



DES
DEPARTMENT OF ENVIRONMENT
AND SUSTAINABILITY



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PART 70

TECHNICAL SUPPORT DOCUMENT

(STATEMENT of BASIS)

APPLICATION FOR:
Renewal of Part 70 Operating Permit

SUBMITTED BY:
Trinity Consultants, Inc.
7919 Folsom Blvd., Suite 320
Sacramento, CA 95826

FOR:
Switch, Ltd.
Source ID: 16304

LOCATION:
7135 S. Decatur Blvd.
Las Vegas, Nevada 89118

SIC code 7375, "Information Retrieval Services"
NAICS code 517919, "All Other Telecommunications"

July 1, 2021

EXECUTIVE SUMMARY

Switch, Ltd. (Switch) owns and operates six separate and adjacent advanced technology ecosystem communications facilities, referred to as NAP 7, NAP 8, NAP 9, NAP 10, NAP 11, and NAP 12 and is located at 7135 S. Decatur Blvd., Las Vegas, Nevada. The source is under SIC code 7375, “Information Retrieval Services,” and NAICS code 517919, “All Other Telecommunications.” The source is in Hydrographic Area (HA) 212 (Las Vegas Valley). HA 212 is currently designated as attainment for all pollutants except ozone. HA 212 was designated a marginal nonattainment area for ozone on August 3, 2018 for the 2015 NAAQS. The designation has not imposed any new requirements at this time. HA 212 is also subject to a maintenance plan for the CO and PM₁₀ NAAQS.

Switch is permitted as a Part 70 major source of NO_x, a synthetic minor source of CO, and a minor source for all other regulated pollutants. Switch is a source of greenhouse gases (GHG).

The following table summarizes the source potential to emit for each regulated air pollutant from all emission units addressed by this Part 70 Operating Permit:

Source PTE (tons per year)

	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP	GHG ¹
Source PTE	6.61	2.54	241.90	31.98	1.22	3.59	1.22	23,618.83
Major Source Thresholds (Title V)	100	100	100	100	100	100	10/25 ¹	-
Major Stationary Source Thresholds (PSD)	250	250	-	250	250	-	10/25 ¹	-
Major Stationary Source Threshold (Nonattainment)	-	-	100	-	-	100	-	-

¹GHG expressed as CO₂.

Clark County Department of Environment and Sustainability (DES) has delegated authority to implement the requirement of the Part 70 operating permit program (Part 70 OP). Based on information submitted by the applicant and a technical review performed by DAQ staff, DAQ issued an initial Part 70 OP on February 26, 2016, and minor revisions on March 6, 2017, November 27, 2017, June 18, 2018, December 20, 2018, and June 24, 2019. Since that time, Switch applied for renewal of its Part 70 OP on August 11, 2020, and for revisions on May 1, 2020, July 13, 2020, and November 30, 2020. Supplemental information was submitted on February 8, 2021. The Authority to Construct Permit (ATC) that was issued on June 27, 2014 was administratively revised on June 26, 2019, to remove an expiration date of the permit that was included in error, as ATC permits do not expire.

Based on information submitted by the applicant and a technical review performed by DAQ staff, DAQ proposes the issuance of a Part 70 OP to Switch.

TABLE OF CONTENTS

I. ACRONYMS AND ABBREVIATIONS.....	4
II. SOURCE INFORMATION.....	5
A. General	5
B. Description of Process.....	5
C. Permitting Action.....	5
III. EMISSION UNITS AND PTE.....	7
A. Emission Units.....	7
B. Potential to Emit and Status Determination Emissions	17
C. Emissions Increase	19
D. Operational Limitations.....	20
E. Monitoring	20
F. Testing.....	20
IV. REGULATORY REVIEW	21
A. Local Regulatory Requirements	21
B. Federally Applicable Regulations.....	21
C. Permit Shield.....	23
V. CONTROL TECHNOLOGY.....	23
VI. COMPLIANCE	23
A. Compliance Certification	23
B. Compliance Summary	24
C. Summary of Monitoring for Compliance.....	29
VII.EMISSION REDUCTION CREDITS (OFFSETS)	29
VIII. ADMINISTRATIVE REQUIREMENTS	30
IX. INCREMENT	30
X. PUBLIC NOTICE	31
XI. PERMIT SHIELD.....	31
XII.ACID RAIN REQUIREMENTS.....	31
XIII. ATTACHMENTS	31

I. ACRONYMS AND ABBREVIATIONS

DAQ	Division of Air Quality
DES	Clark County Department of Environment and Sustainability
AQR	Clark County Air Quality Regulations
AST	aboveground storage tank
ATC	Authority to Construct
CFR	United States Code of Federal Regulations
CO	carbon monoxide
EF	emission factor
EPA	United States Environmental Protection Agency
EU	emission unit
HAP	hazardous air pollutant
HC	hydrocarbon
HP	horse power
IC	internal combustion
kW	kilowatt
MMBtu	millions of British thermal units
NAICS	North American Industry Classification System
NMHC	non-methane hydrocarbon
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
O&M	operations & maintenance
ORVR	onboard refueling vapor recovery
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
RACT	reasonably available control technology
SCR	selective catalytic reduction
SIC	Standard Industrial Classification
SO ₂	sulfur dioxide
TSD	Technical Support Document
UST	underground storage tank
VAEL	voluntarily accepted emission limitation
VOC	volatile organic compound

II. SOURCE INFORMATION

A. General

Permittee	Switch, Ltd.
Mailing Address	PO Box 400850, Las Vegas, Nevada 89140
Responsible Official	Brandie Koehler, Vice President of Data Center Operations
Source Location	7135 S. Decatur Blvd., Las Vegas, Nevada 89118
Hydrographic Areas	212
SIC Code	7375 – Information Retrieval Services
NAICS Code	517919 – All Other Telecommunications

B. Description of Process

Switch, Ltd. owns and operates six separate and adjacent advanced technology ecosystem communications facilities, referred to as NAP 7, NAP 8, NAP 9, NAP 10, NAP 11, and NAP 12. The source consists of diesel-powered emergency generators, fire pumps, and cooling towers. It is categorized under SIC code 7375, “Information Retrieval Services,” and NAICS code 517919, “All Other Telecommunications.” The source meets or exceeds the major stationary source threshold for NO_x emissions (NA NSR), is a synthetic minor source of CO, and is a minor source for PM₁₀, PM_{2.5}, SO₂, and VOC.

Switch is subject to 40 CFR Part 60, Subpart IIII, and 40 CFR Part 63, Subpart ZZZZ. The engines subject to 40 CFR Part 60, Subpart IIII, satisfy the requirements of 40 CFR Part 63, Subpart ZZZZ, through compliance with 40 CFR Part 60, Subpart IIII.

C. Permitting Action

In the renewal application submitted on August 11, 2020, Switch requested to update the Responsible Official (RO), add the 23 emission units listed in Table II-C-1 to the Operating Permit (OP) from Authority to Construct (ATC) Permits, and increase the TDS for the cooling towers.

In a revision application submitted on May 1, 2020, Switch requested to incorporate 18 emissions units (EUs: F03, F07, F11, J07 through J15, K03, K05 through K07, K09, and K10) which was repeated in the renewal application and to update the date of manufacture for six generators (EUs: J01 through J06) from 2015 to 2018.

