listed in the current permit.

The addition of the alternative testing/tuning scenario is not an NSPS modification per 40 CFR Part 60.14, nor will it increase the emission rate of any pollutant to which an NSPS applies at any of the affected units above the maximum hourly emissions achievable during the five years before the change. No capital expenditure is required for the proposed alternative operating scenarios.

Regarding the NAAQS, the proposed testing/tuning events are considered intermittent based on the annual limit of 600 minutes (equivalent to 10 hours) and the infrequent nature of these events. Per EPA's March 1, 2011 guidance memorandum that addresses air dispersion modelling of intermittent activities, emissions from intermittent events can be modeled using an average hourly emission rate. Therefore, since there is no increase of annual emissions, a NAAQS modeling analysis is not required.

III. EMISSIONS INFORMATION

A. SOURCE-WIDE PTE

SGS is a Title V major source for PM_{10}, $PM_{2.5}$, NO_x, and CO and a minor source for SO_2, VOCs, and HAPs, including GHGs.

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

PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOCs	HAPs	GHGs[1]
149.00	149.00	318.91	562.38	10.35	85.57	5.39	1,955,861

[1]Metric tons per year.

B. ALLOWABLE EMISSIONS CALCULATIONS

The following table summarizes the allowable PTE.

Table III-B-1: PTE—Emission Units (tons per year)

EU	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAPs
A01 + A02	73.80	73.80	154.10	280.40	5.10	42.60	2.67
A03 + A04	73.80	73.80	154.10	280.40	5.10	42.60	2.67
A05	0.14	0.14	1.94	0.42	0.13	0.16	0.02
A06	0.01	0.01	0.77	0.10	0.01	0.02	0.01
A07	1.20	1.20	0.00	0.00	0.00	0.00	0.00
A08	0.05	0.05	8.00	1.06	0.01	0.19	0.02
Total	**149.00**	**149.00**	**318.91**	**562.38**	**10.35**	**85.57**	**5.39**

C. OPERATIONAL LIMITS

All previous operational limits remain in effect.

D. CONTROL TECHNOLOGY

The proposed new emergency generator meets the 40 CFR Part 60, Subpart IIII standards.

All previous emissions controls remain in effect.

E. MONITORING

All monitoring requirements remain in effect.

F. PERFORMANCE TESTING

None required due to this permitting this action; therefore, all previous testing requirements remain in effect.

G. RACT ANALYSIS

The ATC issued October 20, 2021, to install upgraded components to the two Westinghouse 501FD natural gas-fired combustion turbines (EUs A01 and A03) did not trigger a RACT analysis.

The significant revision application requested incorporation of the ATC terms and conditions into this OP.

Table III-G-1: Emissions Increase

	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	H_2S	Pb
Minor NSR Significance Thresholds	7.5	5.0	20	50	20	20	5	0.6
Permit	149.00	149.00	318.91	562.38	10.35	85.57	0	0
Total ∆ PTE	0	0	0	0	0	0	0	0
Triggers	None	None	None	None	None	None	None	None

IV. REGULATORY REVIEW

A. LOCAL REGULATORY REQUIREMENTS

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

- AQR 26, “Emission of Visible Air Contaminants”
- AQR 40, “Prohibitions of Nuisance”
- AQR 43, “Odors in the Ambient Air”
- AQR 70, “Emergency Procedures”
- AQR 80, “Circumvention.”

B. FEDERALLY APPLICABLE REGULATIONS

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

Discussion: AQR 26 is more stringent than the federal opacity standards, setting a maximum of 20% obscurity for a period of more than six consecutive minutes. SGS shall operate in a manner consistent with this section of the regulation. 40 CFR Part 60, Subpart GG also requires fuel monitoring and sampling to meet a standard.

At all times, including periods of startup, shutdown, malfunction, and testing/tuning, SGS shall, to the extent practicable, maintain and operate all emission units (including associated air pollution control equipment) in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether the source is using acceptable operating and maintenance procedures will be based on information available to the Control Officer and may include, but is not limited to, monitoring results, opacity observations, reviews of operating and maintenance procedures, and inspection of the source.

40 CFR 60.12: Circumvention.

Discussion: This prohibition is addressed in the Part 70 OP and in AQR 80.1, to which the source is subject.

40 CFR 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. This Part 70 OP contains the applicable CEMS conditions and citations to both CFR appendices. In addition, the QA plan approved for the CEMS follows the outlined requirements, including span time and recording time.

