

TECHNICAL SUPPORT DOCUMENT

TECHNICAL INFORMATION PRESENTED IN REVIEW OF AN
APPLICATION FOR A PART 70 OPERATING PERMIT

SUBMITTED BY

NEVADA POWER COMPANY

for

CLARK STATION

Part 70 Operating Permit Number: 7

SIC Code - 4911: Electric Utility Services

NAICS Code – 221112: Fossil Fuel Electric Power Generation



Clark County
Department of Air Quality
Permitting Section

December, 2014

EXECUTIVE SUMMARY

Nevada Power Company – Clark Generating Station is an electrical power generating station located at 5640 Stephanie Street in Las Vegas, Nevada. The legal description of the source location is as follows: portions of T21S, R62E, Section 28 in Las Vegas Valley, County of Clark, State of Nevada. The source is situated in hydrographic area 212 (Las Vegas Valley), which is designated as attainment for all regulated pollutants.

Clark Generating Station is classified as a Categorical Stationary Source, as defined by AQR 12.2.2(j)(1). The source is a major stationary source for PM₁₀, PM_{2.5}, NO_x, CO, VOC, and GHG pollutants and a minor source for SO₂ and HAP pollutants. The generating station operates seventeen natural gas-fired turbines (one 60 MW simple cycle unit, four 85 MW combined cycle units which provide heat for four HRSG turbines with no supplemental duct firing, and 12 simple cycle paired units rated at 57.9 MW per pair), two 53,000 gpm cooling towers, one 474 hp diesel-powered emergency generator, one 460 hp diesel-powered emergency fire pump and one 1,200 gallon aboveground gasoline storage tank. This Part 70 Operating Permit is issued based on the Title V Renewal application submitted on April 15, 2014.

The following table summarizes the source potential to emit for each regulated air pollutant from all emission units for which an ATC has been issued:

Pollutant	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP	GHG
Tons/year	792.68	792.68	2,467.27	1,851.70	49.10	216.47	8.12	4,524,818
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	-

¹Ten tons for any individual HAP or 25 tons for combination of all HAPs.

Air Quality has received delegated authority from EPA to implement the requirement of the Part 70 OP program. The initial Part 70 OP was issued on November 3, 2003, with a renewal issued on November 2, 2009, and a revision issued on January 15, 2010. Based on the information submitted by the applicant and a technical review performed by the Air Quality staff, the Air Quality proposes the Part 70 operating permit renewal to NPC-Clark Station.

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I. ACRONYMS

Table I-1: List of Acronyms

Acronym	Term
Air Quality	Clark County Department of Air Quality
AQR	Clark County Air Quality Regulations
AST	Aboveground Storage Tank
ATC	Authority to Construct
CAAA	Clean Air Act, as amended, or Clean Air Act Amendments
CE	Control Efficiency
CEMS	Continuous Emissions Monitoring System
CF	Control Factor
CFR	United States Code of Federal Regulations
CO	Carbon Monoxide
CPI	Urban Consumer Price Index
DAHS	Data Acquisition and Handling System
DEM	Digital Elevation Model
EF	Emission Factor
EO	Executive Order
EPA	United States Environmental Protection Agency
EU	Emission Unit
GDO	Gasoline Dispensing Operation
HAP	Hazardous Air Pollutant
HHV	Higher Heating Value
HP	Horse Power
HRSG	Heat Recovery Steam Generating Unit
LHV	Lower Heating Value
MMBtu	Millions of British Thermal Units
NEI	Net Emission Increase
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen Oxides
NOV	Notice of Violation
NRS	Nevada Revised Statutes
NSPS	New Source Performance Standards
NSR	New Source Review
OP	Operating Permit
PM _{2.5}	Particulate Matter less than 2.5 microns
PM ₁₀	Particulate Matter less than 10 microns
ppm	Parts per Million
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RATA	Relative Accuracy Test Audit
RMP	Risk Management Plan
scf	Standard Cubic Feet
SIP	State Implementation Plan
SO _x	Sulfur Oxides
TCS	Toxic Chemical Substance
TDS	Total Dissolved Solids
TSD	Technical Support Document
ULNB	Ultra Low NO _x Burner
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound

II. SOURCE INFORMATION

A. General

Permittee	Nevada Power Company – Clark Station
Mailing Address	PO Box 98910, MS #30, Las Vegas, NV 89151-0001
Contacts	Starla Lacy
Phone Number	(702) 402-5669
Fax Number	(702) 402-2051
Source Location	5640 Stephanie St., Las Vegas, NV 89122
Hydrographic Area	212
Township, Range, Section	T21S, R62E, Section 28
SIC Code	4911 – Electric Services
NAICS Code	221112 – Fossil Fuel Electric Power Generation

B. Description of Process

Nevada Power Company – Clark Generating Station is a natural gas-fired electrical power generating station that falls under SIC Code 4911: Electric Services and NAICS Code 221112: Fossil Fuel Electric Power Generation. Clark Generating Station is a major source for PM₁₀, PM_{2.5}, NO_x, and CO and a minor source for SO₂, VOC, and HAPs.

Turbines

The emission units covered by this Part 70 OP are listed in Table III-B-1. Turbine Unit 4 (EU: A00704D) is a simple cycle combustion turbine combusting natural gas only. Units 5 and 6 (EUs: A00701A and A00702B) are operated as a combined cycle pair, where the exhaust gas is collected in the HRSG and used to turn steam-turbine Unit 10. Supplemental duct-firing is not used in the HRSG. No additional emissions result from the operation of Unit 10. Turbine Units 7 and 8 (EUs: A00705 and A00708) are also a combined cycle island pair associated with steam-turbine Unit 9. All turbine units operated by the source are permitted to combust only natural gas. CEMS for NO_x and CO are installed on Turbine Units 5, 6, 7 and 8. There are also twelve natural gas-fired peaking units that are operated generally during periods of peak demand.

Cooling Towers and Silos

Two 53,000 gpm cooling towers (EUs: A00712 and A00713) are operated as part of the combined cycle process. As a water conservation measure, the source is permitted to use gray water (water treated with lime and soda ash) in the cooling towers. One lime silo (EU: A00709) and two soda ash silos (EUs: A00710 and A00711) are maintained and operated for this purpose.

Gasoline Dispensing

The source operates a GDO consisting of one 1,200 gallon AST and one dispensing nozzle.

Diesel Engines

The source operates one 474 hp emergency generator (EU: A21) and one 460 hp emergency fire pump (EU: A45)

C. Permitting History

Date	Description
February 4, 1975	A registration certificate, with no conditions, was issued for Turbine 4.
April 1, 1977	A registration certificate, with no conditions, was issued for Turbine 5.
August 15, 1977	A registration certificate, with no conditions, was issued for Turbine 6.
August 1, 1978	Registration certificates revised to require water injection control for NO _x pollutants.
October 1, 1979	ATC issued to add turbine 7. Fuel consumption limits, fuel sulfur content requirements, and emission limits were incorporated.
September 11, 1980	ATC for turbine 8 was issued.
June 8, 1987	The Permittee submitted an application to retrofit turbines 5 through 8 to operate as combined cycle units.
July 29, 1988	The Permittee submitted an application to increase the source PTE resulting from the turbine upgrades.
January 27, 1993	Modification 0, Revision 0 issued for two cooling towers.
November 17, 1999	Modification 1, Revision 0 issued to add two new emergency generators.
May 23, 2003	Modification 2, revision 0 issued to consolidate existing ATC/OPs
October 30, 2003	Modification 3, Revision 0 issued to add one 315 hp diesel fire pump.
November 3, 2003	Initial Part 70 OP issued.
February 9, 2007	Modification 4, Revision 0 ATC/OP issued for addition of twelve 57.9 MW combustion turbine peaking units, three 19,900 gallon ammonia storage tanks, and one 635 hp diesel emergency generator.
March 20, 2007	Modification 4, Revision 1 issued to address administrative changes.
October 1, 2008	Modification 5, Revision 0 issued to remove the condition to allow the source to combust #2 fuel oil in combustion turbine Units 5 through 8 and for the installation of ultra-low NOX burners in the same turbines.
April 27, 2009	Modification 6, Revision 0 ATC issued to add diesel fire pump and diesel emergency generator.
November 2, 2009	Part 70 OP issued. Modification 5 was incorporated into the OP. In addition, the existing emergency generator and fire pump were replaced with larger units.
January 15, 2010	A minor revision to the Part 70 OP to incorporate the ATC/OP Modification 4, Revision 1 and the ATC Modification 6, Revision 0.
December 30, 2010	A minor revision to the Part 70 OP to correct horsepower ratings for the emergency fire pump and to update reporting requirements.