In a revision application submitted on July 13, 2020, Switch requested to increase the TDS content of the cooling tower recirculation water from 2,100 ppm to 5,000 ppm. This request was repeated in the renewal application. The increase in TDS concentration for the installed cooling towers is considered a separate project from the original installations and this change was not reasonably foreseeable at the time the ATC applications were submitted. Therefore the increase in emissions resulting from the TDS increase is assessed separately and since the resulting emissions are less than the minor NSR significance thresholds, no controls analysis is required.

In a revision application submitted on November 30, 2020, Switch requested that a cooling tower (EU: D16) be incorporated into the OP with an increased TDS of 5,000 ppm.

In a letter submitted on February 8, 2021, Switch proposed to modify the conditions of the Part 70 OP to allow the use of emergency engines during nonemergency events. DAQ agrees with this change. The use of the engines during nonemergency situations will be included in the 104 hours per calendar year total operation of the units and the 50 hours per calendar year limit of 40 CFR Part 60, Subpart III, and 40 CFR Part 63, Subpart ZZZZ.

In reviewing the draft documents, Switch requested the removal of two ATC-Only generators (EUs: A30 and A31) stating that Switch has no plans to construct these units.

During this action, Air Quality has added standard nonroad engine language as Section III-B of the Part 70 OP and has updated the visible emission check language per Air Quality policy.

Table II-C-1: ATC Units Incorporated into the Title V Operating Permit During This Action

EU	EU Description	Make	Model	Serial	DATE DAQ Notified	Delivery Date	Start Up Date
F03	Cooling Tower	Evapco	ESWA 216-460	18-836259	6/18/2019	3/14/2019	5/14/2019
K05	Cooling Tower	Evapco	ESWA 216-460-C	19-871147	8/12/2019	8/8/2019	10/8/2019
K06	Cooling Tower	Evapco	ESWA 216-460-C	19-871155	8/12/2019	8/8/2019	10/8/2019
F07	Cooling Tower	Evapco	ESWA 216-460-C	19-873232	9/5/2019	9/4/2019	11/4/2019
J08	Engine	Detroit Diesel	MTU16V4000 DS2250	95030501820	10/4/2019	10/02/2019	12/02/2019
J10	Engine	Detroit Diesel	MTU16V4000 DS2250	95030501822	10/4/2019	10/02/2019	12/02/2019
J12	Engine	Detroit Diesel	MTU16V4000 DS2250	95030501821	10/4/2019	10/02/2019	12/02/2019
F11	Cooling Tower	EVAPCO	ESWA 216-460	19-872198	10/10/2019	10/10/2019	12/10/2019
K09	Cooling Tower	EVAPCO	ESWA-216-460	19-871162	10/25/2019	10/24/2019	1/30/2020
K10	Cooling Tower	EVAPCO	ESWA-216-460	19-871158	10/25/2019	10/24/2019	1/30/2020
K03	Cooling Tower	EVAPCO	ESWA-216-460-C	19-872170	11/14/2019	11/13/2019	1/13/2020
K07	Cooling Tower	EVAPCO	ESWA-216-460-C	19-872176	11/22/2019	11/22/2019	1/23/2020
J07	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G83	95030501900 5482000210	2/11/2020	2/6/2020	3/6/2020
J09	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G83	95030501901 5482000209	2/11/2020	2/6/2020	3/6/2020
J11	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G83	95030501908 5482000208	2/11/2020	2/6/2020	3/6/2020
J13	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G83	95030501909 5482000212	4/16/2020	4/10/2020	6/1/2020

EU	EU Description	Make	Model	Serial	DATE DAQ Notified	Delivery Date	Start Up Date
J14	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G83	95030501910 5482000211	4/16/200	4/10/2020	6/1/2020
J15	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G83	95030501911 5482000207	4/16/2020	4/13/2020	6/1/2020
J16	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G24S	95030501979 5482000244	5/14/2020	5/12/2020	6/1/2020
J17	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G24S	95030501981 5482000246	5/14/2020	5/12/2020	6/1/2020
J18	Generator	Marathon Electric Detroit Diesel	MTU 16V4000 DS2250 16V4000G24S	95030501980 5482000245	5/14/2020	5/12/2020	6/1/2020
F12	Cooling Tower	Evapco	ESWA 216-460	20P101332	6/8/2020	5/27/2020	6/10/2020
K11	Cooling Tower	Evapco	ESWA-216-460	20P103709	11/30/2020	11/18/2020	12/15/2020
D16	Cooling Tower	Evapco	ESWA-216-460	20P104320	11/30/2020	11/19/2020	12/15/2020

III. EMISSION UNITS AND PTE

A. Emission Units

Table III-A-1: Summary of Emissions Units NAP 7

EU	Rating	Description	Make	Model	Serial
A02	2,300 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2185979
	3,353 hp	Diesel Engine, DOM: 2007			
A03	2,320 kW	Generator, Emergency	Detroit Diesel	744RSL5163	WA-6006372-1219
	3,353 hp	Diesel Engine, DOM: 2007			
A04	2,300 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2185985
	3,353 hp	Diesel Engine, DOM: 2007			
A05	2,300 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2183861
	3,353 hp	Diesel Engine, DOM: 2007			
A06	2,300 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2183870
	3,353 hp	Diesel Engine, DOM: 2007			
A07	2,250 kW	Generator, Emergency	Detroit Diesel	2250RXC6DT2	176196-1-2-0608
	3,353 hp	Diesel Engine, DOM: 2008			
A08	2,250 kW	Generator, Emergency	Detroit Diesel	2250RXC6DT2	175966-1-2-0608
	3,353 hp	Diesel Engine, DOM: 2008			

EU	Rating	Description	Make	Model	Serial
A09	2,250 kW	Generator, Emergency	Detroit Diesel	2250RXC6DT2	175966-1-3-0608
	3,353 hp	Diesel Engine, DOM: 2008			
A10	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	330055-1-2-0311
	3,353 hp	Diesel Engine, DOM: 2010			
A11	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	330055-1-3-0311
	3,353 hp	Diesel Engine, DOM: 2010			
A12	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	330055-1-1-0311
	3,353 hp	Diesel Engine, DOM: 2010			
A13	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	333726-1-1-0811
	3,353 hp	Diesel Engine, DOM: 2011			
A14	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	333726-2-2-0811
	3,353 hp	Diesel Engine, DOM: 2011			
A15	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	333726-2-1-0811
	3,353 hp	Diesel Engine, DOM: 2011			
A16	2,250 kW	Generator, Emergency	Marathon Electric	2250RXC6DT2	334657-1-1-0811
	3,353 hp	Diesel Engine, DOM: 2011			
A17	2,250 kW	Generator, Emergency	Marathon Electric	2250RXC6DT2	341530-1-1-0112
	3,353 hp	Diesel Engine, DOM: 2011			
A18	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341565-1-3-0212
	3,353 hp	Diesel Engine, DOM: 2011			
A19	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369767-1-1-0214
	3,353 hp	Diesel Engine, DOM: 2014			
A20	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341565-1-1-0212
	3,353 hp	Diesel Engine, DOM: 2011			
A21	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	346646-1-1-0512
	3,353 hp	Diesel Engine, DOM: 2011			
A22	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348117-1-3-0812
	3,353 hp	Diesel Engine, DOM: 2011			
A23	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348117-1-1-1112
	3,353 hp	Diesel Engine, DOM: 2012			
A24	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	356251-1-4-0213
	3,353 hp	Diesel Engine, DOM: 2013			
A25	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	346646-1-2-0512
	3,353 hp	Diesel Engine, DOM: 2011			
A26	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348117-1-2-0812
	3,353 hp	Diesel Engine, DOM: 2011			
A27	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	36251-1-1-0213
	3,353 hp	Diesel Engine, DOM: 2013			