Subpart Da—Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978

40 CFR 60.40Da: Applicability.

Discussion: The duct burners (EUs: A02 and A04), each with a rated capacity of 530 MMBtu/hr, are subject to the provisions of Subpart Da. However, this standard will not be applicable after the CTUP is completed and the modified turbines start operation.

40 CFR 60.42Da: Standard for particulate matter.

Discussion: The manufacturer's performance data for the duct burners states that particulate emissions from the combustion of natural gas will yield 0.01 lb/MMBtu, which is more stringent than the NSPS standard (0.03 lb/MMBtu). SGS will therefore be in compliance with this standard. The Part 70 OP states that visible emissions from each stationary gas turbine/duct burner stack shall not exceed 20% opacity for a period of more than six consecutive minutes, more stringent than the NSPS limit.

40 CFR 60.43Da: Standard for sulfur dioxide.

Discussion: The standard for SO_2 is 0.20 lb SO_2/MMBtu on a 30-day rolling. SGS has a 1.5 lb/hr limit for SO_2, which is more stringent than the NSPS standard. SGS will be in compliance with this standard.

40 CFR 60.44Da: Standard for nitrogen oxides.

Discussion: The standard for NO_x is 1.6 lb NO_x/MW-hr on a 30-day rollingi. SGS has a 23 lb/hr limit for NO_x, which is more stringent than the NSPS standard. SGS will be in compliance with this standard.

40 CFR 60.48Da: Compliance provisions.

Discussion: SGS has separate emission standards during startup, shutdown, and testing/tuning, as outlined in the Part 70 OP. SGS has completed all compliance demonstrations, demonstrating compliance with all applicable emission standards for NO_x and SO_2. SGS will also employ CEMS on each of the stationary gas turbine stacks to monitor NO_x emissions. The measurements to be taken are outlined in the Part 70 OP.

40 CFR 60.49Da: Emission monitoring.

Discussion: The duct burners combust only natural gas; therefore, COMS and SO_2 CEMS are not required. SGS is subject to the requirements of 40 CFR Part 75, so the data acquired by the NO_x CEMS may be used to show compliance with both 40 CFR Part 60, Subpart Da and 40 CFR Part 75. The reporting requirements are outlined in the Part 70 OP. In addition, the source has installed a diluent oxygen CEMS. Since the duct burners exhaust through the same stack as the combustion turbines, the monitors required for monitoring stationary gas turbine emissions will also monitor duct burner emissions. Monitoring requirements are outlined in the Part 70 OP.

40 CFR 60.50Da: Compliance determination procedures and methods.

Discussion: The compliance demonstration for this source is discussed in the Part 70 OP.

40 CFR 60.51Da: Reporting requirements.

Discussion: Reporting requirements are discussed in the Part 70 OP.

40 CFR Part 60, Subpart GG—Standards of Performance for Stationary Gas Turbines

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

Discussion: The provisions of this subpart are applicable to the following affected facilities: All stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired. Any facility under paragraph (a) of this section which commences construction, modification, or reconstruction after October 3, 1977, is subject to the requirements of this part except as provided in paragraphs (e) and (j) of 40 CFR Part 60.332. *[44 FR 52798, Sept. 10, 1979, as amended at 52 FR 42434, Nov. 5, 1987]*

Turbine Units (EUs: A01 and A02) commenced construction after October 3, 1977, and are therefore subject to this subpart.

This standard will not be applicable after the CTUP is completed and the modified turbines start operation.

40 CFR Part 60.332: Standard for nitrogen oxides (NO_x limits using the F formula).

Discussion: The NO_x limit established as BACT for these turbines 2.5 ppmvd, and are within the F formula provisions of the subpart. This requirement has been met.

40 CFR Part 60.333: Standard for sulfur dioxide.

Discussion: The sole use of pipeline-quality natural gas with total sulfur content less than 0.75 grains per 100 dscf satisfies this requirement.

See attached PDF for NSPS GG.

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

40 CFR Part 60.4200: Am I subject to this subpart?

Discussion: SGS has a 2,206-hp 2019 emergency diesel engine (EU: A08) subject to 40 CFR Part 60, Subpart IIII. It has provided certifications for this engine that demonstrate compliance with Subpart IIII. In addition, this emergency diesel engine has demonstrated compliance with the emission standards set forth in 40 CFR Part 89.112 for new nonroad internal combustion engines for the same model year and maximum engine power, provided in Table IV-B-1.

