

**TECHNICAL SUPPORT DOCUMENT**  
TECHNICAL INFORMATION PRESENTED IN REVIEW OF AN  
APPLICATION FOR AN INITIAL PART 70 OPERATING PERMIT

SUBMITTED BY

TRINITY CONSULTANTS, INC.

for

SWITCH COMMUNICATIONS GROUP, LLC.

**Part 70 Operating Permit Number: 16304**  
**(Initial)**

SIC Code: 7389 – Business Services  
NAICS Code 518210 - Data Processing, Hosting, and Related Services



Clark County Department of Air Quality

**February, 2016**

## Acronyms and Abbreviations

Term	
Air Quality	Clark County Department of Air Quality
AQR	Clark County Air Quality Regulations
ATC	Authority to Construct Certificate or Authority to Construct
CFR	United States Code of Federal Regulations
CO	Carbon Monoxide
DOM	Date of Manufacture
EF	Emission Factor
EPA	United States Environmental Protection Agency
EU	Emission Unit
HAP	Hazardous Air Pollutant
HP	Horse Power
ICE	Internal Combustion Engine
kW	kiloWatt
NAICS	North American Industry Classification System
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>2.5</sub>	Particulate Matter less than 2.5 microns
PM <sub>10</sub>	Particulate Matter less than 10 microns
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
SCC	Source Classification Codes
SIC	Standard Industrial Classification
SO <sub>x</sub>	Sulfur Oxides
TSD	Technical Support Document
VOC	Volatile Organic Compound

## EXECUTIVE SUMMARY

Switch Communications Group, LLC is a major Part 70 source of NO<sub>x</sub> and minor source of PM<sub>10</sub>, PM<sub>2.5</sub>, CO, SO<sub>2</sub>, and VOC. The source is located at 7135 S. Decatur Blvd., Las Vegas, Nevada 89118, in the Las Vegas Valley airshed, hydrographic basin number 212. Las Vegas Valley is attainment for all criteria pollutants.

Switch Communications Group, LLC owns and operates six separate and adjacent advanced technology ecosystem communications facilities referred to as NAP7, NAP8, NAP 9, NAP 10, NAP 11 and a training center called Switch University. The source is categorized under SIC Code 7389 – Business Services and NAICS Code 518210 - Data Processing, Hosting, and Related Services.

The source consists of diesel powered emergency generators and cooling towers as emission units. The potential emissions for the source are shown below.

### Source-wide PTE Including Unconstructed Units – ATC February 25, 2015 (tons per year)

Pollutant	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>x</sub>	VOC	HAP
Source PTE	4.88	2.49	249.26	32.67	1.21	3.63	1.21

### Source PTE – Installed Emissions Units Addressed in the Operating Permit (tons per year)

Pollutant	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>x</sub>	VOC	HAP
Source PTE	2.30	1.19	119.48	15.66	0.58	1.74	0.58

Based on the information submitted by the applicant, Air Quality proposes the issuance of an initial Part 70 Operating Permit to Switch Communications Group, LLC.

The issuance of this initial Part 70 Operating Permit is based on the application for an initial Part 70 Operating Permit submitted to Air Quality on May 9, 2014, an application for an Authority to Construct submitted on February 11, 2015 and supplemental applications information submitted on April 14, 2015 and December 2, 2015.

## I. SOURCE INFORMATION

### A. General

**Preparer:** Eugen Avram  
**Action Received:** May 9, 2014 and February 11, 2015  
**TSD Date:** December 29, 2015  
**Company:** Switch Communications Group, LLC.  
**Submitter:** Trinity Consultants, Inc.  
**Source:** 16304  
**Source Name:** Switch Communications Group, LLC.  
**Source Address:** 7135 South Decatur Blvd.  
 Las Vegas, Nevada, 89118  
 T22S, R60E, S01

**Hydrographic Area:** 212 – Las Vegas Valley

### B. Source Description

Switch Communications Group, LLC (Switch), owns and operates six separate and adjacent advanced technology ecosystem communications facilities referred to as NAP7, NAP8, NAP 9 (partially constructed), NAP 10 (not constructed), NAP 11 (not constructed) and a training center called Switch University (not constructed). Currently, the source consists of 55 diesel powered emergency generators and 36 cooling towers.

The source is categorized under SIC Code 7389 – Business Services and NAICS Code 518210 - Data Processing, Hosting, and Related Services.