EU	Rating	Description	Make	Model	Serial
A28	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	356251-1-2-0213
	3,353 hp	Diesel Engine, DOM: 2013			
A29	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	356251-1-3-0213
	3,353 hp	Diesel Engine, DOM: 2013			
A32	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369338-1-3-0114
	3,353 hp	Diesel Engine, DOM: 2014			
A33	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369338-1-1-0114
	3,353 hp	Diesel Engine, DOM: 2014			
A34	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369338-1-2-0114
	3,353 hp	Diesel Engine, DOM: 2014			
B01	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	7-324424
B02	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	7-324425
B03	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	7-324426
B04	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	7-324359
B05	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	7-324360
B07	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	10-386399
B08	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	10-386400
B09	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	10-386401
B10	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	11-411470
B11	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	11-411468
B12	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	11-411469
B13	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	11-452969
B14	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	11-452982
B15	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	11-452987
B16	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	12-468991
B17	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	12-468982
B18	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	12-468985
B19	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	12-468996
B20	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	13-523739
B21	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	13-658453
B23	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	14-719109

Table III-A-2: Summary of Emissions Units NAP 8

EU	Rating	Description	Make	Model	Serial
C01	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348116-1-1-0712
	3,353 hp	Diesel Engine, DOM: 2011			
C02	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348116-1-2-0712
	3,353 hp	Diesel Engine, DOM: 2011			

EU	Rating	Description	Make	Model	Serial
C03	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348116-1-3-0712
	3,353 hp	Diesel Engine, DOM: 2011			
C04	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	360838-1-3-0713
	3,353 hp	Diesel Engine, DOM: 2013			
C05	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	360838-1-1-0713
	3,353 hp	Diesel Engine, DOM: 2013			
C06	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	360838-1-2-0713
	3,353 hp	Diesel Engine, DOM: 2013			
C07	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	365276-1-1-1013
	3,353 hp	Diesel Engine, DOM: 2013			
C08	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	365276-1-2-1013
	3,353 hp	Diesel Engine, DOM: 2013			
C09	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	365276-1-3-1013
	3,353 hp	Diesel Engine, DOM: 2013			
C10	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369877-1-1-0514
	3,353 hp	Diesel Engine, DOM: 2014			
C11	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369877-1-3-0614
	3,353 hp	Diesel Engine, DOM: 2014			
C12	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369877-1-2-0614
	3,353 hp	Diesel Engine, DOM: 2014			
C13	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	370421-1-1-0514
	3,353 hp	Diesel Engine, DOM: 2014			
C14	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	370421-1-2-0514
	3,353 hp	Diesel Engine, DOM: 2014			
C15	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	370421-1-3-0514
	3,353 hp	Diesel Engine, DOM: 2014			
C16	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341565-1-2-0212
	3,353 hp	Diesel Engine, DOM: 2011			
C17	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369767-1-3-0214
	3,353 hp	Diesel Engine, DOM: 2014			
C18	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369767-1-2-0214
	3,353 hp	Diesel Engine, DOM: 2015			
C19	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS225 0	95030500170
	3,353 hp	Diesel Engine, DOM: 2015			
C20	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS225 0	95030500168
	3,353 hp	Diesel Engine, DOM: 2015			
C21	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS225 0	95030500169
	3,353 hp	Diesel Engine, DOM: 2015			

EU	Rating	Description	Make	Model	Serial
C22	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500326
	3,353 hp	Diesel Engine, DOM: 2015			
C23	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500327
	3,353 hp	Diesel Engine, DOM: 2015			
C24	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500325
	3,353 hp	Diesel Engine, DOM: 2015			
C25	1,500 gpm	Fire Pump	Patterson	8x6 MI	FP-CO114338
	110 hp	Diesel Engine, DOM: 2012	John Deere	4045HFC28	PE4045L219637
C26	200 kW	Generator, Emergency	MTU	MTU 6R0120 DS200	95130500694
	331 hp	Diesel Engine, DOM: 2006+			
D01	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	12-485179
D02	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	12-485182
D03	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	13-544070
D04	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	13-544060
D05	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	14-673905
D06	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	14-686651
D07	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	13-655349
D08	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	13-655348
D10	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	14-686661
D11	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	14-686648
D12	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460C	14-686653
D13	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	17-820571
D14	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	15-767529
D16	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	20P104320

Table III-A-3: Summary of Emissions Units NAP 9

EU	Rating	Description	Make	Model	Serial
G01	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500461
	3,353 hp	Diesel Engine, DOM: 2016			
G02	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500157
	3,353 hp	Diesel Engine, DOM: 2015			

EU	Rating	Description	Make	Model	Serial
G03	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500463
	3,353 hp	Diesel Engine, DOM: 2016			
G04	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500158
	3,353 hp	Diesel Engine, DOM: 2015			
G05	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500494
	3,353 hp	Diesel Engine, DOM: 2016			
G06	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500159
	3,353 hp	Diesel Engine, DOM: 2015			
G07	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500628
	3,353 hp	Diesel Engine, DOM: 2017			
G08	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500331
	3,353 hp	Diesel Engine, DOM: 2015			
G09	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500631
	3,353 hp	Diesel Engine, DOM: 2017			
G10	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500330
	3,353 hp	Diesel Engine, DOM: 2015			
G11	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500634
	3,353 hp	Diesel Engine, DOM: 2017			
G12	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500332
	3,353 hp	Diesel Engine, DOM: 2015			
G13	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500256
	3,353 hp	Diesel Engine, DOM: 2015			
G14	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500483
	3,353 hp	Diesel Engine, DOM: 2016			
G15	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500255
	3,353 hp	Diesel Engine, DOM: 2015			
G16	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500484
	3,353 hp	Diesel Engine, DOM: 2016			
G17	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500249
	3,353 hp	Diesel Engine, DOM: 2015			
G18	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500485
	3,353 hp	Diesel Engine, DOM: 2016			
G19	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500557
	3,353 hp	Diesel Engine, DOM: 2016			
G20	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500626
	3,353 hp	Diesel Engine, DOM: 2017			

EU	Rating	Description	Make	Model	Serial
G21	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500555
	3,353 hp	Diesel Engine, DOM: 2016			
G22	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500624
	3,353 hp	Diesel Engine, DOM: 2017			
G23	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500625
	3,353 hp	Diesel Engine, DOM: 2017			
G24	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500698
	3,353 hp	Diesel Engine, DOM: 2017			
H01	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	14-715086
H02	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	14715088
H03	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	15770216
H04	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	17-804846
H06	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	16-795374
H07	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	15-758292
H08	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	15-758298
H09	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	15766408
H10	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	15766416
H11	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	16-795365
H12	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	17-818677
H13	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	16782903
H14	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	16782926
H15	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	16801280
H16	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	17804855
H17	800 gpm	Cooling Tower	Evapco	ESWA-102-45J-Z-C	17-822513
H18	800 gpm	Cooling Tower	Evapco	ESWA-102-45J-Z-C	17-822512

Table III-A-4: Summary of Emissions Units NAP 10

EU	Rating	Description	Make	Model	Serial
E01	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500632
	3,353 hp	Diesel Engine, DOM: 2017			
E02	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500493
	3,353 hp	Diesel Engine, DOM: 2016			
E03	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500627
	3,353 hp	Diesel Engine, DOM: 2017			