D. Current Permitting Action

On April 15, 2014, the source submitted an application to renew their Part 70 OP which is due to expire on November 2, 2014. The application requested the following:

- Removal of the diesel-powered emergency generator identified as EU: A22. This unit has been removed from the site.
- Removal of the diesel-powered emergency generator identified as EU: A46. The generator was originally permitted by Modification 6, Revision 0, issued on April 27, 2009, but was never installed.
- Removal of all permit conditions associated with ammonia. The current Air Quality Regulations do not regulate toxic chemical substances and therefore, ammonia is not a regulated pollutant under Clark County regulations. Air Quality performed a reevaluation of the ammonia emission limits and associated permit conditions based on the current regulations. Air Quality concludes that the source complied with the permit conditions and NSR regulations in place at the time of the issuance of the construction permit and there will not be any overarching implications on the emission limits and conditions of other air pollutants if the ammonia-related conditions are removed from the permit. Additionally, ammonia is not identified as a PM_{2.5} precursor by the state or county. Therefore, Air Quality decides to accept the source's request. However, the source may maintain a parametric monitoring system to calculate the actual ammonia emissions from the source if it ever becomes subject to the air toxics rules or PM_{2.5} precursor requirements.
- Increase operating hours of diesel-powered emergency equipment for testing and maintenance to correlate with 40 CFR regulations.
- A decrease in the testing frequency for the peaker combustion turbines (EUs: A27 through A38) from two years to five years.
- Visible emissions observation requirements reduction from quarterly to annually. These requirements were not changed, as requested. Air Quality determined that quarterly observations are the minimum required to demonstrate compliance with AQR Section 26. In addition, this is standard practice and is consistent with other NV Energy Operating Permits.

Although not requested on the application, the testing requirements for all of the combustion turbines have been removed from the permit. The reasons for this decision are as follows:

- Turbine 4 (EU: A00704D) is not equipped with any emission control devices for any pollutant.
- Turbines 5 through 8 (EUs: A00701A, A00702B, A00705, and A00708) are not equipped with emission control devices for PM₁₀ and VOC.
- An oxidation catalyst is used to control NO_x emissions from Turbines 11 through 22 (EUs: A27 through A38). A review of emission inventory records submitted for calendar years 2009 through 2013 indicate that the VOC emissions from these units consistently fall far below the estimated PTE for these units shown in Tables III-B-3 and III-B-4 of this document. The highest emissions reported for these units is as follows: 0.14 tons/year for 2009; 0.47 tons/year for 2010; and 0.25 tons/year for 2011, 2012, and 2013.
- Compliance with the emission limitations for the turbines equipped with CEMS units is continuously demonstrated with CEMS and annual RATA and therefore, annual

performance testing for emission units equipped with CEMS is not essential. Annual RATA testing is still required.

Greenhouse gas emission potentials are estimated and are included with this permitting action for informational purposes only.

E. Operating Scenario

Turbine Unit 4 is a simple cycle combustion turbine combusting natural gas. This turbine is one of the last to be fired up in NPC’s operating scenarios for providing power. Turbine Units 5 and 6 are operated as a combined cycle pair tied into Steam Turbine Unit 10. Turbine Units 7 and 8 are a combined cycle unit tied into Steam Turbine Unit 9. All four of these gas turbines are permitted to operate on natural gas up to 8,760 hours per year. Emission limitations have been established for each of these turbines based on 8,760 hours of operation. Turbine Units 11 through 22, the peaking units, are permitted to operate up to 3,500 hour per year. These units also have limitations on the number of startups and shutdowns per year (350 of each). The three ammonia tanks are installed as part of the emissions control system of these peaking units.

The cooling towers for Units 9 and 10 are associated with the two combined cycle islands. The source is permitted to use gray water in the cooling towers, thus the need for lime silos. The original limits for the equipment are being maintained in this permit to enable the source to use gray water again if deemed necessary as a water conservation measure.

III. EMISSIONS INFORMATION

A. Source-wide Potential to Emit

NPC-Clark Station is a major source of PM₁₀, NO_x, CO, and VOC, and a minor source of SO₂ and HAP emissions.

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

PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP	GHG
792.68	792.68	2,467.27	1,851.70	49.10	216.47	8.12	4,524,818

B. Emission Units and PTE

The following tables summarize the emission units and the PTE for each emission unit.

Table III-B-1: Compilation of Emission Units

EU	Description	Rating	Make	Model #
A00704D	Natural Gas-Fired Turbine (Unit 4); Simple Cycle	60 MW	General Electric	7B (7000)
A00701A	Natural Gas-Fired Turbine (Unit 5); Combined Cycle; No Supplemental Duct Firing	85 MW	Westinghouse	501B6
A00702B	Natural Gas-Fired Turbine (Unit 6); Combined Cycle; No Supplemental Duct Firing	85 MW	Westinghouse	501B6
A00705	Natural Gas-Fired Turbine (Unit 7); Combined Cycle; No Supplemental Duct Firing	85 MW	Westinghouse	501B6

EU	Description	Rating	Make	Model #
A00708	Natural Gas-Fired Turbine (Unit 8); Combined Cycle; No Supplemental Duct Firing	85 MW	Westinghouse	501B6
A00709	Lime Silo	3,700 cubic feet		
A00710	Soda Ash Silo (A)	4,160 cubic feet		
A00711	Soda Ash Silo (B)	4,160 cubic feet		
A00712	Cooling Tower; for Unit 9 Steam Turbine Generator	53,000 gpm		
A00713	Cooling Tower; for Unit 10 Steam Turbine Generator	53,000 gpm		
A21	Emergency Genset	474 hp	Kohler	M/N: 300R0ZD71 S/N: 302650
	Diesel Engine; DOM: pre-1993		Detroit Diesel	M/N: 8063-7416 S/N: 6V-92TA
A27	Two (2) Natural Gas-Fired Turbines (Unit 11); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A28	Two (2) Natural Gas-Fired Turbines (Unit 12); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A29	Two (2) Natural Gas-Fired Turbines (Unit 13); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A30	Two (2) Natural Gas-Fired Turbines (Unit 14); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A31	Two (2) Natural Gas-Fired Turbines (Unit 15); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A32	Two (2) Natural Gas-Fired Turbines (Unit 16); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A33	Two (2) Natural Gas-Fired Turbines (Unit 17); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A34	Two (2) Natural Gas-Fired Turbines (Unit 18); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A35	Two (2) Natural Gas-Fired Turbines (Unit 19); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A36	Two (2) Natural Gas-Fired Turbines (Unit 20); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A37	Two (2) Natural Gas-Fired Turbines (Unit 21); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A38	Two (2) Natural Gas-Fired Turbines (Unit 22); Simple Cycle	57.9 MW (Combined)	Pratt and Whitney	FT8-3 Swift Pac
A43	Aboveground Storage Tank; Regular Unleaded Gasoline	1,200 Gallon		
A45	Emergency Fire Pump	460 hp	Aurora	M/N: 481BF1J S/N: 08-1747710
	Diesel Engine; DOM: 2009		Cummins	M/N: CFP15EF10 S/N: 79347925

TABLE III-B-2: Summary of Insignificant Activities

Description
Three (3) Ammonia Storage Tanks (Sealed); 19,900 Gallon Each
Diesel Storage Tanks
Maintenance Shop Activities (parts washers, sand blasters, etc.)
Steam Cleaning Operations

Emission limitations in this document refer to pounds per MMBtu, pounds per hour, and tons per year. The terms “year” and “annual” in this permit refer to any consecutive 12-month period.