The source meets or exceeds the major Part 70 source threshold for NO<sub>x</sub> emissions and is considered a major Part 70 source. The source is a minor source for PM<sub>10</sub>, PM<sub>2.5</sub>, CO, SO<sub>2</sub>, VOC, and NO<sub>x</sub>.

### C. Permitting History

This is an initial Part 70 Operating Permit. All previous permitting actions associated with this source are listed below:

**Table 1: Permitting History**

Date Issued	Date Submitted	Description
current	02/11/2015	ATC application to add seven new cooling towers; this action is incorporated in the initial Part 70 Operating Permit
current	05/09/2014	Initial Part 70 Operating Permit application which was updated on April 14, 2015 and December 2, 2015.
02/25/2015	10/13/2014	ATC revision to add 62 new gensets and 32 cooling towers; the source proposed to reduce the hours of operation to 104 hours per calendar year for testing, maintenance, and emergency use for all gensets
06/27/2014	11/27/2013	ATC application to add 51 new gensets and 25 new cooling towers; changed the yearly hours of operation for gensets from 500 hours per year to 155 hours per any consecutive 12 months (inclusive of testing, maintenance, and emergency use)
01/24/2014	08/01/2013	Action cancelled – application for a significant revision to add equipment

Date Issued	Date Submitted	Description
07/29/2011	08/03/2011	Action cancelled – application for a significant revision to add equipment
11/16/2010	07/06/2010	Initial AQR 12.1 permit issued; additionally, one genset and one cooling tower were removed from permit
03/04/2009	12/22/2008	ATC/OP revision to add three gensets and three cooling towers
08/19/2008	05/01/2008	Initial application for a ATC/OP (six gensets and six cooling towers)

#### D. Permitting Action

The initial Title V application submitted on May 9, 2014 requested an operating permit for the source based on the ATC issued on June 27, 2014. The ATC was issued for NAP7 and NAP8 and included 59 emergency generators and 33 cooling towers.

On October 13, 2014 the source submitted an ATC revision to add 62 new gensets and 32 cooling towers. The source proposed to reduce the hours of operation to 104 hours per calendar year for testing, maintenance, and emergency use for all gensets. The revised ATC was issued on February 25, 2015.

This TSD for the operating permit combines the initial Part 70 Operating Permit application submitted on May 9, 2014, with the application for an Authority to Construct submitted on February 11, 2015 and the supplemental information submitted on April 14, 2015 and December 2, 2015.

1. The initial Part 70 Operating Permit application proposes the following emissions units be included in the emissions units list of Title V Operating Permit (emissions unit list last revised in ATC issued 02/25/2015):

**Table 2: Emissions Units**

Building	Emergency Generators	Cooling Towers
NAP7	31 units (EUs: A02 – A29, A32, A33, A34)	21 units (EUs: B01-B05, B07-B21, B23)
NAP8	21 units (EUs: C01 – C21)	11 units (EUs: D01-D08, D10, D11, D12)
NAP9	6 units (EUs: G02, G04, G06, G13, G15, G17)	6 units (EUs: H01, H02, H07, H08, H09, H10)

The source also proposes to permit the hours of operation of all emergency generators to 104 hours per calendar year for testing, maintenance, and emergency use.

2. The Application for an Authority to Construct submitted on February 11, 2015, proposes the addition of seven cooling towers (B23, B24, B25, D13, D14, D15, and D16). Only one of the cooling towers (EU: B23) is operational and thus, will be included in the Title V Operating Permit.

## II. EMISSIONS INFORMATION

### A. Emission Units

The source consists of the following proposed emissions units:

**Table 3: Summary of Emissions Units NAP 7**

EU	Rating	Description	Make	Model	Serial
A02	2,250 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2185979
	3,353 hp	Diesel Engine, DOM: 2007	Detroit Diesel	16V4000	527104962
A03	2,250 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2183867
	3,353 hp	Diesel Engine, DOM: 2007	Detroit Diesel	16V4000	527104960
A04	2,250 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2185985
	3,353 hp	Diesel Engine, DOM: 2007	Detroit Diesel	16V4000	527104961
A05	2,250 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2183861
	3,353 hp	Diesel Engine, DOM: 2007	Detroit Diesel	16V4000	527104847
A06	2,250 kW	Generator, Emergency	Detroit Diesel	2250 DSEC	2183870
	3,353 hp	Diesel Engine, DOM: 2007	Detroit Diesel	16V4000	527104851
A07	2,250 kW	Generator, Emergency	Detroit Diesel	2250LXC6DT2	176196-1-2-0608
	3,353 hp	Diesel Engine, DOM: 2009	Detroit Diesel	T1638A36	5272003119
A08	2,250 kW	Generator, Emergency	Detroit Diesel	2250LXC6DT2	175966-1-2-0608
	3,353 hp	Diesel Engine, DOM: 2009	Detroit Diesel	T1638A36	5272003097
A09	2,250 kW	Generator, Emergency	Detroit Diesel	2250LXC6DT2	175966-1-3-0608
	3,353 hp	Diesel Engine, DOM: 2009	Detroit Diesel	T1638A36	5272003124
A10	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	330055-1-2-0311
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	527108078
A11	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	330055-1-3-0311
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	527108076
A12	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	330055-1-1-0311
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	527108084
A13	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	333726-1-1-0811
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	5272010591
A14	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	333726-2-2-0811
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	5272010590
A15	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	333726-2-1-0811
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	5272010579
A16	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	334657-1-1-0811
	3,353 hp	Diesel Engine, DOM: 2012	MTU Detroit Diesel	16V4000G83	527108575
A17	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341530-1-1-0112
	3,353 hp	Diesel Engine, DOM: 2012	MTU Detroit Diesel	16V4000G83	5272010706
A18	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341565-1-3-0212
	3,353 hp	Diesel Engine, DOM: 2012	MTU Detroit Diesel	16V4000G83	5272010705
A19	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341565-1-2-0212
	3,353 hp	Diesel Engine, DOM: 2012	MTU Detroit Diesel	16V4000G83	5272010739
A20	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341565-1-1-0212
	3,353 hp	Diesel Engine, DOM: 2012	MTU Detroit Diesel	16V4000G83	5272010702
A21	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	346646-1-1-0512
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	5272010811
A22	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348117-1-3-0812
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	5272010835

EU	Rating	Description	Make	Model	Serial
A23	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348117-1-1-1112
	3,353 hp	Diesel Engine, DOM: 2013	MTU Detroit Diesel	16V4000G83	5272011075
A24	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	356251-1-4-0213
	3,353 hp	Diesel Engine, DOM: 2013	MTU Detroit Diesel	16V4000G83	5272011199
A25	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	346646-1-2-0512
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	5272010812
A26	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348117-1-2-0812
	3,353 hp	Diesel Engine, DOM: 2011	MTU Detroit Diesel	16V4000G83	5272010837
A27	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	36251-1-1-0213
	3,353 hp	Diesel Engine, DOM: 2013	MTU Detroit Diesel	16V4000G83	5272011200
A28	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	356251-1-2-0213
	3,353 hp	Diesel Engine, DOM: 2013	MTU Detroit Diesel	16V4000G83	5272011201
A29	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	356251-1-3-0213
	3,353 hp	Diesel Engine, DOM: 2013	MTU Detroit Diesel	16V4000G83	5272011198
A32	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369338-1-3-0114
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	527011772
A33	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369338-1-1-0114
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	527011771
A34	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369338-1-2-0114
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	527011774
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	11-458991
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 4: 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: 2013	MTU Detroit Diesel	16V4000G83	5272010833
C02	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348116-1-2-0712
	3,353 hp	Diesel Engine, DOM: 2013	MTU Detroit Diesel	16V4000G83	5272010824
C03	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	348116-1-3-0712
	3,353 hp	Diesel Engine, DOM: 2013	MTU Detroit Diesel	16V4000G83	5272010829
C04	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	360838-1-3-0713
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011456
C05	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	360838-1-1-0713
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011452
C06	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	360838-1-2-0713
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011454
C07	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	365276-1-1-1013
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011653
C08	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	365276-1-2-1013
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011648
C09	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	365276-1-3-1013
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	527201168
C10	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369877-1-1-0514
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011899
C11	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369877-1-3-0614
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011905
C12	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369877-1-2-0614
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011906
C13	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	370421-1-1-0514
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011893
C14	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	370421-1-2-0514
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011894
C15	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	370421-1-3-0514
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011901
C16	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	341565-1-2-0212
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272010739
C17	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369767-1-3-0214
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011791
C18	2,250 kW	Generator, Emergency	Marathon Electric	2250LXC6DT2	369767-1-2-0214
	3,353 hp	Diesel Engine, DOM: 2014	MTU Detroit Diesel	16V4000G83	5272011700
C19	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500170
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012145
C20	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500168
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012146
C21	2,250 kW	Generator, Emergency	Marathon Electric	16V4000DS2250	95030500169
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012144