EU	Rating	Description	Make	Model	Serial
E04	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500462
	3,353 hp	Diesel Engine, DOM: 2016			
E05	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500633
	3,353 hp	Diesel Engine, DOM: 2017			
E06	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500492
	3,353 hp	Diesel Engine, DOM: 2016			
E07	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500703
	3,353 hp	Diesel Engine, DOM: 2017			
E08	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500701
	3,353 hp	Diesel Engine, DOM: 2017			
E09	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500700
	3,353 hp	Diesel Engine, DOM: 2017			
E10	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500702
	3,353 hp	Diesel Engine, DOM: 2017			
E11	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500766
	3,353 hp	Diesel Engine, DOM: 2017			
E12	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500699
	3,353 hp	Diesel Engine, DOM: 2017			
E13	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501092
	3,353 hp	Diesel Engine, DOM: 2018			
E14	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501091
	3,353 hp	Diesel Engine, DOM: 2018			
E15	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501098
	3,353 hp	Diesel Engine, DOM: 2018			
E16	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501065
	3,353 hp	Diesel Engine, DOM: 2018			
E17	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501068
	3,353 hp	Diesel Engine, DOM: 2018			
E18	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501064
	3,353 hp	Diesel Engine, DOM: 2018			
E19	1,500 gpm	Fire Pump	Clarke	8x6 MI	FP-CO133769
	125 hp	Diesel Engine, DOM: 2014	John Deere	4045HFC28	PE4045L2666 93

EU	Rating	Description	Make	Model	Serial
E20	1,500 gpm	Fire Pump	Clarke	8x6 MI	FP-CO152216
	125 hp	Diesel Engine, DOM: 2016	John Deere	4045HFC28	PE4045N0000 49
F01	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	16-799616
F02	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	16-798860
F03	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	18-836259
F05	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	16-804570
F06	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	16-804573
F07	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	19-873232
F09	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	17-831176
F10	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	17-831179
F11	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	19-872198
F12	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	20P101332

Table III-A-5: Summary of Emissions Units NAP 11

EU	Rating	Description	Make	Model	Serial
J01	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500919
	3,353 hp	Diesel Engine, DOM: 2018			
J02	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500920
	3,353 hp	Diesel Engine, DOM: 2018			
J03	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500921
	3,353 hp	Diesel Engine, DOM: 2018			
J04	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500926
	3,353 hp	Diesel Engine, DOM: 2018			
J05	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500925
	3,353 hp	Diesel Engine, DOM: 2018			
J06	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500927
	3,353 hp	Diesel Engine, DOM: 2018			
J07	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501900
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G83	5482000210
J08	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501820
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel		5482000191
J09	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501901
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G83	5482000209
J10	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501822
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel		5482000192

EU	Rating	Description	Make	Model	Serial
J11	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501908
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G83	5482000208
J12	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501821
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel		5482000190
J13	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501909
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G83	5482000212
J14	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501910
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G83	5482000211
J15	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501911
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G83	5482000207
J16	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501979
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G24S	5482000244
J17	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501981
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G24S	5482000246
J18	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030501980
	3,353 hp	Diesel Engine, DOM: 2019	Detroit Diesel	16V4000G24S	5482000245
J19	1,500 gpm	Fire Pump	Patterson	8x6 MI	FP-C0168036-01
	125 hp	Diesel Engine, DOM: 2018	John Deere	6068HFC48	PE6068N007610
K01	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	17-833057
K02	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	17-833082
K03	1,250 gpm	Cooling Tower	Evapco	ESWA-216-460-C	19-872170
K05	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460-C	19-871147
K06	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460-C	19-871155
K07	1,250 gpm	Cooling Tower	Evapco	ESWA-216-460-C	19-872176
K09	1,250 gpm	Cooling Tower	Evapco	ESWA-216-460	19-871162
K10	1,250 gpm	Cooling Tower	Evapco	ESWA-216-460	19-871158
K11	1,250 gpm	Cooling Tower	Evapco	ESWA-216-460	20P103709

Table III-A-6: Summary of Emissions Units NAP 12

EU	Rating	Description	Make	Model	Serial
L01	2,045 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500548
	3,353 hp	Diesel Engine, DOM: 2016			
L02	2,045 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500549
	3,353 hp	Diesel Engine, DOM: 2016			

Table III-A-7: Summary of ATC-Only Emissions Units

EU	Rating	Description	Make	Model	Serial
NAP 7					
B24	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
NAP 8					
D09	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
D15	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
NAP 9					
H05	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
NAP 10					
F04	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
F08	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
NAP 11					
K04	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
K08	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
K12	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	TBD
NAP 12					
L03	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	TBD
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	TBD
L04	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	TBD
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	TBD

B. Potential to Emit and Status Determination Emissions

Table III-B-1: Individual Emissions Unit PTE (tons per year)

EU Type	Identical EUs Group ¹	Hours per Year	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
3,353 hp Diesel engine (117 units)	A02-A29, A32-A34, C01-C24, E01-E18, G01-G24, J01-J18, L01, L02	104 each	0.02	0.02	2.06	0.27	0.01	0.03	0.01
1,250 gpm Cooling tower (69 units)	B01-B05, B07-B21, B23, D01-D08, D10-D14, D16, F01-F03, F05-F07, F09-F12, H01-H04, H06-H16, K01-K03, K05-K07, K09-K11	8,760 each	0.06	0.002	0	0	0	0	0
800 gal/min Cooling Tower (2 units)	H17, H18	8,760 each	0.04	0.0002	0	0	0	0	0
125 hp Diesel engine (3 units)	E19, E20, J19	500 each	0.01	0.01	0.19	0.09	0.01	0.01	0.01

EU Type	Identical EUs Group ¹	Hours per Year	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
110 hp Diesel engine (1 unit)	C25	500	0.01	0.01	0.17	0.07	0.01	0.01	0.01
331 hp Diesel engine (1 unit)	C26	104	0.01	0.01	0.14	0.05	0.01	0.04	0.01

¹ Each EU group consists of identical EUs with identical PTE.

Table III-B-2: ATC-Only Individual Emissions Unit PTE (tons per year)

EU Type	Identical EUs Group ¹	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
3,353 hp Diesel engine (4 units)	L03, L04	0.02	0.02	2.06	0.27	0.01	0.03	0.01
1,250 gpm Cooling tower (9 units)	B24, D09, D15, F04, F08, H05, K04, K08, K12	0.03	0.0009	0	0	0	0	0

Table III-B-3: Source PTE Summary (tons per any consecutive 12-month period)

Location	EUs	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
NAP 7	31 emergency generators	0.62	0.62	63.86	8.37	0.31	0.93	0.31
	21 cooling towers	1.26	0.04	0.00	0.00	0.00	0.00	0.00
NAP 8	24 emergency generators	0.48	0.48	49.44	6.48	0.24	0.72	0.24
	14 cooling towers	0.84	0.03	0.00	0.00	0.00	0.00	0.00
	1 emergency generator (331 hp)	0.01	0.01	0.14	0.05	0.01	0.04	0.01
	1 fire pump	0.01	0.01	0.17	0.07	0.01	0.01	0.01
NAP 9	24 emergency generators	0.48	0.48	49.44	6.48	0.24	0.72	0.24
	15 cooling towers	0.90	0.03	0.00	0.00	0.00	0.00	0.00
	2 small cooling towers ¹	0.08	0.01	0.00	0.00	0.00	0.00	0.00
NAP 10	18 emergency generators	0.36	0.36	37.08	4.86	0.18	0.54	0.18
	10 cooling towers	0.60	0.02	0.00	0.00	0.00	0.00	0.00
	2 fire pumps	0.02	0.02	0.38	0.18	0.02	0.02	0.02
NAP 11	18 emergency generators	0.36	0.36	37.08	4.86	0.18	0.54	0.18
	9 cooling towers	0.54	0.02	0.00	0.00	0.00	0.00	0.00
	1 fire pump	0.01	0.01	0.19	0.09	0.01	0.01	0.01
NAP 12	2 emergency generators	0.04	0.04	4.12	0.54	0.02	0.06	0.02
Totals		6.61	2.54	241.90	31.98	1.22	3.59	1.22

¹ Small cooling towers are the 800 gpm units.

