DES
DEPARTMENT OF ENVIRONMENT AND SUSTAINABILITY

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Marci Henson, Director

MAJOR PART 70 SOURCE

TECHNICAL SUPPORT DOCUMENT

(STATEMENT of BASIS)

APPLICATION FOR:

Operating Permit

SUBMITTED BY:
Broadbent & Associates Inc.
8 West Pacific Avenue
Henderson, Nevada 89015

FOR:

Source ID: 360

Nevada Cogeneration Associates 1

LOCATION:
420 North Nellis Boulevard, Suite #A3-400
Las Vegas, Nevada 89110

SIC code 4931, “Electric Services”

NAICS code 221112, “Fossil Fuel Electric Power Generation”

Date: December 27, 2021

EXECUTIVE SUMMARY

Nevada Cogeneration Associates #1 (NCA 1) owns and operates a fossil fuel electric power generation plant, located at 11401 U.S. Hwy. 91, Apex, Nevada. The station is located in Hydrographic Area 216, the Garnet Valley. NCA 1 is a major stationary source for NO_x and CO, and a minor source for PM_{10}, $PM_{2.5}$, SO_2, VOCs, and HAPs. The source also emits pollutants that are categorized as greenhouse gases. Garnet Valley was designated "in attainment" for all regulated pollutants at the time of issuance of the Title V Part 70 Operating Permit (OP).

NCA 1 is a major, categorical stationary source, as defined by AQR 12.2.2(j)(1). The source is permitted to operate turbines, duct burners, diesel engines, and an aboveground storage tank (AST). This action addresses the renewal application for the Part 70 OP, which expired March 13, 2021.

The following table summarizes the source potential to emit for each regulated air pollutant.

Source-Wide PTE (tons per year)

Pollutants	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP[1]	GHG[2]
PTE Totals	67.38	61.00	169.27	141.97	9.17	26.51	6.39	505,512
Major Source Thresholds (Categorical)	100	100	100	100	100	100	10/25	—

[1]10 tons for any single HAP or 25 tons for any combination of HAPs.
[2]GHG is expressed as CO_2e for information only.

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ACRONYMS AND ABBREVIATIONS

(These terms may be seen in the Technical Support Document)

AQR	Clark County Air Quality Regulation
ATC	Authority to Construct
BACT	Best Available Control Technology
BAE	baseline actual emissions
CAM	Compliance Assurance Monitoring
CARB	California Air Resources Board
CCCT	combined cycle combustion turbine
CD	consent decree
CE	control efficiency
CF	control factor
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	Compression Ignition
CO	carbon monoxide
DAQ	Department of Air Quality
EE	excludable emissions
EF	emission factor
EPA	U.S. Environmental Protection Agency
EU	emission unit
gpm	gallons per minute
GE	General Electric
HAP	hazardous air pollutant
HRSG	heat recovery steam generators

inHg	inches of mercury
kW	kilowatt
lb	pound
LHV	lower heat value
MMBtu	British thermal units (in millions)
MWh	megawatts per hour
NAICS	North American Industry Classification System
ng/J	nanogram per joule
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxide
NSPS	New Source Performance Standards
NSR	New Source Review
NVE	NV Energy
PAE	projected actual emissions
$PM_{2.5}$	particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RACT	Reasonably Available Control Technology
RATA	Relative Accuracy Test Audit
RICE	reciprocating internal combustion engine
rpm	rotations per minute
SCC	Source Classification Codes
SCR	selective catalytic reduction
scfm	standard cubic feet per minute

SIC	Standard Industrial Classification
SO_2	sulfur dioxide
STD	standard
TSD	Technical Support Document
UTM	Universal Transverse Mercator
VMT	vehicle miles traveled
VOC	volatile organic compound

I. SOURCE INFORMATION

A. General

Preparer:	Dawn Leaper
Action Received:	August 27, 2020
Permittee:	Nevada Cogeneration Associates 1
Submitted by:	Broadbent & Associates, Inc.
Source ID #:	360
Source name:	Nevada Cogeneration Associates 1
Source address:	11401 North U.S. Highway 91, Las Vegas, Nevada 89025

II. PROCESS DESCRIPTION

NCA 1 is an 85 MW topping cycle cogeneration plant classified under SIC code 4931, “Electric Cogeneration” (NAICS code 221112, “Fossil Fuel Electric Power Generation”). The source operates three natural gas-fired, GE Turbine Generator Packages that exhaust into heat recovery steam generators (HRSG), each equipped with a 77 MMBtu/hr supplemental duct burner. Additionally, a nominal 29.74 MW steam turbine generator is operated to produce electrical power. Other operating emission units include a rental back-up generator, a diesel fire pump, a diesel-fired water pump, and a cooling tower.

The natural gas-fired turbine generation package consists of a GE LM-2500 gas turbine system, a 9,500-rpm gas generator, and a 3,600-rpm power turbine, which is coupled to an air-cooled Brush AC generator rated at 22,000 kW. Each turbine uses a maximum of 4,800 scfm of natural gas and 181,000 cfm of ambient air. The inlet air has two stages of filtration and can be cooled using an evaporative cooling section or heated with steam coils. A nominal 17,000 lb/hr of superheated steam at 555°F and 450 psig is injected into the combustion chamber to reduce the formation of NO_x to less than 25 ppm. The turbine exhausts at approximately 500,000 lb/hr of flue gases at 958°F.