Table IV-B-1: Emission Standards for IC Engines

EU	Year	Power (kW)	NO_x (g/kW-hr)	NMHC (g/kW-hr)	CO (g/kW-hr)	PM (g/kW-hr)
A08	2019	> 560	3.5	0.19	3.5	0.04

The 2,206-hp emergency diesel engine at this source is subject to 40 CFR Part 60, Subpart IIII; the fire pump, which is subject to 40 CFR Part 63, Subpart ZZZZ, also must meet the fuel requirements from 40 CFR Part 80.510(b) (in Subpart I) for nonroad diesel fuel. The source must purchase diesel fuel that meets the per-gallon standard of 15 ppm maximum sulfur content, a minimum cetane index of 40, or a maximum aromatic content of 35 volume percent. Since all refiners and importers of nonroad diesel fuel are subject to these federal standards pursuant to 40 CFR Part 80.510, it is reasonable to assume the operators of the engines have little, if any, opportunity to acquire fuel that violates these standards. This OP requires the permittee to monitor or keep records of the sulfur content, cetane index, or aromatic content of the diesel fuel used in the emergency diesel engine and fire pump.

40 CFR Part 60, Subpart KKKK—Standards of Performance for Stationary Gas Turbines

40 CFR Part 60.4305: Does this subpart apply to my stationary combustion turbine?

Discussion: This subpart applies to stationary combustion turbines that commenced construction, modification, or reconstruction after February 18, 2005. The proposed project will increase NO_x and SO_2 emission rates from the existing combustion turbines and duct burners (A01/A02 and A03/A04) due to increases in maximum achievable heat input rates for the combustion turbines. Therefore, the modified combustion turbines will be subject to the requirements of 40 CFR Part 60, Subpart KKKK. Under 40 CFR Part 60.4305(a), the requirements of that subpart also apply to the duct burners associated with the CCCTs. However, per 40 CFR Part 60.4305(b), the duct burners and HRSGs will be exempt from the requirements of 40 CFR Part 60, Subpart Da after the CTUP is completed.

The following NSPS limitations will apply to the two combustion turbines upon completion of the CTUP.

1. Comply with the reporting requirements in 40 CFR Part 60.4375 regarding excess emissions and monitor downtime.

2. Comply with the NO_x emission limit of 15 ppm at 15% O_2 or 0.43 lb/MWh (for a combustion turbine firing natural gas with a heat input greater than 850 MMBtu/hr). For combined cycle and combined heat and power units with heat recovery, use the calculated hourly average emission rates to assess excess emissions on a 30-unit operating day rolling average basis, as described in 40 CFR Part 60.4380(b)(1). *[40 CFR Part 60.4320 & 40 CFR Part 60.4350(h), Table 1]*

3. Comply with the alternative NO_x emission limit of 96 ppm at 15% O_2 or 4.7 lb/MWh (for a combustion turbine firing natural gas with an output greater than 30 MW) on a 30-unit operating day rolling average basis when combustion turbines are operating at less than 75% of peak load. *[40 CFR Part 60.4320 & 40 CFR Part 60.4350(h), Table 1]*

4. Comply with the SO_2 emission limits of 0.90 pounds per MW-hr gross output, or not burn any fuel that contains total potential sulfur emissions in excess of 0.060 lb SO_2 / MMBtu heat input. *[40 CFR Part 60.4330(a)]*

5. The requirement to monitor fuel sulfur for SO_2 does not apply if potential sulfur emissions expressed as SO_2 are less than 0.060 lb/MMBtu. NV Energy proposes to use fuel tariff sheet or purchase contract information, or representative fuel sampling performed per 40 CFR 75, Appendix D, to show that fuel sulfur will comply with the applicable limit. *[40 CFR Parts 60.4360 and 60.4365]*

6. General Compliance Requirement. The CCCTs, selective catalyst reduction(s), oxidation catalysts, and monitoring equipment must be operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions at all times, including during startup, shutdown, and malfunction. *[40 CFR Part 60.4333]*

7. *Option to use a NO_x CEMS.* NV Energy will use the existing CEMS, installed, certified, and operated in accordance with 40 CFR Part 75, Appendix A. *[40 CFR Parts 60.4340(b) & 60.4345(a–e)]*

8. NV Energy proposes to use NO_x CEMS RATA as the initial NO_x performance test. *[40 CFR Part 60.4405]*

9. No annual performance test is required due to the presence of the NO_x CEMS. *[40 CFR Part 60.4340(b)(1)]*

See attached PDF for NSPS KKKK.