Refer to the attachments section of this document for the PTE of the ATC-only emission units.

To calculate the SDE, the emergency generators’ operational limit of 104 hours per year each is increased to 500 hours per year each in accordance with DES policy. As the cooling towers are unlimited and the fire pumps’ PTE is based on 500 hours per year each, there is no difference in PTE and SDE for these units.

Table III-B-4: Source SDE Summary (tons per year)

Location	EUs	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
NAP 7	31 emergency generators	2.79	2.79	306.59	40.30	0.31	5.27	0.93
	21 cooling towers	1.26	0.04	0.00	0.00	0.00	0.00	0.00
NAP 8	24 emergency generators	2.16	2.16	237.36	31.20	0.24	4.08	0.72
	14 cooling towers	0.84	0.03	0.00	0.00	0.00	0.00	0.00
	1 emergency generator (331 hp)	0.01	0.01	0.14	0.05	0.01	0.04	0.01
	1 fire pump	0.01	0.01	0.17	0.07	0.01	0.01	0.01
NAP 9	24 emergency generators	2.16	2.16	237.36	31.20	0.24	4.08	0.72
	15 cooling towers	0.90	0.03	0.00	0.00	0.00	0.00	0.00
	2 small cooling towers	0.08	0.01	0.00	0.00	0.00	0.00	0.00
NAP 10	18 emergency generators	1.62	1.62	178.02	23.40	0.18	3.06	0.54
	10 cooling towers	0.60	0.02	0.00	0.00	0.00	0.00	0.00
	2 fire pumps	0.02	0.02	0.38	0.18	0.02	0.02	0.02
NAP 11	18 emergency generators	1.62	1.62	178.02	23.4	0.18	3.06	0.54
	9 cooling towers	0.54	0.02	0.00	0.00	0.00	0.00	0.00
	1 fire pump	0.01	0.01	0.19	0.09	0.01	0.01	0.01
NAP 12	2 emergency generators	0.18	0.18	19.78	2.60	0.02	0.34	0.06
Totals		14.80	10.73	1,158.01	152.49	1.22	19.97	3.56
Major Source Thresholds		100	100	100	100	100	100	10/25¹

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

Switch is a major source of NO_x. With a CO SDE greater than the major source threshold and a CO PTE less than the major source threshold, as a result of the emergency generator operating hour limitation, Switch is considered a synthetic minor of CO emissions. The hour limit is a voluntary limitation.

C. Emissions Increase

Table III-C-1 shows the increase in emissions from the previous Title V OP. The increase is due from incorporation of the emission units listed in Table II-C-1 that were initially permitted in an ATC and the increase in TDS of the cooling tower recirculation water. The ATC units underwent a controls analysis during that those action and are not subject to a controls analysis in this action. The emissions increases due to the TDS increase are below the Minor NSR Significant Levels, therefore, no controls analysis is required in this permitting action.

Table III-C-1: Emissions Increase (tons per year)

EUs	PM₁₀	PM_{2.5}	NO_x	CO	SO₂	VOC	HAP
Current PTE	6.61	2.54	241.90	31.98	1.22	3.59	1.22
Previous PTE (06/24/19)	3.90	2.20	217.18	28.74	1.10	3.23	1.10
Emissions Increase	2.71	0.20	24.72	3.24	0.12	0.36	0.12
Emissions Increase due to TDS Increase	2.11	0.08	0.00	0.00	0.00	0.00	0.00
AQR 12.5 Minor NSR Significant Levels	7.5	5.0	20	50	20	20	--

D. Operational Limitations

Typically, DES allows unlimited operation of emergency generators for emergency use and calculates the PTE based on 500 hours per year usage. The source took a voluntary emission limitation for each emergency generator to avoid becoming a major PSD source of NO_x. Switch uses 2.2 MW emergency generators and is confident they can reasonably limit the cap on hours of operation on the emergency generators and each emergency generator's operation shall be limited to 104 hours per calendar year, including emergencies. This hour limit is also used for the PTE calculation. This accommodates a worst-case emergency use of 55 hours per year and hours for testing and maintenance in accordance with the manufacturer's specifications. Switch has continuously complied with this limit.

The first 59 generators had an operational limit of 155 hours per year. This limit was established to not exceed the NAAQS for NO₂.

Switch has not requested an operational limit for the cooling towers. The fire pumps are limited to 100 hours for testing and maintenance per 40 CFR Part 60, Subpart IIII.

E. Monitoring

The new emission units in this renewal did not trigger additional monitoring requirements, as similar units are present in the permit with sufficient monitoring requirements. The units added to the Title V OP were added to the existing conditions as applicable.

Switch is required to monitor opacity, hours of operation of each generator and fire pump, and the TDS of the cooling towers.

F. Testing

The new emission units did not trigger addition performance testing.

As deemed necessary and upon written request from the Control Officer, Switch may be required to conduct performance testing on any emergency generator or fire pump engine to demonstrate compliance with the emission limits in 40 CFR Part 60, Subpart IIII.

IV. REGULATORY REVIEW

A. Local Regulatory Requirements

DAQ has determined that the following public laws, 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 Part 70 and others;
3. Chapter 445 of the NRS, Sections 401 through 601;
4. Portions of the AQR included in the state implementation plan (SIP) for Clark County, Nevada. SIP requirements are federally enforceable. All requirements from ATC permits issued by DAQ 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 Part 60 (NSPS), Subpart A—General Provisions

40 CFR Part 60.7: Notification and recordkeeping.

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

40 CFR Part 60.8: Performance tests.

Discussion: Notice of intent to test, the applicable test methods, and acceptable test method operating conditions are outlined in this regulation. DES also reserves the right to require more frequent testing.

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

Discussion: Switch is subject to one NSPS standard: Subpart IIII – Standards for Performance for Stationary Compression Ignition Internal Combustion Engines. Compliance requirements for this standard is discussed in corresponding sections.

40 CFR Part 60.12: Circumvention.

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

40 CFR Part 60, Subpart III—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

40 CFR Part 60.4200: Applicability determination.

Discussion: The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) with a displacement less than 30 liters per cylinder where the model year is 2007 or later, for engines that are not fire pumps, and July 1, 2006, for ICE certified by National Fire Protection Association as fire pump engines. Switch operates emission units that are subject to this subpart.

40 CFR Part 60.4202: Emission standards for owners and operators.

Discussion: The operator of the stationary CI ICE must provide the manufacturer certification of the emission standards specified in this subpart. These requirements are addressed in the Part 70 OP. By meeting the manufacturer's certified emissions, the emission units are in compliance with the emission standards of this subpart.