The three turbine packages are operated with HRSGs, Selective Catalytic Reduction (SCR), and oxidation catalysts. Exhaust gases processed through the HRSGs are directed through an oxidation catalyst to control CO emissions. In addition, the gases are passed through an SCR module, where ammonia is injected onto a catalyst bed to control NO_x emissions.

As a result of a 1999 U.S. Environmental Protection Agency (EPA) consent decree (CD) and an Authority to Construct/Operating Permit modification issued by the Department of Air Quality and Environmental Management in 1999, the SCR must operate 85% of the time its turbine unit is operating. This allows for 15% of operating time without SCR controls. Because NCA 1 is a true cogeneration facility, low temperature excursions are more common than in base load facilities that only produce electricity. Conditions in the permit from the EPA CD include startup and shutdown limitations, the allowable operation of the turbine units without SCR but with steam injection during SCR downtimes, and operationally specific NO_x concentration levels. Best Available Control Technology (BACT) for the existing turbine units includes steam injection, SCR, oxidation catalysts, and natural gas combustion.

The HRSG acquires heat from the exhaust of the gas turbines. A duct burner supplies supplemental heat. Each HRSG consists of a high-pressure evaporator and super-heater, an intermediate pressure evaporator and super-heater, an economizer section, and a low-pressure evaporator integrated with a deaerator.

The steam turbine generator is rated for 29,740 kW. It has an 11-stage condensing unit, a TEWAC generator that is operated at 3,600 rpm. The steam turbine is designed for 236,000 lb/hr of superheated steam at 840 psig inlet pressure, 900°F inlet temperature, and 3 inHg of exhaust pressure. There is no combustion process associated with the steam turbine, so it emits no pollutants.

The three turbine generation packages are currently permitted for 8,760 hr/yr of natural gas operation and up to 216 hr/yr of emergency low sulfur diesel fuel combustion (<0.05% sulfur by weight) to be used only in the event of a natural gas emergency, defined as a loss of gas from the pipeline. Only the turbines may operate on fuel oil. The HRSGs may only combust natural gas, and shall not be operated during a natural gas emergency.

An Ecodyne cooling tower with double drift eliminators provides cooling for the turbine units. The manufacturer guaranteed maximum drift is 0.0007 percent (through the use of a double drift eliminator) of the circulating water rate of 24,500 gpm. This unit is permitted to operate 8,760 hr/yr. TDS levels must not exceed 38,500 ppm on an annual average nor 57,750 ppm at any time.

Other equipment on site includes a 300 hp Detroit fire pump; a 250,000 gallon diesel fuel tank; a substation with two transformers, which step up the electricity from 13,800 volts to 138,000 volts for use by NV Energy; and a 167 ton Carrier hermitic absorption liquid chiller, which chills water to 48°F for export to Georgia Pacific. An 81.8 hp (61 kW) diesel-fired water pump was added in 2007 to fill third-party water trucks used for off-site dust control and to annually drain the cooling tower basin for inspection and repairs.

NCA 1 rents a portable diesel power generator that can output up to 1,392 hp (1038 kW). The generator will only operate when the source undergoes annual maintenance shutdown.

The NCA 1 NO_x and CO emissions are monitored with a continuous emission monitoring system (CEMS). The monitoring system generates data logs and provide alarm signals to the control room when the level of emissions exceeds preselected limits.

The plant also supplies thermal energy and chilled water to Georgia Pacific for use in its gypsum wallboard production facility, located adjacent to NCA 1. Approximately 275,000 lb/hr of turbine exhaust gas (process gas) is piped to Georgia Pacific through an insulated stainless steel duct. This process gas is not ducted through the SCR system because the resulting ammonia in the exhaust stream would be deleterious to the product and workers. An absorption liquid chiller cools 125 gallons of water per minute, which is piped to Georgia Pacific for wallboard process use. Low-pressure steam extracted from the steam turbine is used to drive the chiller.

III. PERMITTING ACTION

In addition to renewing the OP, the source is asking to revise the monitoring conditions (Sections III-D-8 through III-D-11 & III-D-13) and recordkeeping conditions (Sections III-F-3.d, III-F-4.f, and III-F-4.h) to comply with 40 CFR 60, Appendices B and F instead of 40 CFR Part 75 through a significant revision to the permit submitted on August 27, 2020.

These conditions were the result of a 1999 CD. The CD has since been purged from the U.S. Department of Justice's records, and therefore is terminated. For further guidance, the request was presented to EPA for its concurrence. EPA agreed that the CD was fully executed and thereby terminated; however, EPA maintains that the provisions of the CD still stand, since they are conditions in the OP that may only be removed when a modification has been made to the affected unit(s). Based on this conclusion, the significant revision will not be addressed. DAQ will renew the OP without revisions.

The current permit has discrepancies in the PTE values that are reconciled in this action: a difference of 0.01 tpy each in the PTE for PM_{10}, CO, and HAPs is assumed to be because of rounding. An error in the NO_x emission limit for the genset (EU: B01) was perpetuated from a previous TSD that misapplied the EF of 14.73 lb/hr instead of 13.73 lb/hr; thus, NO_x emissions came out as 0.88 tpy instead of 0.82 tpy. Subsequently, GHG values were affected because of the corrected values for the diesel engines (EUs: A004, A006, & B01). The corrected calculations are provided in the appendices. In addition, the VOC EF has been adjusted to assume only VOC emissions (0.29 g/hp-hr), not the total NO_x + VOC emissions contribution (4.77 g/hp-hr) given previously.