Table III-B-3: PTE, Including Startup and Shutdowns (tons per year)

EU	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	NH ₃
A00704D	165.4	165.4	1,732.6	433.1	7.9	94.5	0.00
A00701A	106.9	106.9	360 ¹	319.7	7.1	21.9	0.00
A00702B	106.9	106.9		319.7	7.1	21.9	0.00
A00705	106.9	106.9		319.7	7.1	21.9	0.00
A00708	106.9	106.9		319.7	7.1	21.9	0.00
A00709	8.6	8.6		0.00	0.00	0.00	0.00
A00710	8.6	8.6	0.00	0.00	0.00	0.00	0.00
A00711	8.6	8.6	0.00	0.00	0.00	0.00	0.00
A00712	32.2	32.2	0.00	0.00	0.00	0.00	0.00
A00713	32.2	32.2	0.00	0.00	0.00	0.00	0.00
A21	0.02	0.02	0.67	0.17	0.24	0.02	0.00
A27	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A28	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A29	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A30	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A31	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A32	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A33	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A34	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A35	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A36	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A37	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A38	9.10	9.10	30.96	11.55	1.01	2.86	7.12
A40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A43	0.00	0.00	0.00	0.00	0.00	0.01	0.00
A45	0.26	0.26	2.48	1.03	0.44	0.02	0.00
Totals	792.68	792.68	2,467.27	1851.70	49.10	216.47	85.44

¹Combined limit per calendar year for all four turbine units.

Table III-B-4: PTE, Excluding Startup and Shutdowns (lbs/hr)

EU	PM ₁₀	NO _x	CO	SO _x	VOC	NH ₃
A00701A	24.4	19.91	50.00	1.62	5.0	0.00
A00702B	24.4	19.91	50.00	1.62	5.0	0.00
A00705	24.4	19.91	50.00	1.62	5.0	0.00
A00708	24.4	19.91	50.00	1.62	5.0	0.00
A27	3.61	11.01	2.61	0.36	1.49	4.07
A28	3.61	11.01	2.61	0.36	1.49	4.07
A29	3.61	11.01	2.61	0.36	1.49	4.07
A30	3.61	11.01	2.61	0.36	1.49	4.07
A31	3.61	11.01	2.61	0.36	1.49	4.07
A32	3.61	11.01	2.61	0.36	1.49	4.07
A33	3.61	11.01	2.61	0.36	1.49	4.07
A34	3.61	11.01	2.61	0.36	1.49	4.07
A35	3.61	11.01	2.61	0.36	1.49	4.07
A36	3.61	11.01	2.61	0.36	1.49	4.07

EU	PM ₁₀	NO _x	CO	SO _x	VOC	NH ₃
A37	3.61	11.01	2.61	0.36	1.49	4.07
A38	3.61	11.01	2.61	0.36	1.49	4.07

Table III-B-5: Emission Rates, Excluding Startup and Shutdowns

EU	NO _x		CO		VOC	NH ₃
	ppm ¹ @15% O ₂	lbs/ MMBtu	ppm ¹ @15% O ₂	lbs/ MMBtu	ppm @ 15% O ₂	ppm @ 15% O ₂ ⁽¹⁾
A00704D	NL	NL	NL	NL	NL	NL
A00701A	5	0.02	NL	0.08	NL	NL
A00702B	5	0.02	NL	0.08	NL	NL
A00705	5	0.02	NL	0.08	NL	NL
A00708	5	0.02	NL	0.08	NL	NL
A27 – A38	5.0	NL	2.0	NL	2.0 ppmvd	5.0 ppmvd

¹On a one-hour average. NO_x emission limits are based on the consent decree limit of 5 ppm with ULNB.

Table III-B-6: Source-Wide HAP Emissions⁴ (tons per year)

HAP	Unit 4 (EU: A00704D) ^{1,2}	Turbine Units 5-8 (EUs: A00701A, A00702B, A00705 A00708) ^{1,2,3}	474 hp Generator (EU: A21)	Peaker Units (EUs: A27 through A38) ^{1,2}	GDO (EU: A43)	460 hp Fire Pump (EU: A45)
1,3-Butadiene	1.88E-03	9.04E-03	1.71E-06	5.43E-03	--	2.48E-06
Acetaldehyde	1.75E-01	8.40E-01	3.35E-05	5.05E-01	--	4.87E-05
Acrolein	2.80E-02	1.34E-01	4.04E-06	8.08E-02	--	5.88E-06
Arsenic	--	--	--	--	--	--
Cadmium	--	--	--	--	--	--
Beryllium	--	--	--	--	--	--
Chromium	--	--	--	--	--	--
Lead	--	--	--	--	--	--
Manganese	--	--	--	--	--	--
Formaldehyde	6.69E-02	3.22E-01	5.15E-05	1.93E-01	--	7.50E-05
Mercury	--	--	--	--	--	--
Nickel	--	--	--	--	--	--
Benzene	5.68E-03	2.73E-02	4.08E-05	1.64E-02	2.38E-04	5.93E-05
Ethyl Benzene	1.40E-01	6.72E-01	--	4.04E-01	2.17E-05	--
Selenium	--	--	--	--	--	--
Naphthalene	5.68E-03	2.73E-02	--	1.64E-02	--	5.39E-05
Toluene	9.18E-02	4.40E-01	1.79E-05	2.65E-01	1.30E-04	2.60E-05
Propylene Oxide	1.27E-01	6.08E-01	--	3.66E-01	--	--
Xylenes	2.80E-01	1.34E+00	1.24E-05	8.08E-01	4.33E-05	1.81E-05
PAHs	9.62E-03	4.64E-02	7.34E-06	2.78E-02	--	1.07E-05
Totals	0.93	4.48	0.01	2.98	0.01	0.01

¹Formaldehyde, benzene and toluene emissions factors from Gas-Fired Boiler and Turbine Air Toxics Summary Report, prepared by Carnot Technical Services, Tustin, CA, for the Gas Research Institute and the Electric Power Research Institute, August 1996; Remaining emission factors from AP-42 Section 3.1 Stationary Gas Turbines, Table 3.1-3.

²Based on HHV heat inputs of 997.9 (Unit 4) and 1,199.9 (Units 5-8 gas).

³Emission factors from AP-42, Volume 1, Chapter 3, Tables 3.1-4 and 3.1-5, Supplement F.

⁴The values presented in this table are PTEs and are not federally enforceable limits. These PTEs are presented to establish that the source is not a major source of HAP.

Table III-B-7: Facility-wide HAP Emissions (pounds per hour)^{1,6}

HAP	Unit 4 (EU:A00704D) ^{2,3}	Per Each Turbine Unit 5-8 (EUs: A00701, A00702B, A00705 and A00708), Worst Case ^{2,3,4,5}	474 hp Generator (EU: A21) ⁷	Per Each of 12 New Peakers (EUs:A27 through A38) ^{2,4}	460 hp Fire Pump (EU: A45)
1,3-Butadiene	5.15E-04	2.22E-02	1.32E-04	3.10E-04	1.38E-04
Acetaldehyde	4.79E-02	5.76E-02	2.58E-03	2.88E-02	2.71E-03
Acrolein	7.66E-03	9.22E-03	3.11E-04	4.62E-03	3.27E-04
Arsenic	--	1.53E-02	--	--	--
Cadmium	--	6.66E-03	--	--	--
Beryllium	--	4.30E-04	--	--	--
Chromium	--	1.53E-02	--	--	--
Lead	--	1.94E-02	--	--	--
Manganese	--	1.10E+00	--	--	--
Formaldehyde	1.83E-02	3.89E-01	3.96E-03	1.10E-02	4.17E-03
Mercury	--	1.67E-03	--	--	--
Nickel	--	6.38E-03	--	--	--
Benzene	1.56E-03	7.63E-02	3.14E-03	9.38E-04	3.29E-03
Ethylbenzene	3.83E-02	4.61E-02	--	2.31E-02	--
Selenium	--	3.47E-02	--	--	--
Napthalene	1.56E-03	4.86E-02	--	9.38E-04	2.99E-04
Toluene	2.51E-02	3.02E-02	1.38E-03	1.51E-02	1.44E-03
Propylene Oxide	3.47E-02	4.18E-02	--	2.09E-02	--
Xylenes	7.66E-02	9.22E-02	9.54E-04	4.62E-02	1.01E-03
PAHs	2.63E-03	5.55E-02	5.65E-04	1.59E-03	5.93E-04
Total per Unit	0.25	2.06	0.01	0.15	0.01
Total Combined	0.25	8.26	0.01	1.84	0.01

¹Emissions are based on Emission Factors + 20%.