40 CFR Parts 60.4206 and 60.4211: Compliance requirements.

Discussion: The operator of the stationary CI ICE must operate and maintain CI ICE that achieve the emission standards according to the manufacturer's written instructions and procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine. These requirements are addressed in the Part 70 OP.

40 CFR Part 60.4214: Reporting and recordkeeping requirements.

Discussion: The operator of the CI ICE shall keep records that include: engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; emission control equipment; and fuel used. If the stationary CI internal combustion is a certified engine, the owner or operator shall keep documentation from the manufacturer that the engine is certified to meet the emission standards. These requirements are addressed in the Part 70 OP.

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

40 CFR Part 63.6585: Applicability determination.

Discussion: The provisions of this subpart are applicable to owners and operators of stationary RICE at major or area sources of HAP. Numeric emission standards are not applied to these emergency engines, however, operational limitations, management practices and record keeping are required. The engines meet the requirements of 40 CFR Part 63, Subpart ZZZZ, by complying with 40 CFR Part 60, Subpart III.

40 CFR Part 63, Subpart Q—National Emissions Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

40 CFR Part 63.400: Applicability.

Discussion: This subpart does not apply to the cooling towers at Switch, as chromium-based water treatment chemical are not used in these units and Switch is not a major source of HAP.

40 CFR Part 64—Compliance Assurance Monitoring

40 CFR Part 64.2: Applicability.

Discussion: CAM does not apply to any emission unit at Switch as no emission unit is subject to an emission limitation or standard, has an uncontrolled PTE greater than a major source threshold, and uses that control device to achieve compliance with the emission standard.

40 CFR Part 72—Acid Rain Permits Regulation

40 CFR Part 72.6: Applicability.

Discussion: There is no emissions unit at this source that meets the definition of affected unit under this rule, therefore, 40 CFR Part 72 does not apply to this source.

40 CFR 75—Continuous Emission Monitoring

Discussion: This source is not subject to the Acid Rain limitations of 40 CFR Part 72, therefore, the source is not subject to the monitoring requirements of this regulation.

C. Permit Shield

Switch did not request a permit shield with this permitting action.

V. CONTROL TECHNOLOGY

Switch is not proposing to construct any new emission units in this permitting action. The emission units incorporated from an ATC will maintain controls required in the ATC.

The emergency generators were required to have RACT for NO_x. The generators from this ATC are Tier 2 Certified ICE, use good combustion practices, and have limited hours for testing, maintenance, and operation during emergencies. Each diesel engine is equipped with a turbocharger and with a separate circuit air cooler. The diesel engines will be maintained in accordance with manufacturer's specifications and will use only low sulfur diesel fuel. DAQ agreed that these control equipment and practices met RACT requirements for these diesel engines.

No controls analysis were required for the fire pumps or cooling towers when originally permitted.

Additionally, the source meets the emission standards of 40 CFR Part 60, Subpart IIII, listed in Attachment 3 of this document.

VI. COMPLIANCE

A. Compliance Certification

Recordkeeping requirements are to be kept for all limitations specified in the permit.

1. Requirements for reporting

- a. 12.5.2.8: Requirements for compliance certification:

- i. Regardless of the date of issuance of this Part 70 OP, the schedule for the submittal of reports to DAQ shall be that in Table VI-A-1.

Table VI-A-1. Reporting Schedule

Required Report	Applicable Period	Due Date
Semiannual report for 1 st six-month period	January, February, March, April, May, June	July 30 each year ¹
Semiannual report for 2 nd six-month period; any additional annual records required	July, August, September, October, November, December	January 30 each year ¹
Annual Compliance Certification	Calendar year	January 30 each year ¹
Annual Emission Inventory Report	Calendar year	March 31 each year ¹
Notification of Malfunctions, Startup, Shutdowns, or Deviations with Excess Emission	As required	Within 24 hours of the permittee learns of the event
Report of Malfunctions, Startup, Shutdowns, or Deviations with Excess Emission	As required	Within 72 hours of the notification
Deviation Report without Excess Emissions	As required	Along with semiannual reports ¹
Excess Emissions that Pose a Potential Imminent and Substantial Danger	As required	Within 12 hours of the permittee learns of the event
Performance Testing Protocol	As required	No less than 45 days, but no more than 90 days, before the anticipated test date ¹
Performance Testing	As required	Within 60 days of end of test ¹

¹If the due date falls on a Saturday, Sunday, or federal or Nevada holiday, the submittal is due on the next regularly scheduled business day.

- ii. A statement of methods used for determining compliance, including a description of monitoring, recordkeeping, and reporting requirements and test methods.
- iii. A schedule for submission of compliance certifications during the permit term.
- iv. A statement indicating the source's compliance status with any applicable enhanced monitoring and compliance certification requirements of the Act.