Lastly, the source provided the NO_x standard under 40 CFR 60, Subpart GG to DAQ, see Attachment 5 for the calculation. The source identified that the facility is subject to the requirements under 40 CFR 60.332(a)(1). Additionally, the source provided the calculation used to derive the standard, which can be found in the appendices of this TSD. The standard was incorporated into Section III-C-1 of the permit, "Emission Limits."

IV. FACILITY EMISSION UNITS

Table 1 lists the EUs at the facility. The SCC codes for the supplemental duct burners have been updated for accuracy.

Table 1. EUs List

EU	Rating	Description	Make	Model #	Serial #	SCC
A001	22.2 MW 285 MMBtu/hr	Turbine Generator Package #1	General Electric	LM-2500 PE-MEE-06	260157-1	20200201
A001a	77 MMBtu/hr	Supplemental Duct Burner	Coen		GV ALPHA	10100602
A002	22.2 MW 285 MMBtu/hr	Turbine Generator Package #2	General Electric	LM-2500 PE-MEE-06	260157-2	20200201
A002a	77 MMBtu/hr	Supplemental Duct Burner	Coen		GV BRAVO	10100602
A003	22.2 MW 285 MMBtu/hr	Turbine Generator Package #3	General Electric	LM-2500 PE-MEE-06	260157-3	20200201
A003a	77 MMBtu/hr	Supplemental Duct Burner	Coen		GV CHARLIE	10100602
A004	265 hp	Fire Pump; Diesel; DOM: Pre-2006	Detroit	DDFP-L6AT 7017	6A465176	20200102
A005	26,600 gpm	Cooling Tower; Two Cells	Ecodyne	2CFF-60595L2610	DO0-15665-A	38500101
A006	81.8 hp	Water Pump; Diesel; DOM: Pre-2006	Perkins	3PKXL04.2AR1	AR36677	20200102
A010	1,000 gallons	Aboveground Storage Tank; Gasoline	Air Boy			40600399
B01	Up to 1,038 kW Up to 1,392 hp	Genset Diesel Engine; DOM: 2011 or newer	Various	Various	Various	20200102

Table 2: List of Insignificant Emission Units and Activities

3 Generator Lube Oil Tanks, 215 gallons (units A-C)
Steam Turbine Lube Oil Tank
Steam Turbine Lube Oil Conditioner Tank, 270 gallons
Oil/Water Sump
3 Gas Turbine Lube Oil Tanks, 150 gallons (units 1-3)
Diesel AST, 350 gallons (Fire Water Pump)
Steam and Water Treatment
Evaporation Pond
Maintenance Operations
Storage Tank, Diesel, 250,000 gallons
Storage Tank, Ammonia, 1,000 gallons

V. CONTROL TECHNOLOGY

Turbines and Duct Burners

NCA 1 operates turbines (EUs A001–A003) and HRSGs (EUs A001a–A003a) with SCRs capable of achieving NO_x concentrations of not more than 12 ppmvd, corrected to 15% O_2 as measured on a 3-hour rolling average. When the SCR is not operating during startup/shutdown cycles or low temperature excursion, the NO_x concentration shall not exceed 25 ppmvd, corrected to 15% O_2 as measured on a 3-hour rolling average.

The source also uses an oxidation catalyst for controlling CO emissions below 23 ppmvd, corrected to 15% O_2. The catalysts shall be maintained and operated according to the manufacturer's specifications because the unit is plug and play, so does not entail "operation." Manufacturer's specifications are more precise than an operations and maintenance manual in this case.

Cooling Tower

The cooling tower designed to cool the turbine units is equipped with double drift eliminators and a maximum manufacturer guaranteed drift of 0.0007% through the use of both eliminators. The circulation water rate is 24,500 gpm.

Engines

This condition, which required the permittee to combust low sulfur diesel fuel (15 ppmv sulfur) in the diesel fire pump (EU: A004), the diesel generator (EU: B01), and the diesel water pump (EU: A006) *[NSR ATC/OP 360, Modification 9, Revision 0 (04/05/07)]* has been removed from the permit and moved to the TSD. This requirement is no longer necessary, since diesel fuel with a concentration higher than 15 ppmv is now unavailable for commercial purchase because of existing federal regulations.

GDO

DAQ tailors a permit to a facility's operations and equipment at the facility. The condition below was removed from the permit because the systems therein are no longer available at the site.

- Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators;

The condition stating that the permittee must comply with the requirements of 40 CFR Part 63, Subpart CCCCCC by January 10, 2011, was also removed from the permit. The condition is not a limit or control, and has been met by the source.

VI. EMISSION LIMITS

The source did not ask to modify any existing emission limits at this time; however, permit language was updated to the department's current format. It is customary for DAQ to move the emission rates in Table 3 from the permit to the TSD. The permittee is expected to demonstrate compliance with annual emission limits by including startup emissions *[ATC/OP, Condition II-B-1 (January 2002)]* using either continuous emission monitoring data or the emission rates in Table 3, as applicable. However, these are emission rates and not for inclusion in the permit as emission limits for compliance.