²Based on HHV heat inputs of 997.9 (Unit 4), 1,199.9 (Units 5-8, gas), 1,156.7 (Units 5-8, oil), and 601 (Units 11-22) MMBtu/hr.

³Emission factors from AP-42, Volume 1, Chapter3, Tables 3.1-4 and 3.1-5 Supplement F.

⁴Formaldehyde, benzene, and toluene emission factors from Gas-Fired Boiler and Turbine Air Toxics Summary Report, prepared by Carnot Technical Services, Tustin, CA, for the Gas Research Institute and The Electric Power Research Institute, August 1996; Remaining emission factors from AP-42 Section 3.1 Stationary Gas Turbines, Table 3.1-3.

⁵Worst-case emissions of oil-fired and gas-fired operation.

⁶The values presented in this table are PTEs and are not federally enforceable limits. These values are presented for informational purposes only.

⁷Emission factors from AP-42, Volume 1, Section 3, Table 3.4-3 and 3.4-4, Supplement F; 1,3-Butadiene emission factor from AP-42, Vol. 1, Sec 3, Table 3.3-2 (not listed in 3.4).

Table III-B-8: Startup/Shutdown PTE per Turbine Unit for Units 5 through 8

EU	PM10 (lbs/event)	NOX (lbs/event)	CO (lbs/event)	SO2 (lbs/event)	VOC (lbs/event)
Hot Startup	24.40	140.00	800.00	8.00	5.00
Cold Startup	48.80	325.00	1,700.00	16.00	10.00
Shutdown	24.40	165.00	1,200.00	8.00	5.00

Note: Not federally enforceable limits; values are estimates for informational purposes only.

Table III-B-9: Emission Rates for Turbine Units 5 through 8, Allowable Exceedences¹

EU	NO _x ppm (at 15% O ₂ on a one-hour average)	lbs NO _x per MMBtu ²
A00701A, A00702B, A00705, A00708	32.0 (per unit)	0.12 (per unit)

¹Allowable exceedences are subject to the requirements of Condition III-B-1-m of the Operating Permit.

²NO_x EF = (32 ppm/1,000,000)*(1 lb mol/385.3 dscf)*(46.01 lb NO₂/lb mol)*(8,710 dscf/mmBtu)*(20.9/20.9-15)

Table III-B-10: Startup/Shutdown PTE per Peaker Unit (EUs: A27 - A38)¹

Pollutant	PM ₁₀	NO _x	CO	SO ₂	VOC
Maximum startup hour emissions (lb/hr) ²	14.71	63.06	34.62	2.08	2.09
Maximum shutdown hour emissions (lb/hr) ²	7.05	21.54	9.56	0.68	1.74
Maximum combined startup/shutdown hour emissions (lb/hr) ²	18.15	73.59	41.57	2.40	2.33

Note: Not federally enforceable limits; values are estimates for informational purposes only.

¹Emissions shown are per turbine unit unless noted otherwise.

²Maximum startup/shutdown hour emissions are based on 20 minutes for startup event, three minutes for shut down event (whichever is applicable) and normal operation during the remaining part of the clock-hour.

C. Performance Testing

The testing timetables and procedures required by previous permitting actions have been eliminated with this permitting action. The Department of Air Quality has adopted new testing guidelines for sources with CEMS/PEMS. Annual RATA testing for emission units equipped with CEMS was retained with this policy, but performance testing requirements were dropped.

The baghouses must be performance tested for PM₁₀, using EPA Method 5, to determine capture efficiency every 8,760 hours of use.

D. Continuous Emissions Monitoring

The purpose of CEMS is to ensure equipment and/or processes are operated so as not to exceed the permitted emission limits. CEMS is a compliance tool for both the agency and the Permittee.

For this source, CEMS measures NO_x, CO, and O₂ emissions from the exhaust stacks of Turbine Units 5 through 8 and 11 through 22. Annual RATA for each CEMS unit is required to ensure the monitoring system is operating properly. To demonstrate continuous, direct compliance with the emission limitations for NO_x and CO specified for each turbine, except Turbine 4 (EU: A00704D), the Permittee shall calibrate, maintain, operate and certify the CEMS for each turbine in accordance with 40 CFR 60. In addition, Turbine Units 11 through 22 are subject to the CEMS requirements of 40 CFR 75.

The Turbine Units combust only pipeline quality natural gas. The NO_x emissions were controlled by water injection in Turbine Units 5 through 8, prior to installation of the ULNBs. The natural gas flow, turbine load, and water injection rate are continuously monitored as the indicators of NO_x emissions. After installation of ULNBs, water injection is no longer required on Turbine Units 5 through 8.

IV. REGULATORY REVIEW

A. Local Regulatory Requirements

Air Quality has determined that the following public law, statutes and associated regulations are applicable:

1. CAAA, Authority: 42 U.S.C. § 7401, et seq.;
2. Title 40 of the CFR; including 40 CFR 70 and others;
3. NRS, Chapter 445; Sections 401 through 601;
4. Portions of the AQR included in the SIP for Clark County, Nevada. SIP requirements are federally enforceable. All requirements from ATC permits issued by Air Quality are federally enforceable because these permits were issued pursuant to SIP-included sections of the AQR; and
5. Portions of the AQR not included in the SIP. These locally applicable requirements are locally enforceable only.

B. Federally Applicable Regulations

40 CFR 60-STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES:

Subpart A - General Provisions

40 CFR 60.7-Notification and record keeping

Discussion: This regulation requires notification to Air Quality of modifications, opacity testing, records of malfunctions of process equipment and/or continuous monitoring device, and performance test data. These requirements are found in the Part 70 OP in Sections III-B and III-C. Air Quality requires records to be maintained for five years, a more stringent requirement than the two (2) years required by 40 CFR 60.7.

40 CFR 60.8 - Performance tests

Discussion: These requirements are found in the Part 70 OP in Section III-D. 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. Air Quality requirements for initial performance testing are identical to 40 CFR 60.8. Air Quality 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 60.11 - Compliance with standards and maintenance requirements

Discussion: 40 CFR 60 Subpart GG requires fuel monitoring and sampling to meet a standard, applicable to Turbine Units 5 through 8. 40 CFR 60 Subpart KKKK establishes NO_x and SO₂ limitations, applicable to Turbine Units 11 through 22. Subpart GG and KKKK requirements are in the Part 70 OP.

At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected source including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information

available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

These requirements have been included in the Part 70 OP.

40 CFR 60.12 - Circumvention

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

40 CFR 60.13 - Monitoring requirements

Discussion: This section requires that CEMS meet Appendix B and Appendix F standards of operation, testing and performance criteria. Section III-C of the Part 70 OP contains the CEMS conditions and citations to Appendix B and F. In addition, the QA plan approved for the CEMS follows the requirements outlined including span time, recording time, RATA waivers and malfunctions.

Subpart GG-Standards of Performance for Stationary Gas Turbines

40 CFR 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 60.332. [44 FR 52798, Sept. 10, 1979, as amended at 52 FR 42434, Nov. 5, 1987]

Units 5 through 8 underwent modification in 1988-1991. All four turbine units are subject to Subpart GG in its entirety.

Unit 4 is not subject to 40 CFR 60 Subpart GG, Standards of Performance for Stationary Gas Turbines, as it was permitted prior to the October 1977 applicability date.

Units 11 through 22 are not subject to 40 CFR 60 Subpart GG, Standards of Performance for Stationary Gas Turbines, as they are applicable to 40 CFR 60 Subpart KKKK, which exempts these units from this subpart.

40 CFR 60.332-Standard for nitrogen oxides (NO_x limits using the F formula)

Discussion: NPC is permitted such that combustion turbine Units 5 through 8 shall be limited to 1,081 MMBtu/hr lower heat value natural gas fuel rate. The NO_x limits established for Turbine Units 5 through 8 as BACT comply with and are within the F formula provisions above. This requirement has been met.