40 CFR Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63.6585: Applicability determination.

Discussion: These provisions are applicable to owners and operators of stationary reciprocating internal combustion engines (RICE) at major or area sources of HAPs. SGS has an emergency LGP generator and an emergency diesel fire pump (EUs: A05 and A06). SGS is an area source of HAPs and is considered an industrial source, so the exemption from requirements for existing residential, commercial or institutional emergency engines (as defined in the rule) does not apply. Numeric emission standards are not applied to the emergency engine or fire pump; however, operational limitations, management practices, and recordkeeping are required. The fire pump engine (EU: A08) 40 CFR Part 63, Subpart ZZZZ requirements are met by complying with 40 CFR Part 60, Subpart IIII.

40 CFR Part 63.6603: Compliance requirements.

Discussion: Owners and operators of existing emergency RICE must install an hour meter on the engine to demonstrate that the operating limitations imposed by the definition of an emergency generator are being met (Table 2b of this subpart). Records must be kept to demonstrate that management practices are being followed (Table 2d of this subpart). These requirements are addressed in the Part 70 OP.

40 CFR Part 72—Acid Rain Permits Regulation

Subpart A—Acid Rain Program General Provisions

40 CFR Part 72.6: Applicability.

Discussion: SGS gas turbines are defined as utility units per the definitions in 40 CFR Part 72; therefore, the provisions of this regulation apply.

40 CFR Part 72.9: Standard requirements.

Discussion: SGS has applied for all proper permits required by this regulation.

Subpart B: Designated representative.

Discussion: SGS has a Certificate of Representation for designated representative on file. SGS has fulfilled all requirements under this subpart.

Subpart C: Acid Rain Permit applications.

Discussion: SGS has applied for an acid rain permit.

Subpart D: Acid Rain Permit compliance plan and compliance options.

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

Subpart E: Acid Rain Permit contents.

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

40 CFR Part 73—Acid Rain Sulfur Dioxide Allowance System

Discussion: SGS is an affected source pursuant to 40 CFR Part 72.6 because gas turbines fit the definition of utility units; therefore, this regulation shall apply.

Subpart B: Allowance allocations.

Discussion: SGS is listed on the Phase II table; however, no allowance amount is listed in the table, so it will not have an initial allocation per 40 CFR Part 73.10.

Subpart C: Allowance tracking system.

Discussion: SGS shall follow all guidelines and instructions in this subpart while maintaining its allowance account.

Subpart D: Allowance transfers.

Discussion: When an allowance transfer is necessary, SGS 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: SGS is subject to the acid rain emission limitations of 40 CFR Part 72; therefore, the source is subject to the monitoring requirements of this regulation. Each turbine unit is equipped with both a NO_x CEMS and diluent oxygen monitors, along with a fuel flow monitor. Each turbine unit also has a CO CEMS. The data from the CEMS are used to provide quarterly acid rain reports to both EPA and DAQ.

All required monitoring plans, RATA testing protocols, and certification testing reports have been provided to EPA and DAQ.

V. COMPLIANCE

A. COMPLIANCE CERTIFICATION

Records shall be kept for all limitations specified in the permit.

Requirements for reporting remain the same.

B. SUMMARY OF MONITORING FOR COMPLIANCE

Table V-B-1: Compliance Monitoring (before the upgrade)

EU	Process Description	Monitored Pollutants	Applicable Section Title	Requirements	Compliance Monitoring
	Combustion turbine units	CO, NO_x, SO_2, PM_{10}, VOCs, and HAPs	AQR 12.5; 40 CFR Part 60, Subpart GG	Annual and short-term emission limits. Fuel consumption recordkeeping and reporting.	CEMS for NO_x, and CO. Compliance for HAPs and non-CEMS monitored emissions shall be based on fuel consumption and emission factors. Recording is required for compliance demonstration. SO_2 will be monitored through sulfur content in the fuels and recordkeeping of hours of operation.