Table 3: Startup Emission Rates per EU (lb/hr)[1]

EU	PM_{10}	NO_x (SCR)	NO_x (no SCR)	CO	SO_2	VOC
A001, A001a	3.88	13.31	21.50	32.69	0.69	2.75
A002, A002a	3.88	13.31	21.50	32.69	0.69	2.75
A003, A003a	3.88	13.31	21.50	32.69	0.69	2.75

[1]Pounds per hour emissions for turbine units 1-3 are based on 40 minutes of startup and 20 minutes of normal operation (with duct burner firing).

The shutdown emission rates were moved from the permit for the same reason as the startup emission rates (Table 4). The permittee shall continue to demonstrate compliance with annual emission limits by including shutdown emissions and using the emission rates in Table 4 when CEMS data is not available.

Table 4: Shutdown Emissions per EU (lb/hr)[1,2]

EU	PM_{10}	NO_x (SCR)	NO_x (no SCR)	CO	SO_2	VOC
A001, A001a	3.88	11.01	21.50	17.33	0.69	2.32
A002, A002a	3.88	11.01	21.50	17.33	0.69	2.32
A003, A003a	3.88	11.01	21.50	17.33	0.69	2.32

[1]Pounds per hour emissions for turbine units 1-3 are based on 8 minutes of shutdown and 52 minutes of normal operation (with duct burner firing).
[2]NO_x, CO, and VOC emission factors were provided by the manufacturer.

40 CFR 60, Subpart GG has standards for SO_2 as well as NO_x. The SO_2 standards were added to the permit, although they have been excluded in the past. Per the regulation, the source is prohibited from emitting into the atmosphere from any stationary gas turbine SO_2 over 0.015% by volume at 15% O_2 on a dry basis, or from burning in any stationary gas turbine any fuel that contains total sulfur over 0.8% by weight (8,000 ppmw).

VII. OPERATIONAL LIMITS

The source did not request changes to the operational limits for any of the emission units during this permit renewal period.

The limit exempting the source from acid rain permitting was corrected to include the entirety of the regulatory exclusion condition. Corresponding monitoring, recordkeeping, and reporting conditions have been included accordingly. The condition now states:

> The permittee shall, for each unit, supply equal to or less than one-third of its potential electrical output capacity, or equal to or less than 219,000 MWe-hr of its actual electric output, annually to any utility power distribution system for sale (on a gross basis). However if, in any three-calendar-year period, such unit sells to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hr of its actual electric output (on a gross basis), that unit shall be an affected unit subject to the requirements of the Acid Rain Program.

At EPA's behest, any references to its CD of February 9, 1999, have been changed to cite the ATC permit where the condition originated.

An editorial correction was made regarding the turbine units' total cumulative start-up time, which was changed from "shall not exceed 450 hours per calendar **year**" to "per calendar **month**."

VIII. REVIEW OF APPLICABLE REGULATIONS

A. Local Regulations

The requirements for the following local regulations identified as applicable to this source are tabulated in Attachment 1:

- Chapter 445B of the Nevada Revised Statutes (NRS).
- Clark County AQRs.

B. Federal Regulations

The requirements for the following federal regulations identified as applicable to this source are tabulated in Attachment 2:

- Clean Air Act Amendments (authority: 42 U.S.C. § 7401, et seq.)
- Title 40 of the Code of Federal Regulations.

The following sections provide an overview of each applicable federal requirement, along with background information related to applicability determinations.

Prevention of Significant Deterioration Permitting Program

Hydrographic Area 216 (Garnet Valley) has been designated an "attainment/maintenance" area for all criteria pollutants. NCA 1 is a major source under the PSD permitting program: the source operates a fossil fuel-fired steam electric plant with a heat input of more than 250 MMBtu/hr and NO_x and CO emissions that exceed the 100-tpy major source thresholds.

In June 2010, EPA published the "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule" (GHG Tailoring Rule). With respect to PSD permitting, during Step 1 of the GHG Tailoring Rule, between January 2 and June 30, 2011, existing major sources under the PSD permitting program were potentially subject to PSD permitting for GHGs. NCA 1 is an existing major PSD source affected by Step 1 of the GHG Tailoring Rule, and therefore must comply.

The NCA 1 PTE for GHGs is 505,515 tpy CO_{2e}, which is more than the applicability threshold of 100,000 tpy CO_{2e}. Therefore, NCA 1 is a GHG source under the PSD permitting program.

State Implementation Plan Rules (40 CFR Part 52.1470)

NCA 1 is regulated under the Nevada SIP, which was promulgated under 40 CFR Part 52.1470. Section 110 of the CAA and 40 CFR Part 51 also establish measures to ensure Nevada achieves the National Ambient Air Quality Standards.

C. Federal Regulatory Requirements

The following federal air quality regulations were reviewed for applicability: "Standards of Performance for New Stationary Sources" (NSPS) (40 CFR Part 60), pollutant and category-specific "National Emission Standards for Hazardous Air Pollutants for Source Categories" (NESHAPs) (40 CFR Part 63), "Compliance Assurance Monitoring" (CAM) (40 CFR Part 64), "State Operating Permit Programs" (40 CFR Part 70), "Protection of Stratospheric Ozone" (40 CFR Part 82), and "Mandatory Greenhouse Gas Reporting" (40 CFR Part 98).

New Source Performance Standards

The standards in 40 CFR Part 60 require new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology, as specified in applicable provisions. Any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A unless specifically excluded.

40 CFR Part 60, Subpart A – General Provisions

All affected sources are subject to the general provisions of NSPS Subpart A unless excluded by a source-specific NSPS. Subpart A requires initial notification, performance testing, recordkeeping, and monitoring; provides reference methods; and mandates general control device requirements for all other subparts as applicable.