EU	Rating	Description	Make	Model	Serial
D01	1,250 gpm	Cooling Tower	Evapco	ESWA 216C-460	12-485179
D02	1,250 gpm	Cooling Tower	Evapco	ESWA 216C-460	12-485182
D03	1,250 gpm	Cooling Tower	Evapco	ESWA 216C-460	13-544070
D04	1,250 gpm	Cooling Tower	Evapco	ESWA 216C-460	13-544060
D05	1,250 gpm	Cooling Tower	Evapco	ESWA 216C-460	14-673905
D06	1,250 gpm	Cooling Tower	Evapco	ESWA 216C-460	14-686651
D07	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	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 216-460	14-686648
D12	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	14-686653

**Table 5: Summary of Emissions Units NAP 9**

EU	Rating	Description	Make	Model	Serial
G02	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500157
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012143
G04	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500158
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012141
G06	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500159
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012140
G13	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500256
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012242
G15	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500255
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012231
G17	2,250 kW	Generator, Emergency	Marathon Electric	MTU16V4000DS2250	95030500249
	3,353 hp	Diesel Engine, DOM: 2015	MTU Detroit Diesel	16V4000G83	5272012241
H01	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	14715086
H02	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	14715088
H07	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	15-758292
H08	1,250 gpm	Cooling Tower	Evapco	ESWA 216-460	15-758298
H09	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	15766408
H10	1,250 gpm	Cooling Tower	Evapco	ESWB1246018	15766416

## B. Operational Limits

The source proposed that each emergency generator's operation shall be limited to 104 hours per calendar year, including emergencies. The source has taken a voluntary emission limitation for each emergency generator to avoid becoming a major PSD source of NO<sub>x</sub> (EUs: A02 through A29, A32, A33, A34, C01 through C21, G02, G04, G06, G13, G15, and G17).

The allowance for up to 50 hours of non-emergency use referenced in 40 CFR 60.4211(f) does not apply to Switch due to the enforceable limitation of operating hours taken to avoid becoming a major PSD source.

Therefore, in accordance with 40 CFR 60.4211(f), the proposed emergency stationary engines cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing is prohibited.

### C. Source PTE

To avoid major PSD status for NO<sub>x</sub>, the source proposed to limit the operation of each emergency generator to 104 hours per calendar year (inclusive of testing, maintenance and emergency use).

The source PTE is calculated based on the above mentioned operational limitations and emission factors provided by manufacturer guarantees submitted with the application. All emergency generators present at the source have the same power rating, operational limitation emissions and subsequently, the same PTE; similarly, every cooling tower present at the source has the same flow rate, drift loss, TDS and operational limitations and subsequently, the same PTE.

The PTE of an individual emergency generator and cooling tower are referenced below:

**Table 6: Engine Individual PTE (tons per any consecutive 12-month period)**

Rating	Description	Conditions	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>x</sub>	VOC	HAP
3,353 hp	Diesel Emergency Generator	104 hrs/yr	0.02	0.02	2.06	0.27	0.01	0.03	0.01

**Table 7: Engine Individual PTE (pounds per hour)**

Rating	Description	Conditions	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>x</sub>	VOC	HAP
3,353 hp	Diesel Emergency Generator	1 hour	0.36	0.36	39.57	5.20	0.04	0.66	0.10

**Table 8: Cooling Tower Individual PTE (tons per any consecutive 12-month period)**

Rating	Description	Conditions	PM <sub>10</sub>	PM <sub>2.5</sub> *	NO <sub>x</sub>	CO	SO <sub>x</sub>	VOC	HAP
1,250 gal/min	Evapco Cooling Tower	8,760 hrs/yr	0.03	0.000855	0	0	0	0	0

\*Emission calculation outlined in Reisman, J. and Frisbie, G. "Calculating Realistic PM<sub>10</sub> emissions from cooling towers", Greystone Environmental Consultants, Inc.