EU	Process Description	Monitored Pollutants	Applicable Section Title	Requirements	Compliance Monitoring
	Combustion turbine units	SO_2	40 CFR Part 60, Subpart GG	Natural gas sulfur content limited by 75 grains per 100 standard cubic feet.	Annual sulfur content results to be submitted with annual reports. Recordkeeping of sulfur content quarterly. Excess emissions report if sulfur exceeds 75 grains/100 scf.
A02, A04	Duct Burners	CO, NOx, SO_2, PM10, VOC, and HAP	Permit Condition	Hours operated	Recordkeeping is required for compliance demonstration.
A05, A06, A08	Fire pump and Emergency Engines			Emission limitations based upon fuel throughput and hours of operation for testing and maintenance. Sulfur limited to 15 ppm and either a minimum cetane index of 40 or a maximum aromatic content of 35% by volume.	Recordkeeping of fuel use and hours of operation with a nonresettable hour meter. Manifest required to be onsite.

Table V-B-2: Compliance Monitoring (after the upgrade)

EU	Process Description	Monitored Pollutants	Applicable Subsection Title	Requirements	Compliance Monitoring
	Combustion turbine units	CO, NO_x, SO_2, PM_{10}, VOCs, and HAPs	AQR 12.5; 40 CFR Part 60, Subpart KKKK	Annual and short-term emission limits. Fuel consumption recordkeeping and reporting.	CEMS for NO_x, and CO. Compliance for HAPs and non-CEMS monitored emissions shall be based on fuel consumption and emission factors. Recordkeeping is required for compliance demonstration.
	Combustion turbine units	SO_2	40 CFR Part 60, Subpart KKKK	0.060 lb/MMBtu.	Manifest required upon purchase. Manifest required to be onsite.
A02, A04	Duct Burners	CO, NO_x, SO_2, PM_{10}, VOCs, and HAPs	Permit Condition	Hours operated	Recordkeeping is required for compliance demonstration.
A05, A06, A08	Fire pump and emergency engines			Emission limitations based upon fuel throughput and hours of operation for testing and maintenance. Sulfur limited to 15 ppm and either a minimum cetane index of 40 or a maximum aromatic content of 35% by volume.	Recordkeeping of fuel use and hours of operation with a nonresettable hour meter. Manifest required to be onsite.

VI. EMISSION REDUCTION CREDITS (OFFSETS)

None.

VII. MODELING

A. INCREMENT ANALYSIS

SGS is a major source in Hydrographic Area 216 (Garnet Valley). Permitted emission units include two turbines, one fire pump, two generators, and one cooling tower. Since minor source baseline dates for PM_{10} (December 31, 1980), NO_2 (January 24, 1991), and SO_2 (December 31, 1980) 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/m³)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO_2	3-hour	19.08[1]	683061	4031511
SO_2	24-hour	6.53[1]	683069	4031559
SO_2	Annual	2.50	683069	4031559
NO_X	Annual	4.52	682950	4031747
PM_{10}	24-hour	10.80[1]	683069	4031559
PM_{10}	Annual	3.48	683069	4031559

[1] Highest Second High Concentration.

VIII. PERMIT SHIELD

Only the regulations with applicable emission standards and/or equipment-specific requirements are included in the table. NV Energy requests that these applicable requirements and a permit shield based on these requirements be included in the Part 70 OP, as provided by AQR 12.5.2.9.

Previously, the NO_x standard of 40 CFR Part 60, Subpart GG was shielded because the permit limit was more stringent than the standard. However, the NO_x standard of Subpart GG is proposed as a limit applicable to the testing/tuning alternative operating scenario; therefore, it should be removed from the permit shield. Additionally, the 40 CFR Part 60, Subpart Da opacity standard is not applicable to the duct burners because they only combust natural gas, so the opacity standard is exempt as stated in 40 CFR Part 60.42(d). NV Energy has provided an updated format of the permit shield to add clarity and consistency with other permit shields for similar NV Energy generating stations.

Streamlining has been conducted to demonstrate compliance with the most stringent standard in the permit.

IX. ATTACHMENTS

ATTACHMENT 1: EMISSION CALCULATIONS

Table IX-1: Greenhouse Gases Calculations (Facility–Wide)