40 CFR Part 60, Subpart Dc – Small Steam Generating Units

40 CFR Part 60, Subpart Dc regulates small industrial-commercial-institutional steam generating units greater than 10 MMBtu/hr but less than 100 MMBtu/hr for which construction, reconstruction, or modification is commenced after June 9, 1989. NCA 1 operates three natural gas-fired duct burners that are subject to NSPS Subpart Dc (EUs: A001a, A002a, and A003a). This rule requires recordkeeping and maintenance of the amount of fuel consumed.

40 CFR Part 60, Subpart GG – Stationary Gas Turbines

40 CFR Part 60, Subpart GG regulates gas turbines with a heat input greater than 10 MMBtu/hr for which construction, reconstruction, or modification commenced after October 3, 1977. NCA 1 operates three emission units subject to Subpart GG (EUs: A001, A002, and A003); each of these combustion turbines have a heat input greater than 10 MMBtu/hr and was manufactured after October 3, 1977. This rule provides NO_x and SO_2 emission standards, continuous monitoring requirements, and testing requirements.

40 CFR Part 60, Subpart IIII – Stationary Compression/Spark Ignition Internal Combustion Engines

40 CFR Part 60, Subpart IIII, finalized on July 11, 2006, provides performance standards for diesel stationary compression ignition engines (including emergency engines) that commenced reconstruction or modification after July 11, 2005, or commenced construction of a new engine after April 1, 2006. The rule provides performance standards for both engine manufacturers and operators. Engine operators must meet the specified emission standards and fuel type specifications. NCA 1 rents one stationary nonemergency engine (EU: B01), which is subject to Subpart IIII because it was manufactured after April 1, 2006.

40 CFR Part 60, Appendix B – Performance Specifications

This appendix provides the specifications and test procedures for NO_x, CO, and O_2 CEMS associated with gas turbines.

40 CFR Part 60, Appendix F – Quality Assurance Procedures

These provide the quality assurance procedures for the gas Continuous Emission Monitoring Systems associated with the gas turbines.

Nonapplicability of Other NSPS

Only the standards identified in the sections above are applicable to operations at NCA 1.

National Emissions Standards for Hazardous Air Pollutants

40 CFR Part 63 (NESHAP) contains the emission standards that apply to major sources of HAPs (i.e., facilities that exceed the major source thresholds: 10 tpy of a single HAP or 25 tpy of any combination of HAPs) or area sources. Under the CAA, the NESHAPs in Part 63 apply to sources in regulated industrial source classifications (Section 112(d)) or, where EPA has not promulgated a Section 112(d) standard by the applicable deadline, on a case-by-case basis (Sections 112(g) and (j)). NESHAP area source requirements for stationary reciprocating internal combustion engines (RICE) are analyzed below for applicability regarding the stationary engines at NCA 1.

40 CFR Part 63, Subpart A – General Provisions

All affected sources subject to 40 CFR Part 63 must comply with the general provisions of Subpart A, unless excluded by a source-specific NESHAP. Subpart A requires initial notification and performance testing, recordkeeping, monitoring, provides reference methods, and mandates general control device requirements for all other subparts as applicable. Because 40 CFR Part 63 Subpart ZZZZ is applicable to NCA 1, the provisions of Subpart A also apply.

40 CFR Part 63, Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63, Subpart ZZZZ regulates HAP emissions from stationary RICE located at major and area sources of HAP. For an area source of HAP, a stationary RICE is considered an existing source if construction or reconstruction of the engine commenced before June 12, 2006. NCA 1 operates one stationary diesel fire pump (EU: A004) and one stationary water pump (EU A006) that were manufactured prior to June 12, 2006, and are considered existing engines. NCA 1 rents one stationary nonemergency engine (EU: B01) that was manufactured after June 12, 2006, and meets the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart IIII.

The stationary fire pump (EU: A004) is subject to Subpart ZZZZ as an existing emergency stationary RICE. The compliance date for existing compression ignition (CI) engines located at area sources of HAP emissions is May 3, 2013. The following provisions of Subpart ZZZZ apply to emergency stationary CI engines at an area source of HAPs:

- § 63.6603(a), Table 2d
- § 63.6625(e), (f), and (i)
- § 63.6640(f); (f)(1); (f)(2)(i), (ii), (iii); and (f)(4)

- § 63.6650(f)
- § 63.6655.

The stationary water pump (EU: A006) is subject to the provisions of Subpart ZZZZ because it is not an emergency engine constructed before June 12, 2006. The compliance date for existing CI engines located at area sources of HAP emissions is May 3, 2013. The following provisions of Subpart ZZZZ apply to nonemergency, non-black start stationary CI engines of less than 300 hp:

- § 63.6603(a)
- § 63.6625(e) and (i)
- § 63.6650(f)
- § 63.6655.

40 CFR Part 63, Subpart CCCCCC – Gasoline Dispensing Facilities

40 CFR Part 63, Subpart CCCCCC regulates HAP emissions from the loading of gasoline storage tanks at GDFs located at an area source of HAP emissions. NCA 1 operates a GDF (EU: A010) with a monthly throughput of less than 10,000 gallons of gasoline. The following provisions of Subpart CCCCCC therefore apply:

- § 63.11116(a)(1) – Minimize gasoline spills;
- § 63.11116(a)(2) – Clean up spills as expeditiously as practicable;
- § 63.11116(a)(3) – Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use; and
- § 63.11116(a)(4) – Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

Nonapplicability of Other NESHAPs

As with NSPS, the applicability of a NESHAP to a facility can be ascertained based on the industrial source category covered. All NESHAP regulations in 40 CFR Part 63 other than those specifically discussed above are not applicable to NCA 1.