The source consists of 58 diesel powered emergency generators and 38 cooling towers. Since all emergency generators have the same PTE and all cooling towers have identical PTE, all emission units present at the source have been summarized as follows:

**Table 9: PTE Summary – Emissions Units (tons per calendar year)**

Location	EUs	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>x</sub>	VOC	HAP
NAP 7	31 emergency generators	0.62	0.62	63.86	8.37	0.31	0.93	0.31
	21 cooling towers	0.63	0.02	0.00	0.00	0.00	0.00	0.00
NAP 8	21 emergency generators	0.42	0.42	43.26	5.67	0.21	0.63	0.21
	11 cooling towers	0.33	0.01	0.00	0.00	0.00	0.00	0.00
NAP 9	6 emergency generators	0.12	0.12	12.36	1.62	0.06	0.18	0.06
	6 cooling towers	0.18	0.01	0.00	0.00	0.00	0.00	0.00
	<b>Source PTE</b>	<b>2.30</b>	<b>1.19</b>	<b>119.48</b>	<b>15.66</b>	<b>0.58</b>	<b>1.74</b>	<b>0.58</b>

## D. Greenhouse Gas Emissions

**Table 10: Greenhouse Gas Emissions Calculation**

Pollutant	GWP <sup>1</sup>	EF <sup>2</sup>	Engine CO <sub>2</sub> e	Total CO <sub>2</sub> e
CO <sub>2</sub>	1	163.05 lbs/MMBtu	200.5 tons of CO <sub>2</sub> e per individual engine operating 104 hours per calendar year	11,629.55 tons of CO <sub>2</sub> e per 58 engines per 12 month period
CH <sub>4</sub>	21	0.00661 lbs/MMBtu		
N <sub>2</sub> O	310	0.00132 lbs/MMBtu		

<sup>1</sup> Global Warming Potential – obtained from Subpart A of 40 CFR 98, Table A-1.

<sup>2</sup> Emissions factor for carbon dioxide obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Oil No.2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C.

The source GHG emission potential of the installed engines (58 units) is 11,629.55 tons of CO<sub>2</sub>e. However, the total GHG emissions potential for all engines (121 units) proposed in ATC dated 02/25/2015 is 24,261.64 tons of CO<sub>2</sub>e. These values are installed in this document for future reference.

## E. Control Technology

A detailed control technology analysis was performed prior to the issuance of the February 25, 2015 ATC.

**Table 11: Summary of Requirements (tons per year)**

Thresholds / Pollutants	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	SO <sub>x</sub>	VOC	H <sub>2</sub> S	Pb
Source PTE	2.30	1.19	119.48	15.66	0.58	1.74	0.00	0.00
Minor NSR Significance (AQR 12.4)	7.5	5	20	50	20	20	5	0.6
Major Source PSD	250	250	250	250	250	250	250	250
Control Requirements	N/A	N/A	RACT	N/A	N/A	N/A	N/A	N/A

The NO<sub>x</sub> AQR 12.4 minor NSR significance threshold is exceeded and subsequently, a RACT analysis is required.

Switch proposed to use Tier 2 Certified ICE, good combustion practices, and voluntarily proposed 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. Air Quality concluded that these control equipment and practices meet RACT requirements for these diesel engines. Additionally, the source meets the emission standards of 40 CFR 60 Subpart IIII.

On November 14, 2014, Switch filed an application with the Public Utilities Commission of Nevada (PUCN) to become a distribution customer of NVE. This means that, if approved, in addition to the Nevada Energy electrical distribution grid, and the associated reliability, Switch will also be able to diversify its generation. Switch will soon be able to purchase energy from multiple, non-NVE generation sources, which will reduce the likelihood of an emergency caused by generation shortages or failures.

Switch uses 2.2 MW emergency generators. Based on market research, Switch has concluded this size of emergency generator is only available in a Tier II air quality

category. Switch's generators, for their size and class, are the best available commercial technology. As such, Switch is confident that it can reasonably limit the cap on hours of operation on emergency generation to 104 hours per year. This accommodates a worse case emergency use of 55 hours per year and hours for testing and maintenance in accordance with the manufacturer's specifications.

#### **F. Emissions Monitoring**

Each diesel engine shall be equipped with a non-resettable hour meter (EUs: A02 through A29, A32, A33, A34, C01 through C21, G02, G04, G06, G13, G15, and G17).

The TDS of each cooling tower shall be monitored monthly (EUs: B01-B05, B07-B21, B23, D01-D08, D10, D11, D12, H01, H02, H07, H08, H09, and H10).

#### **G. Performance Testing**

No performance testing requirements have been identified.

### **III. REGULATORY REVIEW**

#### **A. Local Regulatory Requirements**

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

1. Clean Air Act, as amended (CAAA), Authority: 42 U.S.C. § 7401, et seq.;
2. Title 40 of the Code of Federal Regulations (CFR);
3. Nevada Revised Statutes (NRS), Chapter 445B;
4. Portions of the AQR's included in the State Implementation Plan (SIP) for Clark County, Nevada. SIP requirements are federally enforceable. All requirements from Authority to Construct permits and Section 16 Operating Permits issued by Air Quality are federally enforceable because these permits were issued pursuant to SIP-included sections of the AQR; and
5. Portions of the AQR's not included in the SIP. These locally applicable requirements are locally enforceable only.