B. Compliance Summary

Table VI-B-1: Applicable Regulations

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 0	Definitions	Applicable – Switch will comply with all applicable definitions as they apply.	Switch will meet all applicable test methods should new definitions apply.	Switch complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 4	Control Officer	Applicable – The Control Officer or his representative may enter into Switch property, with or without prior notice, at any reasonable time for purpose of establishing compliance.	Switch will allow Control Officer to enter Station property as required.	Switch complies with applicable requirements.
AQR Section 5	Interference with Control Officer	Applicable – Switch shall not hinder, obstruct, delay, resist, or interfere with the Control Officer.	Switch will allow Control Officer to operate as needed.	Switch complies with applicable requirements.
AQR Section 8	Persons Liable for Penalties	Applicable – Switch and employees will be individually and collectively liable to any penalty or punishment from DES.	Switch will adhere to the rules stipulated in applicable AQR.	Switch complies with applicable requirements.
AQR Section 9	Civil Penalties	Applicable – The rule stipulates penalties for AQR violations.	Switch will adhere to the rules stipulated in applicable AQR.	Switch complies with applicable requirements.
AQR Section 12.0	Applicability, General Requirements and Transition	Applicable – Switch as a whole is not subject to these requirements. Rule outlines source applicability, requirements for a source to obtain a permit and transition for sources that received a permit prior to rulemaking.	Switch applied for and received ATC permits for Air Quality prior to commercial operation. Switch will comply with the requirements of the ATCs.	Switch complies with applicable requirements.
AQR Section 12.4	ATC application and Permit Requirements for Part 70 Sources	Applicable – Switch applied for an ATC from Air Quality.	Switch applied for, and received, ATC permits from Air Quality. Switch shall comply with the requirements for ATCs.	Switch complies with applicable requirements.
AQR Section 12.5	Part 70 Operating Permit Requirements	Applicable – Switch as a whole is applicable. Renewal applications are due 6 to 18 months prior to expiration. Revision applications will be submitted with 12 months of commencing operation of a new emission unit.	Switch complies with the requirements for Title V permits outlined in this AQR and with the current ATC.	Switch complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 12.9	Annual Emissions Inventory	Applicable – Switch shall complete and submit an annual emissions inventory.	Annual emission inventories shall be submitted by March 31 each year.	Switch complies with applicable requirements.
AQR Section 12.10	Continuous Monitoring Requirements	Not Applicable.	Not Applicable.	Not Applicable.
AQR Section 13.2(b)(1) Subpart A	MACT – General Provisions	Applicable – Switch emits hazardous air pollutants.	Switch complies with the applicable requirements of 40 CFR Part 61 and Part 63.	Switch complies with applicable requirements.
AQR Section 13.2(b)(82) Subpart ZZZZ	National Emission Standard for Hazardous Air Pollutants – Stationary Reciprocating Internal Combustion Engines	Applicable – as of May 3, 2013, for the affected units in this permit.	Applicable compliance, monitoring, recordkeeping, and reporting requirements.	Switch complies with applicable requirements.
AQR Section 14.1(b)(1) Subpart A	NSPS – General Provisions	Applicable – Switch is an affected source under the regulations. AQR Section 14 is locally enforceable; however, the NSPS standards they reference are federally enforceable.	Applicable monitoring, recordkeeping and reporting requirements.	Switch complies with applicable requirements.
AQR Section 14.1(b)(80) Subpart IIII	NSPS – Standards of Performance for Stationary Reciprocating Internal Combustion Engines	Applicable – Switch is subject to this regulation.	Switch has met the required certification for these engines.	Switch complies with applicable requirements.
AQR Section 18	Permit and Technical Service Fees	Applicable – Switch will be required to pay all required/applicable permit and technical service fees.	Switch is required to pay all required/applicable permit and technical service fees.	Switch complies with applicable requirements.
AQR Section 21	Acid Rain Permits	Not Applicable.	Not Applicable.	Not Applicable.
AQR Section 22	Acid Rain Continuous Emission Monitoring	Not Applicable.	Not Applicable.	Not Applicable.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
AQR Section 25	Upset/Breakdown, Malfunctions	Applicable – Any upset, breakdown, emergency condition, or malfunction which causes emissions of regulated air pollutants in excess of any permit limits shall be reported to Control Officer. Section 25.1 is locally and federally enforceable.	Any upset, breakdown, emergency condition, or malfunction in which emissions exceed any permit limit shall be reported to the Control Officer within twenty (24) hours of the time that the permittee learns of the event.	Switch complies with applicable requirements.
AQR Section 26	Emissions of Visible Air Contaminants	Applicable – Opacity for the Switch emission units must not exceed 20 percent for more than 6 consecutive minutes.	Compliance determined by EPA Method 9, as required.	Switch complies with applicable requirements.
AQR Section 40	Prohibition of Nuisance Conditions	Applicable – No person shall cause, suffer or allow the discharge from any source whatsoever such quantities of air contaminants or other material which cause a nuisance. Section 40 is locally enforceable only.	Switch air contaminant emissions are controlled by pollution control devices or good combustion in order not to cause a nuisance.	Switch complies with applicable requirements.
AQR Section 41	Fugitive Dust	Applicable – Switch shall take necessary actions to abate fugitive dust from becoming airborne.	Switch utilizes appropriate best practices to not allow airborne fugitive dust.	Switch complies with applicable requirements.
AQR Section 42	Open Burning	Applicable – In the event Switch 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.	Switch will contact the Air Quality and obtain approval in advance for applicable burning activities as identified in the rule.	Switch complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
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.	Switch will not operate its source in a manner which will cause odors.	Switch complies with applicable requirements.
AQR Section 70.4	Emergency Procedures	Applicable – Switch submitted an emergency standby plan for reducing or eliminating air pollutant emissions in the Section 12.5 Operating Permit Application.	Switch submitted an emergency standby plan and received the Section 12.5 Operating Permit.	Switch complies with applicable requirements.
AQR Section 80	Circumvention	Applicable – Switch shall not conceal emissions in any way.	Switch will disclose all emissions as required by state and federal regulations.	Switch complies with applicable requirements.
NRS Chapter 445B	Nevada Revised Statutes, Air pollution	Applicable – Switch shall comply with applicable regulations.	Switch complies with applicable regulations.	Switch complies with applicable requirements.
40 CFR Part 52.1470	State Implementation Plan Rules	Applicable – Switch is subject to the Nevada SIP.	Switch shall continue to comply with the federally enforceable monitoring, testing, recordkeeping, and reporting requirements stipulated in the SIP.	Switch complies with applicable requirements.
40 CFR Part 60 Subpart A	Standards of Performance for New Stationary Sources – General provisions	Applicable – Switch is an affected facility. Therefore, Subpart A provisions are applicable.	Switch shall continue to adhere to applicable monitoring, testing, recordkeeping, and reporting regulations.	Switch complies with applicable requirements.
40 CFR Part 60 Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Applicable – Switch is subject to this regulation.	Switch shall continue to adhere to applicable monitoring, testing, recordkeeping, and reporting regulations.	NAFB complies with applicable requirements.

Citation	Title	Applicability	Applicable Test Method	Compliance Status
40 CFR Part 63 Subpart ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Applicable – The continuous-duty generators/water pump is subject to this subpart.	Switch shall continue to adhere to the applicable emission limitations, operating and maintenance requirements, recordkeeping, reporting, and general provisions.	Switch complies with applicable requirements.
40 CFR Part 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.	Switch complies with this regulation by maintaining an updated Title V federal operating permit.	Switch complies with applicable requirements.
40 CFR Part 72	Acid Rain Permit Regulations	Not Applicable.	Not Applicable.	Not Applicable.
40 CFR Part 73	Acid Rain Sulfur Dioxide Allowance System	Not Applicable.	Not Applicable.	Not Applicable.
40 CFR Part 75	Acid Rain Continuous Emission Monitoring	Not Applicable.	Not Applicable.	Not Applicable.

C. Summary of Monitoring for Compliance

Table VI-C-1: Compliance Monitoring

EU	Regulation (40 CFR)	Regulatory Standard	Permit Limit	Is Permit Limit Equal or More Stringent?	Averaging Period Comparison			Streamlining Statement
					Standard	Permit Limit	Is Permit Limit Equal or More Stringent?	
A02-A29, A32-A34, C01-C24, C26, E01-E18, G01-G24, J01-J18, L01, L02	60.4205(b) and 60.4211 (III)	Various limits for NO _x , CO, PM, and VOC pollutants based on model year and engine power rating		Yes	Compliance demonstrated by keeping records of engine manufacturer's certified emissions data		Yes	The permit requirements and federal standards are identical
C25, E19, E20, J19	60.4205(c) and 60.4211 (III)	Various limits for NO _x , CO, PM, and VOC pollutants based on model year and engine power rating		Yes	Compliance demonstrated by keeping records of engine manufacturer's certified emissions data		Yes	The permit requirements and federal standards are identical

VII. EMISSION REDUCTION CREDITS (OFFSETS)

The permittee is not required to obtain offsets in this permitting action.

VIII. 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 66 FR 30097, EPA fully approved the Title V Operating Permit Program submitted by DES for the purpose of complying with the Title V requirements of the 1990 CAAA and implementing 40 CFR Part 70.

Factual:

Switch has supplied all the necessary information for Air Quality to draft Part 70 OP conditions, encompassing all applicable requirements and corresponding compliance.

Conclusion:

DES has determined that Switch will continue to determine compliance through the use of performance testing, semiannual reporting, and daily and monthly recordkeeping coupled with annual certifications of compliance. Air Quality proceeds with the decision that a Part 70 OP should be issued as drafted to Switch for a period not to exceed five years.

IX. INCREMENT

Switch Ltd is a major source in Hydrographic Area 212 (the Las Vegas Valley). Permitted emission units include 120 generators, 80 cooling towers and four fire pumps. 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.