40 CFR Part 64 – Compliance Assurance Monitoring

40 CFR Part 64 requires facilities to prepare and submit monitoring plans for emission units with the initial or renewal OP application. Under the general applicability criteria, this regulation applies to emission units that use a control device to achieve compliance with an emission limit and whose precontrolled emission levels exceed the major source thresholds of the Title V Operating Program. The CAM plans are intended to provide ongoing assurance of compliance with emission limits.

The combustion turbines (EUs: A001, A002, & A003) and HRSGs (EUs: A001a, A002a, & A003a) qualify for two exemptions. Pursuant to 40 CFR Part 64.2(b)(1)(vi), NO_x and CO emissions are exempt because CEMS requirements are included in the Title V permit. PM_{10}, SO_2, HAP, and VOC emissions are exempt because they are less than the major source threshold (as outlined in 40 CFR Part 64.2(a)(3)).

The diesel fire pump (EU: A004), cooling tower (EU: A005), diesel-fired water pump (EU: A006), rental diesel electric generator (EU: B01), and gasoline dispensing facility (EU: A010) meet the exemption outlined in 40 CFR Part 64.2(a)(3), i.e., the potential precontrol emissions are less than the major threshold. Therefore, the CAM Rule is not applicable to NCA 1 at this time.

40 CFR Part 68 – Chemical Accident Prevention Provisions

40 CFR Part 68 regulates toxic and flammable substances under CAA Section 112(r). NCA 1 utilizes anhydrous ammonia for the SCR system to reduce NO_x emissions from the HRSGs. Anhydrous ammonia is a regulated toxic substance at quantities that exceed 10,000 pounds. NCA 1 is not subject to 40 CFR Part 68 because it stores no more than 5,690 pounds (in a 1,000-gallon pressure vessel) at the facility.

40 CFR Part 70 – Major Source Operating Permitting Program

DAQ developed local regulations that closely follow the 40 CFR Part 70 operating permit regulations, promulgated as AQR 12.5. This application is being submitted in accordance with Title V Operating Permit Program requirements.

40 CFR Parts 72, 73, and 75 – Acid Rain Program

Per 40 CFR Part 72.6(b)(4)(ii), NCA 1 is not subject to the Acid Rain Program. NCA 1 is a cogeneration facility that commenced construction after November 15, 1990, and supplies equal to or less than one-third of its potential electrical output capacity, or equal to or less than 219,000 MWe-hr of its actual output, annually to any utility power distribution system for sale (on a gross basis). However if, in any three-calendar-year period, an NCA 1 unit sells to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hr of its actual electric output (on a gross basis), that unit shall be an affected unit, subject to the requirements of the Acid Rain Program.

NCA 1 is not subject to 40 CFR Part 73, "Sulfur Dioxide Allowance System," and 40 CFR Part 75, "Continuous Emission Monitoring," because it is not subject to 40 CFR Part 72. The source is required to maintain CEMS using Part 75 methodologies under 40 CFR Part 60, Subpart GG and its CD.

40 CFR Part 82 – Protection of Stratospheric Ozone

Subparts B through I of 40 CFR Part 82 are not applicable to NCA 1. Subpart A, "Production and Consumption Controls," potentially applies if the facility maintains, services, or disposes of appliances that utilize Class I or Class II ozone-depleting substances.

Permit Shield

The Control Officer may include in each Part 70 OP a permit shield provision stating that the permittee shall be deemed in compliance with any applicable requirements as of the date of permit issuance provided that: 1) such applicable requirements are included and specifically identified in the permit, or 2) the Control Officer, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source and the permit includes the determination or a concise summary. NCA 1 is not requesting a permit shield at this time.

IX. MONITORING

The source proposed substituting 40 CFR Part 75 monitoring requirements with analogous 40 CFR Part 60 provisions. Because the monitoring conditions resulted from a CD and after discussing the issue with EPA, DAQ cannot accommodate this request during this action. The permit conditions will remain until the affected units (EUs: A001–A003) undergo an NSR modification.

At the request of DAQ's Compliance and Enforcement Section, monitoring conditions for the maintenance of the diesel fire and water pumps (EUs: A004 & A006) have been added to the permit. The source will be expected to keep a log on-site with the dates and times of maintenance activities for the each of the diesel pumps.

Since the permit was deficient in SO_2 monitoring requirements for both fuel oil and gaseous fuel, sulfur monitoring requirements were add to the permit as prescribed by the provisions in 40 CFR Part 60, Subpart GG specifically for SO_2. DAQ contacted the permittee to clarify how it intends to comply with the Subpart GG monitoring requirements and incorporated its response into the permit. The NO_x conditions were reworked to coincide with Subpart GG. The conditions for compliance demonstration included in this action were specific for turbines with a CEMS that uses steam/water injection to control NO_x emissions.

The engines at this source are subject to 40 CFR Part 63, Subpart ZZZZ, so must meet the fuel requirements referenced therein from 40 CFR Part 80.510(b) (in Subpart I). 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 also subject to these federal standards, pursuant to 40 CFR Part 80.510, it is reasonable to assume the engine operators have little if any opportunity to acquire fuel that violates these standards. Therefore, this permit does not require the permittee to monitor or keep records of the sulfur content, cetane index, or aromatic content of the diesel fuel used in the engines. (EUs: A004 & A006).