40 CFR 60.333-Standard for sulfur dioxide

Discussion: The sole use of pipeline-quality natural gas with total sulfur content less than 0.5 grains per 100 dscf satisfies this requirement.

40 CFR 60.334 - Monitoring of operations

Discussion: The source installed, calibrated, maintains and operates a continuous monitoring system.

40 CFR 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 for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII applies to the diesel fire pump (EU: A45) at this source because construction commenced after July 11, 2005. The requirements are found in the Part 70 OP. The diesel emergency generator (EU: A21) was constructed prior to the applicability and is not subject to the requirements of this subpart.

Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

40 CFR 60.4305 – Applicability

Discussion: Subpart KKKK does not apply to Turbine Units 4 through 8 at this source because the turbines did not commence construction, modification, or reconstruction after February 18, 2005. Subpart KKKK does apply to Turbine Units 11 through 22, as construction commenced after the applicability date.

40 CFR 60.4320 – Standard for nitrogen oxides

Discussion: The NO_x limit from Subpart KKKK is 25 ppmvd at 15 percent oxygen. This limit has been achieved by the BACT requirement of 5 ppm NO_x at 15 percent oxygen in the Part 70 OP.

40 CFR 60.4330 – Standard for sulfur dioxide

Discussion: The source meets this condition by combusting low sulfur pipeline quality natural gas.

40 CFR 60.4333 – Compliance Determination Procedures and Methods

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

40 CFR 60.4345 - Monitoring of operations

Discussion: The source installed, calibrated, maintains and operates a continuous monitoring system.

40 CFR 60.4375 – Reporting Requirements

Discussion: These are discussed in Part 70 OP.

40 CFR 60.4405 – Test methods and procedures

Discussion: The test procedure is a one-time requirement that has been satisfied.

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

Subpart A - General Provisions

40 CFR 63.4 – Prohibited activities and circumvention

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

Subpart ZZZZ- National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

40 CFR 63.6585 Am I subject to this subpart

Discussion: Subpart ZZZZ applies to the diesel emergency generator (EU: A21) and to the diesel fire pump (EU: A45) at this source.

Pursuant to 63.6590(c), an affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

The diesel emergency generator (EU: A21) is subject to the provisions of 40 CFR 63, Subpart ZZZZ and shall comply with the following requirements no later than May 3 2013:

- a. Change the oil and filter every 500 hours of operation or annually whichever comes first;
- b. Inspect air cleaner every 1,000 hours of operation or annually whichever comes first; and
- c. Inspect all hoses and belts every 500 hours of operation or annually whichever comes first and replace if needed.

The diesel fire pump (EU: A45) is subject to Subpart IIII and therefore, no further requirements apply.

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

40 CFR 63.11111 – Applicability and designation of affected facility

Discussion: The provisions of this subpart are applicable to any GDO that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDO and also includes each storage tank. The GDO at this source (EU: A43) has a monthly throughput of less than 10,000 gallons of gasoline, and therefore, must comply with the requirements in 40 CFR 63.11116.

40 CFR 63.11113 – Compliance Dates

Discussion: Subpart CCCCCC became effective on January 10, 2008. All existing sources are required to comply with the standard by January 10, 2011.

40 CFR 63.11116 – Requirements for facilities with monthly throughput of less than 10,000 gallons of gasoline

Discussion: The source is required to handle gasoline in a manner that would curb extended periods of vapor releases to the atmosphere. The measures to be taken are described in detail in Condition III-B-3-r of the Part 70 OP. The source is not required to submit notifications or reports, but must maintain records of gasoline throughput.

40 CFR 63.11130 – Applicability of General Provisions

Discussion: In addition to the section discussed above, the parts of the general provision in 40 CFR 63.1 through 63.15 presented in Table 3 of 40 CFR 63 Subpart CCCCCC, are also applicable to the source.

40 CFR 64 – COMPLIANCE ASSURANCE MONITORING

40 CFR 64.2 – Applicability

Discussion: The lime silo (EU: A00709) and the soda ash silos (EUs: A00710 and A00711) are subject to CAM requirements, as they have a control device used to achieve compliance with emission limitations and potential pre-control device for PM₁₀ emissions are greater than the major source threshold. The permit conditions for these units satisfy CAM requirements. The CAM Rule is not applicable to Turbine Unit 4 (EU: A00704D), the diesel-powered emergency generator (EU: A21), The diesel-powered fire pump (EU: A45), the cooling towers (EUs: A00712 and A00713), and the gasoline dispensing operation (EU: A0043) based on the applicability statement outlined in 40 CFR 64.2(a)(2), i.e., a control device is not used on these units (other than inherent process equipment) to achieve compliance with any emission limitation or standard for a regulated air pollutant. The NO_x and CO CEMS, which are operated and required by the Part 70 OP on Turbine Units 5 through 8 and 11 through 22, meet the CAM 40 CFR 64.2(b)(1)(vi) exemption requirements of a continuous compliance determination method. For Turbine Units 5 through 8 and 11 through 22, the CAM Rule is not applicable for PM₁₀, SO_x, VOC, or HAP because no control device is used to achieve compliance for any of these pollutants.

40 CFR 72-ACID RAIN PERMITS REGULATION

Subpart A – Acid Rain Program General Provisions

40 CFR 72.6 – Applicability

Discussion: Turbine Units 4 through 8 were operating as simple cycle natural gas fired turbines prior to November 15, 1990, and have not added auxiliary firing. Therefore, according to 72.6(b)(1) the provisions of this regulation do not apply to these units. Turbine Units 11 through 22 are new units according to 40 CFR 72.6 and the provisions of this regulation apply.

40 CFR 73 – ACID RAIN SULFUR DIOXIDE ALLOWANCE SYSTEM

Discussion: Turbine Units 11 through 22 are applicable units and therefore the provisions of this regulation apply.

40 CFR 75 – CONTINUOUS EMISSION MONITORING

Discussion: Clark Station is an affected facility subject to the Acid Rain emission limitations of 40 CFR 40 CFR 72; therefore, the source is subject to the monitoring, recordkeeping, and reporting requirements of this regulation.

V. COMPLIANCE

A. Compliance Certification

19.3.3.9 Requirements for compliance certification:

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

Table V-A-1: Reporting Schedule

Required Report	Applicable Period	Due Date ¹
Semi-annual Report for 1st half of the year.	January, February, March, April, May, June	July 30 each year
Semi-annual Report for 2nd half of the year. Any additional annual records required.	July, August, September, October, November, December	January 30 each year
Annual Compliance Certification Report	12 Months	30 days after the Operating Permit issuance anniversary date
Annual Emission Inventory Report	Calendar Year	March 31 each year
Excess Emission Notification	As Required	Within 24 hours of the onset of the event
Excess Emission Report	As Required	As soon as practicable but not to exceed 72 hours from notification
Deviation Report	As Required	Along with semi-annual reports
Performance Testing	As Required	Within 60 days from the end of the test

¹If 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.

- (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 source's compliance status with any applicable enhanced monitoring and compliance certification requirements of the Act.