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

The Air Quality Part 70 (Title V) Program received Final Approval on November 30, 2001 with publication of that approval appearing in the Federal Register December 5, 2001 Vol. 66, No. 234. AQR Section 19 - Part 70 Operating Permits [Amended 7/01/04] details the Clark County Part 70 Operating Permit Program. On September 20, 2010, Clark County submitted a revision to the operating permit program (AQR 12.5) pursuant to 40 CFR Part 70.4(i)(2). EPA has not acted on that request yet. These regulations may be accessed on the Internet at:

[http://www.clarkcountynv.gov/depts/AirQuality/Pages/Rules\\_CurrentRulesandRegulations.aspx](http://www.clarkcountynv.gov/depts/AirQuality/Pages/Rules_CurrentRulesandRegulations.aspx)

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

All Applicable Air Quality Regulations are included in the attachments.

## **B. Federally Applicable Regulations**

Switch is subject to the requirements of 40 CFR 60 Subpart A, 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ.

### **1. 40 CFR 60 Subpart A – General Provisions**

This regulation outlines applicability and lists the requirements sources must meet with regards to notification and record keeping (§60.7), performance testing (§60.8) and compliance with standards and maintenance (§60.11). These requirements are included and cited in the appropriate sections of the Part 70 Operating Permit.

### **2. 40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

The emergency generators present at the source are new or existing stationary ICE's manufactured in the year 2007 or later, located at an area source of HAP emissions and operated according to the definition of an emergency stationary ICE under 40 CFR 60.4219. The emergency generator shall be limited to the operating provisions specified in 40 CFR 60.4211(f), Subpart IIII.

### **3. 40 CFR 63 Subpart ZZZZ - National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**

The engines at this source are subject to 40 CFR 63 Subpart ZZZZ. The source will meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII.

### **4. 40 CFR 63 Subpart Q—National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers**

The cooling towers at this source are not subject to 40 CFR 63 Subpart Q because this is not a major source of HAP and they are not operated with chromium based water treatment chemicals.

### **5. 40 CFR Part 64 – Compliance Assurance Monitoring**

40 CFR Part 64.2 – Applicability: 40 CFR Part 64 does not apply to any emissions units at this source because the requirements that make an emissions unit applicable to CAM rule are not met; specifically, no emissions unit at this source emits more than 100 tons per year of any pollutant and there is no installed control equipment on any emissions unit (40 CFR 64.2(a)(2) and (3) respectively).

6. 40 CFR 72 – Acid Rain Permits Regulation

40 CFR 72.6 – Applicability: There is no emissions unit at this source that meets the definition of affected unit under this rule. Subsequently, 40 CFR 72 does not apply to this source.

7. 40 CFR 75 – Continuous Emission Monitoring

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. Increment**

Switch Communications Group is a Part 70 major source in Hydrographic Area 212 (Las Vegas Valley). Permitted emission units include 121 generators and 82 cooling towers. Since minor source baseline dates for NO<sub>x</sub> (October 21, 1988) and SO<sub>2</sub> (June 29, 1979) have been triggered, Prevention of Significant Deterioration (PSD) increment analysis is required.

Air Quality modeled the source using AERMOD to track the increment consumption. Stack data submitted by the applicant were supplemented with information available for similar emission units. Five years (1999 to 2003) of meteorological data from the McCarran Station and Desert Rock Station were used in the model. United States Geological Survey (USGS) National Elevation Dataset (NED) terrain data was used to calculate elevations. Table 16 presents the results of the modeling.

**Table 16: PSD Increment Consumption**

Pollutant	Averaging Period	PSD Increment Consumption by the Source (µg/m <sup>3</sup> )	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO <sub>2</sub>	3-hour	11.12 <sup>1</sup>	660848	3991932
SO <sub>2</sub>	24-hour	6.00 <sup>1</sup>	660848	3991932
SO <sub>2</sub>	Annual	0.14	661026	3991924
NO <sub>x</sub>	Annual	21.74 <sup>2</sup>	661026	3991924

<sup>1</sup> Second High Concentration

<sup>2</sup> Applied default ambient ratio of 0.75

Table 16 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.