The visible emissions conditions have been updated to include the latest department changes. Visible emission checks are applicable to the diesel-fired equipment. Emission units that do not display opacity, such as GDOs and cooling towers, have been removed from this requirement.

X. PERFORMANCE TESTING

Periodic performance testing for the turbines is not required. However, the Control Officer may require performance tests if compliance with permit limitations appears inadequate.

XI. ACID RAIN PERMIT

As a cogeneration facility, this source is exempted based on the applicability criteria defined in 40 CFR Part 72.6(b)(4)(ii). Therefore, an EPA Acid Rain Permit application is not required.

XII. RECORDKEEPING AND REPORTING

The source asked to harmonize the recordkeeping requirements in the permit between 40 CFR Part 60 and 40 CFR Part 75 for the CEMS "out-of-control" period, the monitoring plan, and the quality assurance plan (QAP). (Although the source QAP is not approved by the Control Officer, the department would like a copy for its records.) EPA did not support this request, but recommended leaving those provisions unaltered per the CD.

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. CAA Section 182(a)(3)(B) requires all ozone nonattainment areas to have in place a program that requires annual emissions statements from stationary sources of NO_x and/or VOCs. AQR 12.9.1 states the following requirements:

a. The Responsible Official of each stationary source that emits 25 tons or more of NO_x and/or VOCs shall submit an Annual Emissions Statement to the department for the previous calendar year.

b. Pursuant to CAA Section 182, this 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 it.

A condition requiring submittal of an annual emissions statement has been included in the permit. Also, 40 CFR Part 72 was removed from the recordkeeping requirements because it pertains to sources with "affected units." So long as this source operates according to its permit conditions, it remains exempt from acid rain requirements. The source is no longer required to provide certificates of representation for designated and alternate representatives that meet all requirements of 40 CFR Part 72.24, since it does not have "affected units."

XIII. INCREMENT ANALYSIS

NCA 1 is a major source in Hydrographic Area 216 (Garnet Valley). Permitted emission units include three turbines, one fire pump, one generator, one cooling tower, and one water pump. 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, 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. On-site meteorological data collected at the source from July 2011 to July 2012 were used in the model. U.S. Geological Survey National Elevation Dataset terrain data were used to calculate elevations. Table 5 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 5: 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	40.69[1]	686600	4024200
SO_2	24-hour	19.72[1]	686700	4024300
SO_2	Annual	3.11	686700	4024400
NO_X	Annual	7.33	686597	4024097
PM_{10}	24-hour	22.75[1]	686597	4024097
PM_{10}	Annual	4.20	686600	4024100

[1] Highest Second High Concentration.

XIV. PUBLIC PARTICIPATION

Under AQR 12.5.2.17, public participation is required to renew Title V (i.e., 40 CFR Part 70) operating permits.

XV. ATTACHMENTS

See the following.

Attachment 1

Applicable AQRs

Citation	Title	SIP Approved	Applicable
Section 0	Definitions	Yes	Yes
Section 4	Control Officer	Yes, partial	Yes
Section 5	Interference with Control Officer	Yes	Yes
Section 6	Injunctive Relief	Yes	Yes
Section 8	Persons Liable for Penalties – Punishment: Defense	Yes	Yes
Section 9	Civil Penalties	Yes	Yes
Section 10	Compliance Schedule	No, repealed 12/18/18	No
Section 12.0	Applicability and General Requirements	Yes	No
Section 12.1	Applicability Requirements For Minor Sources	Yes	No
Section 12.2	Permit Requirements for Major Sources in Attainment Areas	Yes	Yes
Section 12.3	Permit Requirements for Major Sources in Nonattainment Areas	Yes	No
Section 12.4	Authority to Construct Application and Permit Requirements for Part 70 Sources	Yes	Yes
Section 12.5	Part 70 Operating Permit Requirements	Yes	Yes
Section 12.9	Annual Emissions Inventory Requirement	No	Yes
Section 12.10	Continuous Monitoring Requirements for Stationary Sources	No	Yes
Section 12.13	Posting of Permit	No	Yes
Section 13.2(b)(1), Subpart A	National Emission Standards for Hazardous Air Pollutants (NESHAP) General Provisions	No	Yes

Citation	Title	SIP Approved	Applicable
Section 13.2(b)(82), Subpart ZZZZ	NESHAP for Stationary Reciprocating Internal Combustion Engines	No	Yes
Section 14.1(b)(1), Subpart A	New Source Performance Standards (NSPS) General Provisions	No	Yes
Section 14.1(b)(40), Subpart GG	NSPS – Stationary Gas Turbines	No	Yes
Section 14.1(b)(81), Subpart IIII	NSPS – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	No	Yes
Section 18	Permit and Technical Service Fees	Yes, partial	Yes
Section 21	Acid Rain Continuous Emissions Monitoring	No	No
Section 22	Acid Rain Permits	No	No
Section 25	Upset/Breakdown, Malfunctions	Yes, partial	Yes
Section 26	Emissions of Visible Air Contaminants	Yes	Yes
Section 28	Fuel Burning Equipment	Yes	Yes
Section 40	Prohibition of Nuisance conditions	No	Yes
Section 41	Fugitive Dust	Yes	Yes
Section 42	Open Burning	Yes	Yes
Section 43	Odors in the Ambient Air	No	Yes
Section 52	Gasoline Dispensing Facilities	No, repealed 4/19/11	No
Section 70	Emergency Procedures	Yes	Yes
Section 80	Circumvention	Yes	Yes
Section 81	Provisions of Regulations Severable	Yes	Yes
Section 90	Fugitive Dust from Open Areas and Vacant Lots	Yes	Yes
Section 91	Fugitive Dust from Unpaved Road, Unpaved Alleys, and Unpaved Easement Roads	Yes	Yes