B. Compliance Summary

Table V-B-1: Applicable Regulations

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 0	Definitions	Applicable – Clark Station will comply with all applicable definitions as they apply.	Clark Station will meet all applicable test methods should new definitions apply.	Clark Station complies with applicable requirements.
AQR Section 4	Control Officer	Applicable – The Control Officer or his representative may enter into Clark Station property, with or without prior notice, at any reasonable time for purpose of establishing compliance.	NV Energy will allow Control Officer to enter Station property as required.	Clark Station complies with applicable requirements.
AQR Section 5	Interference with Control Officer	Applicable – NV Energy shall not hinder, obstruct, delay, resist, or interfere with the Control Officer.	NV Energy will allow Control Officer to operate as needed.	Clark Station complies with applicable requirements.
AQR Section 8	Persons Liable for Penalties	Applicable – NV Energy and employees will be individually and collectively liable to any penalty or punishment from Air Quality	NV Energy will adhere to the rules stipulated in applicable AQR.	Clark Station complies with applicable requirements.
AQR Section 9	Civil Penalties	Applicable – The rule stipulates penalties for AQR violations.	NV Energy will adhere to the rules stipulated in applicable AQR.	Clark Station complies with applicable requirements.
AQR Section 10	Compliance Schedule	Applicable – Any existing source not in compliance with emission limitations shall submit a compliance schedule	NV Energy will adhere to emission limitations and submit a compliance schedule if those limits are exceeded.	Clark Station complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 12.2	Permit Requirements for Major Sources in Attainment Areas (PSD)	Applicable – Clark Station is a major source of PM ₁₀ , PM _{2.5} , NO _x , CO, and VOC and Clark County, Nevada is an attainment area for PM _{2.5} , NO _x , CO, and SO ₂ and ozone (regulated through NO _x and VOC)	<p>Clark Station complies with the applicable regulations and requirements of 40 CFR 52.21. Turbine Units 5-8 were permitted with ULNB as BACT for NO_x at 5ppm @15% O₂.</p> <p>Turbine Units 11-22 were permitted with a BACT for NO_x using water injection and SCR. The permitted emission rate is 5 ppm @ 15% O₂ on a one hour averaging basis.</p> <p>BACT for PM₁₀ and SO₂ includes the use of inlet air filters and pipeline natural gas.</p> <p>BACT for Turbine Units 11-22 , for CO and VOC, requires an oxidation catalyst with emission rates of 2 ppm for CO and VOC @15% O₂.</p> <p>BACT for the diesel-powered emergency generator includes operation with a turbocharger and aftercooler, the combustion of only low sulfur fuel, and meeting maximum emission rates from 40 CFR 60 Subpart IIII.</p>	Clark Station complies with applicable requirements.
AQR Section 12.3	Permit Requirements for Major Sources in Nonattainment Areas	Applicable – Clark Station is a major source of PM ₁₀ , PM _{2.5} , NO _x , CO, and VOC and Clark County, Nevada is a nonattainment area for PM ₁₀	<p>The turbine units met LAER requirements for PM₁₀ based on the combustion of natural gas and good combustion control practices.</p> <p>BACT for the fire pump is 40 CFR 60, Subpart IIII requirements.</p>	Clark Station complies with applicable requirements.
AQR Section 12.4	ATC application and Permit Requirements for Part 70 Sources	Applicable – Clark Station applied for an ATC from Air Quality	Clark Station applied for, and received, ATC permits from Air Quality. Clark Station shall comply with the requirements for ATCs.	Clark Station complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 12.5	Part 70 Operating Permit Requirements	Applicable – Clark Station as a whole is applicable.	Clark Station complies with the requirements for Title V permits outlined in this AQR and with the current Title V permit.	Clark Station complies with applicable requirements.
AQR Section 12.9	Annual Emissions Inventory	Applicable – Clark Station shall complete and submit an annual emissions inventory.	Annual emission inventories shall be submitted by March 31 each year	Clark Station complies with applicable requirements.
AQR Section 12.10	Continuous Monitoring Requirements	Applicable – Clark Station NO _x and CO CEMS installed on all applicable stacks (Turbine Units 5, 6, 7, and 8) and meets provisions of 40 CFR 60.	Clark Station submitted all required protocols/test plans per the issued ATC permit prior to CEMS certification. CEMS certification was approved by Air Quality.	Clark Station complies with applicable requirements.
AQR Section 13	Emission Standards for Hazardous Air pollutants	Applicable – Clark Station emits hazardous air pollutants	Clark Station complies with the applicable requirements of 40 CFR Part 61 and 63.	Clark Station complies with applicable requirements.
AQR Section 14.1.1 Subpart A	NSPS – General Provisions	Applicable – Clark Station (Turbine Units 5, 6, 7, and 8) is an affected source under the regulations. AQR Section 14 is locally enforceable; however, the NSPS standards they reference are federally enforceable. These provisions do not apply to Turbine Unit 4, however, as it pre-dates the regulation.	Applicable monitoring, recordkeeping and reporting requirements on Turbine Units 5, 6, 7, and 8. Not applicable to Turbine Unit 4.	Clark Station complies with applicable requirements.
AQR Section 14.1(b)(3) Subpart Da	NSPS – Standards of Performance for Electric Utility Steam Generating Units	Not Applicable – Clark station does not have any duct burners or boilers under the jurisdiction of Air Quality.	Not Applicable.	Not Applicable.
AQR Section 14.1.(b)(40) Subpart GG	NSPS – Standards of Performance for Stationary Gas Turbines	Applicable –Clark Station Turbine Units 5, 6, 7, and 8 are natural gas fired units with heat input greater than 10 MMBtu/hr. This regulation does not apply to Turbine Unit 4, as it pre-dates the regulation.	Turbine Units 5, 6, 7, and 8 meet the applicable NO _x emission standard. NO _x emissions from each turbine shall not exceed 91.6 ppm (dry, corrected to 15 percent oxygen). NO _x emissions determined by EPA Method 7E. Not applicable to Turbine Unit 4.	Clark Station complies with applicable requirements.
AQR Section 14.1.(b)(80) Subpart IIII	NSPS for Stationary Compression Ignition Internal Combustion Engines	Applicable – The emergency fire pump is rated between 175 hp and 750 hp and was manufactured in 2009.	Clark Station shall continue to adhere to applicable monitoring, testing, recordkeeping, and reporting regulations stipulated in the Subpart.	Clark Station complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 14.1.(b)(82) Subpart KKKK	Subpart KKKK – Standards of Performance for Stationary Combustion Turbines	Applicable – Turbines 11 through 22 commenced construction after 02/18/2005	Clark Station shall continue to demonstrate compliance using CEMS, EPA approved testing methods, and combustion of low sulfur pipeline natural gas.	Clark Station complies with applicable requirements.
AQR Section 18	Permit and Technical Service Fees	Applicable – Clark Station will be required to pay all required/applicable permit and technical service fees.	Clark Station is required to pay all required/applicable permit and technical service fees.	Clark Station complies with applicable requirements.
AQR Section 21	Acid Rain Permits	Applicable to turbine units 11 through 22, only. Turbine Units 4 through 8 are not applicable per 40 CFR 72.6(b)(1).	Clark Station submitted the required acid rain permit forms.	Clark Station complies with applicable requirements.
AQR Section 22	Acid Rain Continuous Emission Monitoring	Applicable to turbine units 11 through 22, only. Clark Station is required to meet the requirements for monitoring, record keeping, and reporting for SO ₂ , NO _x emissions. Turbine Units 4 through 8 are not applicable per 40 CFR 72.6(b)(1).	Clark Station submitted the required protocols/test plans.	Clark Station complies with applicable requirements.
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 twenty (24) hours of the time that the Permittee learns of the event.	Clark Station complies with applicable requirements.
AQR Section 26	Emissions of Visible Air Contaminants	Applicable – Opacity for the Clark Station combustion turbine must not exceed 20 percent for more than 6 consecutive minutes.	Compliance determined by EPA Method 9	Clark Station complies with applicable requirements.
AQR Section 27	Particulate Matter from Process Weight Rate	Applicable – Clark Station emission units are required to meet the maximum process weight rate based emission limit based on maximum design and rate of equipment.	Compliance determined by meeting maximum particulate matter discharge rate based on process rate.	Clark Station complies with applicable requirements.
AQR Section 28	Fuel Burning Equipment	Applicable – The PM emission rate for the combustion the Turbines is well below those established based on Section 28 requirements.	Maximum allowable PM emission rate determined from equation in Section 28.	Clark Station complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
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.	Clark Station air contaminant emissions controlled by pollution control devices or good combustion in order not to cause a nuisance.	Clark Station complies with applicable requirements.
AQR Section 41	Fugitive Dust	Applicable – Clark Station shall take necessary actions to abate fugitive dust from becoming airborne.	Station utilizes appropriate best practices to not allow airborne fugitive dust.	Clark Station complies with applicable requirements.
AQR Section 42	Open Burning	Applicable – In event Clark Station 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.	Clark Station will contact the Air Quality and obtain approval in advance for applicable burning activities as identified in the rule.	Clark Station 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 fifteen minutes. Section 43 is a locally enforceable rule only.	Clark Station will not operate its source in a manner which will cause odors. Clark Station is a natural gas fired source and is not expected to cause odors.	Clark Station complies with applicable requirements.
AQR Section 70.4	Emergency Procedures	Applicable – Clark Station submitted an emergency standby plan for reducing or eliminating air pollutant emissions in the Section 16 Operating Permit Application.	Clark Station submitted an emergency standby plan and received the Section 16 Operating Permit.	Clark Station complies with applicable requirements.
AQR Section 80	Circumvention	Applicable – Clark Station shall not conceal emissions in any way.	NV Energy will disclose all emissions as required by state and federal regulations.	Clark Station complies with applicable requirements.
AQR Section 94	Permitting and Dust Control for Construction Activities.	Applicable – Clark Station shall apply for a dust control permit in the event of engaging in a construction activity greater than 0.25 acre.	Applicable – Clark Station shall apply for a dust control permit in the event of engaging in a construction activity greater than 0.25 acre.	Clark Station complies with applicable requirements.
NRS Chapter 445B	Nevada Revised Statutes, Air pollution	Applicable – Clark Station shall comply with applicable regulations	Clark Station shall comply with applicable regulations	Clark Station complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR 52.21	Prevention of Significant Deterioration	Applicable – Clark Station is a categorical major source.	Clark Station complies with the regulations of the Section and with the requirements of AQR 12.2. Bact analysis. Air quality analysis, and visibility and additional impact analysis performed for the original permit.	Clark Station complies with applicable requirements.
40 CFR 52.1470	State Implementation Plan Rules	Applicable – Clark Station is subject to the Nevada SIP	Clark Station shall continue to comply with the federally enforceable monitoring, testing, recordkeeping, and reporting requirements stipulated in the SIP.	Clark Station complies with applicable requirements.
40 CFR 60, Subpart A	Standards of Performance for New Stationary Sources – General provisions	Applicable – Clark Station is an affected facility under NSPS Subpart GG and KKKK. Therefore, Subpart A provisions are applicable.	Clark Station shall continue to adhere to applicable monitoring , testing, recordkeeping, and reporting regulations	Clark Station complies with applicable requirements.
40 CFR 60, Subpart Da	Standards of Performance for Electric Utility Steam Generating Units	Not Applicable – Clark Station does not operate any steam generating units for which construction commenced after 09/18/1978	Not Applicable	Not Applicable
40 CFR 60, Subpart D _c	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Not Applicable – Clark Station does not operate any steam generating units for which construction commenced after 09/18/1978	Not Applicable	Not Applicable
40 CFR 60, Subpart GG	Standards of Performance for Stationary Gas Turbines	Applicable – Turbines 5 through 8 are gas-fired units with heat inputs greater than 10 MMBtu/hr.	Clark Station shall continue to adhere to applicable monitoring , testing, recordkeeping, and reporting regulations for Turbines 5 through 8. In addition, the turbines shall meet the applicable NO _x and SO ₂ emission limits.	Clark Station complies with applicable requirements.
40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	Applicable – Turbines 11 through 22 commenced construction after 02/18/2005	Clark Station shall continue to demonstrate compliance using CEMS, EPA approved testing methods, and combustion of low sulfur pipeline natural gas.	Clark Station complies with applicable requirements.
40 CFR 60, Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Applicable – The emergency fire pump is rated between 175 hp and 750 hp and was manufactured in 2009.	Clark Station shall continue to adhere to applicable monitoring, testing, recordkeeping, and reporting regulations stipulated in the Subpart.	Clark Station complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR 60, Appendix A	Method 9 (or equivalent)	Applicable – Stack emissions are subject to opacity standards.	Clark Station adheres to the testing requirements stipulated in method 9.	Clark Station complies with applicable requirements.
40 CFR 60, Appendix A	Method 20 (or equivalent)	Applicable – Emissions from the turbines are subject to the requirements for the determination of NO _x , NO ₂ , and diluent emissions.	Clark Station adheres to the testing methods of Method 20.	Clark Station complies with applicable requirements.
40 CFR 63, Subpart ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Applicable – The emergency generator is subject to this Subpart.	Clark Station shall continue to adhere to the applicable emission limitations, operating and maintenance requirements, recordkeeping, reporting, and general provisions.	Clark Station complies with applicable requirements.
40 CFR 63, Subpart CCCCC	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities	Applicable – The gasoline dispensing operation is subject to this subpart.	Clark Station shall continue to adhere to the applicable emission limitations, operating and maintenance requirements, recordkeeping, reporting, and general provisions.	Clark Station complies with applicable requirements.
40 CFR 64	Compliance Assurance Monitoring	Applicable – The lime and soda ash silos are subject to the CAM rule.	A CAM plan is included with the permit renewal.	Clark Station complies with applicable requirements.
40 CFR 68	Chemical Accident Prevention Provisions	Not Applicable – The 19% aqueous ammonia stored at Clark Station is less than the applicable threshold.	Not Applicable	Not Applicable
40 CFR 70	Federally Mandated Operating Permits	Applicable – The regulations provide for the establishment of State air quality permitting systems consistent with the requirements of Title V of the Clean Air Act	Clark Station complies with this regulation by maintaining an updated Title V federal operating permit.	Clark Station complies with applicable requirements.
40 CFR 72	Acid Rain Permit Regulations	Applicable – Turbine Units 11 through 22 are subject to acid rain regulations	Clark Station complies with all applicable regulations. An acid rain permit was submitted with the renewal application.	Clark Station complies with applicable requirements.
40 CFR 73	Acid rain Sulfur Dioxide Allowance System	Applicable – The regulations stipulate the allocation, exchange, etc. of acid rain SO ₂ allowances	NV Energy complies with all applicable requirements and obtains required acid rain SO ₂ allowances.	Clark Station complies with applicable requirements.
40 CFR 75	Acid Rain Continuous Emission Monitoring	Applicable – Clark Station is an affected facility and must meet the requirements for monitoring, recordkeeping, and reporting of flow rate, SO ₂ , NO _x , and CO ₂ emissions.	Clark Station shall continue to adhere to the CEMS requirements for monitoring, recordkeeping, and reporting.	Clark Station complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR 82	Protection of Stratospheric Ozone	Applicable – Clark Station is subject to the applicable rules regarding protection of stratospheric ozone.	Clark Station does not use or sell a substitute material for a device designated to use a CFC or HCFC and keeps records applicable to the rule onsite.	Clark Station complies with applicable requirements.