NV Energy - Silverhawk Greenhouse Gas

Natural Gas Combustion										
EU	Description	Rating	Operation	HHV	Fuel Usage	Pollutant	EF	GHG Emissions		
		MMBtu/hr	*hrs/year*	*MMBtu/scf*	*scf/year*[1]		*kg/ MMBtu*	*GHG tons/year*	*GWP*[2]	*CO_2e tons/year*
A01	Turbine	1980	8,760	1.026E-03	1.691E+10	CO_2	53.06	920,315	1	920,315
						CH_4	1.0E-03	17.34	25	434
						N_2O	1.0E-04	1.73	298	517
A02	Duct-Burner	530	2,000	1.026E-03	1.033E+09	CO_2	53.06	56,244	1	56,244
						CH_4	1.0E-03	1.06	25	27
						N_2O	1.0E-04	0.11	298	32
A03	Turbine	1980	8,760	1.026E-03	1.691E+10	CO_2	53.06	920,315	1	920,315
						CH_4	1.0E-03	17.34	25	434
						N_2O	1.0E-04	1.73	298	517
A04	Duct-Burner	530	2,000	1.026E-03	1.033E+09	CO_2	53.06	56,244	1	56,244
						CH_4	1.0E-03	1.06	25	27
						N_2O	1.0E-04	0.11	298	32

[1] Fuel usage calculation: (hours/year * MMBtu/hr) / 1.026E-03 MMBtu/scf = scf/year.

[2] Global Warming Potential (GWP) is used to compare the abilities of different greenhouse gases to trap heat in the atmosphere. GWP is based on the heat-absorbing ability of each gas relative to that of carbon dioxide (CO_2). Once the individual GHG emissions are calculated, they have to be multiplied by the GWP to obtain the CO_2e value.

Emergency Engines										
EU	Description	Rating	Operation	HHV	Fuel Usage	Pollutant	EF	GHG Emissions		
		hp	*hrs/year*	*MMBtu/gal*	*gal/year*[1, 2]		*kg/ MMBtu*	*GHG tons/year*	*GWP*[3]	*CO_2e tons/year*
A05	Engine	250	500	0.138	6,250	CO_2	73.96	70.17	1	70.17
						CH_4	3.0E-03	2.85E-03	25	0.07
						N_2O	6.0E-04	5.69E-04	298	0.17
A06	Engine	100	500	0.091	5,476	CO_2	62.87	34.46	1	34.46
						CH_4	3.0E-03	1.64E-03	25	0.04
						N_2O	6.0E-04	3.29E-04	298	0.10
A08	Engine	2,206	500	0.138	55,150	CO_2	73.96	619.18	1	619.18
						CH_4	3.0E-03	2.51E-02	25	0.63
						N_2O	6.0E-04	5.02E-03	298	1.50

[1] Diesel usage calculation: (0.35 lb/hp-hr x hp x 500 hr/year) / 7 lb/gal = gal/year.

[2] LPG usage calculation: (0.46 lb/hp-hr x hp x 500 hr/year) / 4.2 lb/gal = gal/year.

[3] Global Warming Potential (GWP) is used to compare the abilities of different greenhouse gases to trap heat in the atmosphere. GWP is based on the heat-absorbing ability of each gas relative to that of carbon dioxide (CO_2). Once the individual GHG emissions are calculated, they have to be multiplied by the GWP to obtain the CO_2e value.

NV Energy - Silverhawk Greenhouse Gas PTE

Pollutant	CO_2	CH_4	N_2O	CO_2e
Potential to Emit (tpy)	1,953,807	36.84	3.69	1,955,861

Table IX-2 summarizes PTE with its allowable operational condition for each emission unit in the OP. This table can be used to prepare Annual Emissions Inventory Reports with forms available on DAQ's website (http://www.clarkcountynv.gov). The values below should be entered as the PTE for each respective emission unit when using the annual emission inventory reporting forms provided by DAQ.

Table IX-2 Source-Wide Emission Unit PTE Summary (tons per year)

EU	Condition	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAPs	Pb
A01 + A02	8,000 hrs/yr	65.70	65.70	78.80	76.70	4.60	22.00	2.67	0
A01 + A02	900 hrs/yr	8.10	8.10	75.30	203.70	0.50	20.60	-	0
A03 + A04	8,000 hrs/yr	65.70	65.70	78.80	76.70	4.60	22.00	2.67	0
A03 + A04	900 hrs/yr	8.10	8.10	75.30	203.70	0.50	20.60	-	0
A05	500 hrs/yr	0.14	0.14	1.94	0.42	0.13	0.16	0.02	0
A06	500 hrs/yr	0.01	0.01	0.77	0.10	0.01	0.02	0.01	0
A07	8,760 hrs/yr	1.20	1.20	0	0	0	0	0	0
A08	500 hrs/yr	0.05	0.05	8.00	1.06	0.01	0.19	0.02	0