Citation	Title	SIP Approved	Applicable
Section 92	Fugitive Dust from Unpaved Parking Lots and Storage Areas	Yes	Yes
Section 93	Fugitive Dust from Paved Roads and Street Sweeping Equipment	Yes	Yes
Section 94	Permitting and Dust Control for Construction Activities	Yes	Yes

Attachment 2

Applicable Federal Requirements

Citation	Title	Applicable
40 CFR Part 52.21	Prevention of Significant Deterioration (PSD)	Yes
40 CFR Part 52.1470	Identification of Plan (SIP Rules)	Yes
40 CFR Part 60, Subpart A	NSPS - General Provisions	Yes
40 CFR Part 60, Subpart Dc	NSPS – Standards of Performance for Small Steam Generating Units	Yes
40 CFR Part 60, Subpart GG	NSPS – Standards of Performance for Stationary Gas Turbines	Yes
40 CFR Part 60, Subpart IIII	NSPS – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Yes
40 CFR Part 60, Appendix A	Method 9 or equivalent (opacity)	Yes
40 CFR Part 60, Appendix B	Performance Specifications for NOx, CO, and O_2 CEMS	Yes
40 CFR Part 60, Appendix F	Quality Assurance Procedures	Yes
40 CFR Part 63, Subpart ZZZZ	NESHAP - Stationary Reciprocating Internal Combustion Engines	Yes
40 CFR Part 63, Subpart CCCCCC	NESHAP - Gasoline Dispensing Facilities	Yes
40 CFR Part 70	Federally Mandated Operating Permits	Yes
40 CFR Part 82	Protection of Stratospheric Ozone	Yes
40 CFR Part 98	Greenhouse Gas Reporting	Yes

Attachment 3

Diesel Engine (EU: B01) Calculations

EU#	B01	**Horsepower:**	1,392
Make:	Various	**Hours/Day:**	24.0
Model:	Various	**Hours/Year**	120
S/N:	Various		
Manufacturer Guarantees			
PM10	0.15	g/hp-hr	
NOx	4.47	g/hp-hr	
CO	2.61	g/hp-hr	
SO_2		lb/hp-hr	
VOC	0.29	g/hp-hr	
Engine Type:	Diesel		

	Emission Factor (lb/hp-hr)	**Control Efficiency**	**Potential Emissions**		
			lb/hr	**lb/day**	**ton/yr**
PM10	3.31E-04	0.00%	0.46	11.05	0.03
NOx	9.85E-03	0.00%	13.72	329.23	0.82
CO	5.75E-03	0.00%	8.01	192.23	0.48
SO_2	1.21E-05	0.00%	0.02	0.41	0.01
VOC	6.39E-04	0.00%	0.89	21.36	0.05
HAP	1.10E-05	0.00%	0.02	0.37	0.01

MY: 2011
Diesel Fuel Sulfur Content is 15 ppm (0.0015%)

These calculations were verified against the values proposed by the source in the application (dated March 9, 2015) in which the engine was originally proposed. The limits have been updated in the permit.

Attachment 4

The status determination emissions (SDE) table was recreated. The lb/hr values were multiplied by 8,760 hours of operation for each emission unit except the GDO and emergency fire pump. The pump value was calculated using the recommended 500 hours per year; GDO was based on the throughput proposed by the source.

Status Determination Emissions

EU	Condition	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAP	NH_3[1]
A001, A001a	8,760 hr/yr	16.99	16.99	94.17	46.87	3.02	8.76	2.01	27.81
A002, A002a	8,760 hr/yr	16.99	16.99	94.17	46.87	3.02	8.76	2.01	27.81
A003, A003a	8,760 hr/yr	16.99	16.99	94.17	46.87	3.02	8.76	2.01	27.81
A004	500 hr/yr	0.33	0.33	3.33	1.16	0.00	0.07	0.00	0.00
A005	8,760 hr/yr	15.94	9.59	0.00	0	0	0	0	0
A006	8,760 hr/yr	0.79	0.79	5.17	2.41	0.74	0.92	1.36	0.00

A010	9,000 gal/yr	0	0	0.00	0	0	0.01	0.01	0.00
B01	8,760 hr/yr	2.01	2.01	64.52	34.95	0.09	4.29	0.18	0.00
Total		70.06	63.71	355.53	179.11	9.90	31.57	7.59	83.44

[1]For informational purposes only.
[2]Emissions values are without the SCR.

Attachment 5

Attached is the 40 CFR Part 60, Subpart GG NO_x emission calculation. The turbines (EUs: A001-A003) are subject to 40 CFR Part 60.332(a)(1). The standard (STD) comes out to 0.00797% by volume (79.7 ppm).

STD = (0.0075)(14.4)/Y + F

Y = 13.54

F = 0

STD = 0.00797 % by volume

= 79.7 ppm