C. Summary of Monitoring for Compliance

Table V-C-1: Compliance Monitoring

EU	Process Description	Monitored Pollutants	Applicable Subsection Title	Requirements	Compliance Monitoring
A00704D	Combustion Turbine	CO, NO _x , SO ₂ , PM ₁₀ , VOC, HAP	AQR Section 12	Annual emission limits	Record keeping hours of operation, fuel use
A00701A, A00702B, A00705, and A00708	Combustion turbines Units 5 through 8	CO, NO _x , SO ₂ , PM ₁₀ , VOC, and HAP	AQR Section 12, 40 CFR 60 Subpart GG	Annual and short-term emission limits. Fuel consumption recordkeeping and reporting	CEMS for NO, 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,.
A00701A, A00702B, A00705, and A00708	Combustion turbines Units 5 through 8	SO ₂	Subpart GG	Natural gas sulfur content limited by 0.50 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 0.05 percent by weight.
A00701A, A00702B, A00705, and A00708	Combustion turbines Units 5 through 8		AQR Section 26	Opacity 20%	Regular, periodic visual survey of opacity shall be made while burning gas. Immediate logging of any opacity noted, and correction of opacity exceedance. Reporting of upset/breakdown to EPA and Air Quality.
A00708	Lime Silo	PM ₁₀	AQR Section 12	Baghouse 99.9% efficiency Hours of operation and throughput limit	Performance testing if operated more than 500 hours and then every 8,760 hours thereafter. Recordkeeping of hours of operation, and throughput.