Air Quality also reviewed the NO<sub>2</sub> modeling submitted by Trinity Consultants on behalf of Switch Communications Group. The modeling demonstration was limited to the annual NO<sub>2</sub> in accordance with the March 1, 2011 EPA guidance titled "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour NO<sub>2</sub> National Ambient Air Quality Standard". Modeling for 1-Hour NO<sub>2</sub> was not required as the generators are permitted for emergency use and are regarded as intermittent emission sources. Using the information from the submittal, Air Quality modeled the source with AERMOD to evaluate the compliance with NO<sub>2</sub> NAAQS. The following table shows the results of the analysis.

**Table 17: NO<sub>2</sub> NAAQS Analysis**

Pollutant	Averaging Period	Source Impact (µg/m <sup>3</sup> )	Background Concentration (µg/m <sup>3</sup> )	Total Impact (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )
NO <sub>2</sub>	Annual	21.74 <sup>1</sup>	25.52 <sup>2</sup>	47.26	100

<sup>1</sup> Applied default ambient ratio of 0.75

<sup>2</sup> 2011-2013 Annual average concentration at JD Smith monitoring station

Table 17 shows that the source impacts for NO<sub>2</sub> are below the NAAQS.

#### D. Public Participation

Pursuant to AQR 12.5.2.17 and AQR 12.5.2.18(a)(1) an initial Part 70 OP is subject to a 30 days newspaper Notice of Public Action and 45 days EPA review, respectively.

### IV. COMPLIANCE

Switch operated certain emissions units prior to obtaining the necessary permit. To correct this action, the source submitted an ATC application on November 27, 2013 to obtain the necessary permit.

All ICE's installed at this source are 40 CFR 60, Subpart IIII compliant. The source will meet the requirements of 40 CFR 63 Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII.

#### A. Compliance Certification

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

**Table 18: Reporting Schedule**

Required Report	Applicable Period	Due Date
Semi-annual Report for 1st Six-Month Period	January, February, March, April, May, June	July 30 each year <sup>1</sup>
Semi-annual Report for 2 <sup>nd</sup> Six-Month Period, Any additional annual records required.	July, August, September, October, November, December	January 30 each year <sup>1</sup>
Annual Compliance Certification Report	Calendar Year	January 30 each year <sup>1</sup>
Annual Emission Inventory Report	Calendar Year	March 31 each year <sup>1</sup>
Notification of Malfunctions, Startup, Shutdowns or Deviations with Excess Emissions	As Required	Within 24 hours of the Permittee learns of the event
Report of Malfunctions, Startup, Shutdowns or Deviations with Excess Emissions	As Required	Within 72 hours of the notification
Deviation Report without Excess Emissions	As Required	Along with semi-annual reports <sup>1</sup>
Performance Testing	As Required	Within 60 days from the end of the test <sup>1</sup>

<sup>1</sup> If the due date falls on a Saturday, Sunday or a Federal or Nevada holiday, then the submittal is due on the next regularly scheduled business day.

## V. Permit Shield

A permit shield was not requested by the source.

## VI. ADMINISTRATIVE REQUIREMENTS

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

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

### Legal:

On December 5, 2001 in Federal Register Volume 66, Number 234 FR30097 the EPA fully approved the Title V Operating Permit Program submitted for the purpose of complying with the Title V requirements of the 1990 Clean Air Act Amendments and implementing Part 70 of Title 40 Code of Federal Regulations.

### Factual:

Switch Communications Group, LLC has supplied all the necessary information for Air Quality to draft the initial Part 70 Operating Permit conditions encompassing all applicable requirements and corresponding compliance.

## VII. Attachments

<b>EU#</b>			<b>Horsepower:</b>	3,353		<b>Emission Factor (lb/hp-hr)</b>	<b>Potential Emissions</b>				
<b>Make:</b>	Detroit Diesel		<b>Hours/Day:</b>				<b>lb/hr</b>	<b>lb/day</b>	<b>ton/yr</b>		
<b>Model:</b>	16V4000		<b>Hours/Year</b>	104	<b>PM10</b>	1.07E-04	0.35877	0.36	0.00	0.02	
<b>S/N:</b>					<b>NOx</b>	1.18E-02	39.56540	39.57	0.00	2.06	
					<b>CO</b>	1.55E-03	5.19715	5.20	0.00	0.27	
<b>Manufacturer Guarantees</b>						<b>SOx</b>	1.21E-05	0.04069	0.04	0.00	0.01
<b>PM10</b>	0.000107	lb/hp-hr				<b>VOC</b>	1.97E-04	0.66054	0.66	0.00	0.03
<b>NOx</b>	0.0118	lb/hp-hr				<b>HAP</b>	3.05E-05	0.10243	0.10	0.00	0.01
<b>CO</b>	0.00155	lb/hp-hr									
<b>SOx</b>		g/hp-hr									
<b>VOC</b>	0.000197	lb/hp-hr									
<b>Engine Type:</b>	Diesel					Diesel Fuel Sulfur Content is 15 ppm (0.0015%)					