DAQ modeled the source using AERMOD to track the increment consumption. Average annual actual emissions (2018-2019) were used for the generators in the NO_x modeling. Stack data submitted by the applicant were supplemented with information available for similar emission units. Five years (2011 to 2015) of meteorological data from the McCarran Station were used in the model. U.S. Geological Survey National Elevation Dataset terrain data were used to calculate elevations. Table IX-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 IX-1: PSD Increment Consumption

Pollutant	Averaging Period	PSD Increment Consumption by the Source (µg/m ³)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO ₂	3-hour	10.97 ¹	660847	3991932
SO ₂	24-hour	6.29 ¹	660847	3991932
SO ₂	Annual	3.17	660848	3991932
NO _x	Annual	5.79	660848	3991932

¹ Highest Second High Concentration

X. PUBLIC NOTICE

This permitting action is a renewal and therefore is subject to public notice per AQR 12.5.2.17.

XI. PERMIT SHIELD

None has been identified in this permitting action.

XII. ACID RAIN REQUIREMENTS

This source is not subject to the acid rain requirements.

XIII. ATTACHMENTS

Attachment 1 – ATC-only Units

ATC-Only Emission Units PTE Summary (tons per any consecutive 12-month period)

Location	EUs	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
NAP 7	1 cooling tower (EU: B24)	0.03	0.01	0.00	0.00	0.00	0.00	0.00
NAP 8	2 cooling towers (EUs: D09 and D15)	0.06	0.01	0.00	0.00	0.00	0.00	0.00
NAP 9	1 cooling tower (EU: H05)	0.03	0.01	0.00	0.00	0.00	0.00	0.00
NAP 10	2 cooling towers (EUs: F04 and F08)	0.06	0.01	0.00	0.00	0.00	0.00	0.00
NAP 11	2 cooling towers (EUs: K04, K08, and K12)	0.09	0.01	0.00	0.00	0.00	0.00	0.00
NAP 12	2 emergency generators (EU: L03 and L04)	0.04	0.04	4.12	0.54	0.02	0.06	0.02
	Totals	0.31	0.09	4.12	0.54	0.02	0.06	0.02

Attachment 2 – Source PTE Including ATC-Only Emission Units

Emission Units PTE Summary (tons per any consecutive 12-month period)

PTE	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC	HAP
Title V OP PTE	6.61	2.54	241.90	31.98	1.22	3.59	1.22
ATC-Only Emission Unit PTE	0.31	0.09	4.12	0.54	0.02	0.06	0.02
Totals	6.92	2.63	246.02	32.52	1.24	3.65	1.24

Attachment 3 – 40 CFR Part 60, Subpart III, Emission Standards

40 CFR Part 60, Subpart III, Emission Standards (g/kW-hr)

EU	HC	NO _x	NMHC + NO _x	CO	PM
A02 through A12, C26	1.3	9.2		11.4	0.54
A13 through A29, A32 through A34, C01 through C24, E01 through E18, G01 through G24, J01 through J18, L01, L02			6.4	3.5	0.2
C25, E19, E20, J19			10.5	5.0	0.80

Attachment 4 – Emission Unit EF and PTE Tables

EU#	A02-A29, A32-A34, C01-C24, E01-E18, G01-G24, J01-J18, L01, L02		Horsepower:	3,353						
Make:	Detroit Diesel		Hours/Day:							
Model:	16V4000		Hours/Year	104						
S/N:										
Manufacturer Guarantees										
PM10	0.000107	lb/hp-hr ▼								
NOx	0.0118	lb/hp-hr ▼								
CO	0.00155	lb/hp-hr ▼								
SO₂		lb/hp-hr ▼								
VOC	0.000197	lb/hp-hr ▼								
Engine Type:	Diesel	▼								Diesel Fuel Sulfur Content is 15 ppm (0.0015%)
EU#	A02-A29, A32-A34, C01-C24, E01-E18, G01-G24, J01-J18, L01, L02		Horsepower:	3,353						
Make:			Hours/Day:							
Model:			Hours/Year	500						
S/N:										
Manufacturer Guarantees										
PM10	0.000107	lb/hp-hr ▼								
NOx	0.0118	lb/hp-hr ▼								
CO	0.00155	lb/hp-hr ▼								
SO₂		lb/hr ▼								
VOC	0.000197	lb/hp-hr ▼								
Engine Type:	Diesel	▼								Diesel Fuel Sulfur Content is 15 ppm (0.0015%)

EU#	C25		Horsepower:	110		Emission Factor	Control Efficiency	Potential Emissions		
Make:	Clarke John Deere		Hours/Day:			(lb/hp-hr)		lb/hr	ton/yr	
Model:	JU4H-UFAD5G		Hours/Year	500		PM10	4.11E-04	0.00%	0.05	0.01
S/N:						NOx	6.08E-03	0.00%	0.67	0.17
						CO	2.47E-03	0.00%	0.27	0.07
Manufacturer Guarantees						SO₂	1.21E-05	0.00%	0.01	0.01
PM10	0.25	g/kW-hr				VOC	1.64E-04	0.00%	0.02	0.01
NOx	3.7	g/kW-hr				HAP	4.52E-05	0.00%	0.01	0.01
CO	1.5	g/kW-hr								
SO₂	0.0000121	lb/hp-hr								
VOC	0.1	g/kW-hr								
Engine Type:	Diesel					Diesel Fuel Sulfur Content is 15 ppm (0.0015%)				

EU#	E19, E20, J19		Horsepower:	125		Emission Factor	Control Efficiency	Potential Emissions		
Make:	Clarke John Deere		Hours/Day:			(lb/hp-hr)		lb/hr	ton/yr	
Model:	JU4H-UFADP0		Hours/Year	500		PM10	2.79E-04	0.00%	0.03	0.01
S/N:						NOx	6.08E-03	0.00%	0.76	0.19
						CO	2.79E-03	0.00%	0.35	0.09
Manufacturer Guarantees						SO₂	1.21E-05	0.00%	0.01	0.01
PM10	0.17	g/kW-hr				VOC	3.29E-04	0.00%	0.04	0.01
NOx	3.7	g/kW-hr				HAP	4.52E-05	0.00%	0.01	0.01
CO	1.7	g/kW-hr								
SO₂	0.0000121	lb/hp-hr								
VOC	0.2	g/kW-hr								
Engine Type:	Diesel					Diesel Fuel Sulfur Content is 15 ppm (0.0015%)				

EU	Description	Model No.	Drift Loss % (1)	Flow Rate (gal/min)	TDS (mg/l)	Hours of Operation		PM10 Emissions		PM2.5 Emissions	
						hr/day	hr/yr	lb/hr	ton/yr	lb/hr	ton/yr
B01-B05, B07-B21, B23, D01-D08, D10-D14, D16, F01-F03, F05-F07, F09-F12, H01-H04, H06-H16, K01-K03, K05-K07, K09-K11	Evapco Cooling Tower	ESWA 216-460	0.001%	1250	5000	24	8760	0.01	0.06	0.000464	0.002036

EU	Description	Model No.	Drift Loss % (1)	Flow Rate (gal/min)	TDS (mg/l)	Hours of Operation		PM10 Emissions		PM2.5 Emissions	
						hr/day	hr/yr	lb/hr	ton/yr	lb/hr	ton/yr
H17, H18	Evapco Cooling Tower	ESWA-102-45J-ZC	0.001%	800	5000	24	8760	0.01	0.04	4.2E-05	0.0002