EU	Process Description	Monitored Pollutants	Applicable Subsection Title	Requirements	Compliance Monitoring
A00710 and A00711	Soda ash silos	PM ₁₀	AQR Section 12 AQR Section 26	Baghouse 99.9% efficiency Hours of operation and throughput limit Opacity	Performance testing if operated more than 500 hours and then every 8,760 hours thereafter. Recordkeeping of hours of operation and throughput.
A00712 and A00713	Cooling tower	PM ₁₀	AQR Section 12	Emission limits based upon hours of operation and TDS	Control technology of drift eliminators. Recordkeeping of hours of operation. Monitoring of total dissolved solids and recordkeeping
A27 through A38	Combustion turbines Units 11 through 22	CO, NO _x , SO ₂ , PM ₁₀ , VOC, and HAPs	AQR Section 12, 40 CFR 60 Subpart KKKK	Annual and short-term emission limits. Fuel consumption recordkeeping and reporting	CEMS for NO 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.
A27 through A38	Combustion turbines Units 11 through 22	SO ₂	Subpart KKKK	Natural gas sulfur content limited to 0.060 lbs SO ₂ /MMBtu.	Annual sulfur content results, as determined per 40 CFR Part 75, Appendix D, to be submitted with annual reports. Recordkeeping of sulfur content quarterly. Excess emissions report if sulfur exceeds 0.05 percent by weight.
A27 through A38	Combustion turbines Units 11 through 22		AQR Section 26	Opacity 20%	Regular, periodic visual survey of opacity shall be made while burning gas. Immediate logging of any opacity noted, and correction of opacity exceedances. Reporting of upset/breakdown to EPA and Air Quality.
A45	Emergency Fire Pump	NO _x , CO, VOC, PM ₁₀ , HAP, and SO ₂	AQR Sections 12 and 29	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 percent by volume.	Recordkeeping of fuel use and hours of operation. Calculated emissions based upon manufacturer's emission factors, AP-42 and fuel. Fuel certification by supplier.

VI. EMISSION REDUCTION CREDITS (OFFSETS)

The source is subject to offset requirements in accordance with AQR Section 12.7. All offset requirements have been met..

VII. ADMINISTRATIVE REQUIREMENTS

AQR Section 12.5 requires that Air Quality 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.

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

Legal:

On December 5, 2001 in Federal Register Volume 66, Number 234 FR30097 the EPA fully approved the Title V Operating Permit Program submitted for the purpose of complying with the Title V requirements of the 1990 CAAA and implementing 40 CFR 70.

Factual:

NPC-Clark Station has supplied all the necessary information for Air Quality to draft Part 70 OP conditions encompassing all applicable requirements and corresponding compliance.

Conclusion:

Air Quality has determined that NPC-Clark Station will continue to determine compliance through the use of CEMS, performance testing, quarterly reporting, daily recordkeeping, coupled with annual certifications of compliance. Air Quality proceeds with the decision that a Part 70 OP should be issued as drafted to NPC-Clark Station for a period not to exceed five years.

VIII. MODELING

Clark Generating Station is a major source in Hydrographic Area 212 (Las Vegas Valley). Permitted emission units include 18 turbines, two generators, two cooling towers, three silos and one tank. Since minor source baseline dates for NO_x (October 21, 1988) and SO₂ (June 29, 1979) have been triggered, Prevention of Significant Deterioration (PSD) increment analysis is required. Air Quality modeled the source using AERMOD to track the increment consumption.

The source was modeled for the NO_x and SO₂ increment consumption. Stack data submitted by the applicant were supplemented with information available for similar emission units. Five years (1999 to 2003) of meteorological data from the McCarran Station and Desert Rock Station were used in the model. United States Geological Survey (USGS) 7.5-minute National Elevation Dataset (NED) terrain data was used to calculate elevations. Table VIII-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 VIII-1: PSD Increment Consumption

Pollutant	Averaging Period	PSD Increment Consumption by the Source ($\mu\text{g}/\text{m}^3$)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO ₂	3-hour	28.75 ¹	675119	3995459
SO ₂	24-hour	7.55 ¹	675205	3995259
SO ₂	Annual	2.55	675552	3995111
NO _x	Annual	5.84	675906	3995700

¹Second High Concentration

IX. ATTACHMENTS

Table IX-1: PTE for Diesel Engine

EU#	A21	Pollutants	Emission Factor (lb/hp-hr) ¹	PTE	
Make:	Detroit Diesel			lb/hr	ton/yr
Model:	8063-7416	PM ₁₀	1.72E-04	0.08	0.02
S/N:	6V-92TA	PM _{2.5}	1.72E-04	0.08	0.02
Horsepower:	474	NO _x	5.86E-03	2.70	0.67
Hours/Day:	24	CO	1.48E-03	0.68	0.17
Hours/Year	500	SO _x	2.05E-03	0.94	0.24
		VOC	1.90E-04	0.09	0.02
		HAP	4.52E-05	0.02	0.01

¹Emission factors from manufacturer's data and AP-42

Table IX-2: PTE for Diesel Engine

EU#	A45	Pollutants	Emission Factor (lb/hp-hr) ¹	PTE	
Make:	Cummins			lb/hr	ton/yr
Model:	CFP15E-F10	PM ₁₀	2.20E-03	1.04	0.26
S/N:	79347925	PM _{2.5}	2.20E-03	1.04	0.26
Horsepower:	460	NO _x	2.10E-02	9.94	2.48
Hours/Day:	24	CO	8.71E-03	4.13	1.03
Hours/Year	500	SO _x	3.73E-03	1.77	0.44
		VOC	1.63E-04	0.08	0.02
		HAP	4.52E-05	0.02	0.01

¹Emission factors from manufacturer's data and AP-42

Table IX-3: PTE for Greenhouse Gas for Combustion Turbines and Emergency Generator

EU	HHV (MMBtu/hr)	Operation (hours/year)	Startup/Shutdown (hours/yr)	CO ₂ (tons/yr)	CH ₄ (tons/yr)	N ₂ O (tons/yr)	Total GHG (tons/year)
A00704D	998	8,760		510,893	9.64	0.98	510,903.62
A00701A	1,200	8,760		614,322	11.60	1.18	614,334.78
A0072B	1,200	8,760		614,322	11.60	1.18	614,334.78
A00705	1,200	8,760		614,322	11.60	1.18	614,334.78
A00708	1,200	8,760		614,322	11.60	1.18	614,334.78
A27	601	3,500	134	129,694	2.40	0.24	129,696.64
A28	601	3,500	134	129,694	2.40	0.24	129,696.64

EU	HHV (MMBtu/hr)	Operation (hours/year)	Startup/Shutdown (hours/yr)	CO ₂ (tons/yr)	CH ₄ (tons/yr)	N ₂ O (tons/yr)	Total GHG (tons/year)
A29	601	3,500	134	129,694	2.40	0.24	129,696.64
A30	601	3,500	134	129,694	2.40	0.24	129,696.64
A31	601	3,500	134	129,694	2.40	0.24	129,696.64
A32	601	3,500	134	129,694	2.40	0.24	129,696.64
A33	601	3,500	134	129,694	2.40	0.24	129,696.64
A34	601	3,500	134	129,694	2.40	0.24	129,696.64
A35	601	3,500	134	129,694	2.40	0.24	129,696.64
A36	601	3,500	134	129,694	2.40	0.24	129,696.64
A37	601	3,500	134	129,694	2.40	0.24	129,696.64
A38	601	3,500	134	129,694	2.40	0.24	129,696.64
A21	474 hp	500		111			111
A45	460	500		105			105
Total GHG							4,524,818.42

Total GHG presented in Table IX-3 is the total tonnage of all compounds identified as GHG. It does not represent CO₂e.

Calculations for Table IX-3

Equation 1 (from CFR 98.33(a)(2)): CO₂ (or CH₄ or N₂O) = 0.001 * Fuel * HHV * EF; where:

0.001 = conversion from kilograms to metric tons

Fuel = mass or volume of fuel combusted during the year (standard cubic feet)

HHV = average high heat value of the fuel (MMBtu/hr)

EF = fuel specific emission factor for CO₂ (or CH₄ or N₂O); where:

CO₂ = 53.02 kg/MMBtu; CH₄ = 0.001 kg/MMBtu; N₂O = 0.0001 kg/MMBtu; and Diesel #2 = 73.96 kg/MMBtu