Description	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
Evapco Cooling Tower	0.001%	1250	2100	24	8760	0.01	0.03	0.000195	0.000855

**Clark County Department of Air Quality– Air Quality Regulations and SIP status**

<b>Applicable Section – Title</b>	<b>Applicable Subsection - Title</b>	<b>SIP</b>	<b>Affected Emission Unit</b>
0. Definitions	applicable definitions	yes	entire source
1. Definitions	“Affected Facility”, “Dust”, “Existing Gasoline Station”, “Fumes”, “Mist”, “New Gasoline Stations”, “New Source”, “Single Source”, “Standard Conditions”, “Uncombined Water”.	Yes	entire source
4. Control Officer	all subsections 4.7.3 and 4.12.1 through 4.12.3 in SIP	partial	entire source
5. Interference with Control Officer	all subsections	yes	entire source
6. Injunctive Relief	all subsections	yes	entire source
7. Hearing Board and Hearing Officer	all subsections	no	entire source
8. Persons Liable for Penalties - Punishment: Defense	all subsections	yes	entire source
9. Civil Penalties	all subsections	no	entire source
10. Compliance Schedule	when applicable; applicable subsections	yes	entire source
12.0. Applicability, General Requirements and Transition Procedures	all subsections	yes	entire source
12.2 Prevention of Significant Deterioration in Attainment Areas	all subsections	yes	entire source
12.3 Permit Requirements for Major Sources in Nonattainment Areas	all subsections	yes	entire source
12.4 Authority to Construct Permit Requirements for Part 70 Sources	all subsections	yes	entire source
12.5 Part 70 Operating Permit Requirements	all subsections	yes	entire source
12.6 Confidentiality	all subsections	yes	entire source
12.7 Emission Reduction Credits	all subsections	yes	entire source
12.9 Annual Emission Inventory Requirements	all subsections	yes	entire source
12.10 Continuous Monitoring Requirements for Stationary Sources	all subsections	yes	entire source
13. Emission Standards for Hazardous Pollutants	Delegated Program CCAQR Section 13.2(b)(82): Subpart ZZZZ National Emission Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines	no	Diesel Engines
14. New Source Performance Standards	Delegated Program CCAQR Section 14.1.b.80: Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	no	Diesel Engines
18. Permit and Technical Service Fees	all subsections 18.1 through 18.5.2 and 18.6 through 18.12 in	partial	entire source

Applicable Section – Title	Applicable Subsection - Title	SIP	Affected Emission Unit
	SIP		
24. Sampling and Testing - Records and Reports	§ 24.1 Requirements for installation and maintenance of sampling and testing facilities § 24.2 Requirements for emissions record keeping § 24.3 Requirements for the record format § 24.4 Requirements for the retention of records by the emission sources (Note: Repealed from SIP on Oct 17, 2014)	no	entire source
25.1 Upset/Breakdown, Malfunctions (1981)	§ 25.1 Requirements for the excess emissions caused by upset/breakdown and malfunctions	no	entire source
25.2 Upset/Breakdown, Malfunctions (1981)	§ 25.2 Reporting and Consultation	yes	entire source
26. Emission of Visible Air Contaminants (1981)	§ 26.1 Limit on opacity ( $\leq$ an average of 20 percent for a period of more than 6 consecutive minutes)	yes	entire source
27. Particulate Matter from Process Weight Rate	all subsections	yes	entire source
28. Fuel Burning Equipment	Emission Limitations for PM	yes	entire source
29. Sulfur Contents of Fuel Oil	Repealed by County	yes	entire source
40. Prohibitions of Nuisance Conditions	§ 40.1 Prohibitions	no	entire source
41. Fugitive Dust	§ 41.1 Prohibitions	yes	entire source
42. Open Burning	§ 42.2	no	entire source
43. Odors In the Ambient Air	§ 43.1 Prohibitions coded as Section 29	no	entire source
70. Emergency Procedures	all subsections	yes	entire source
80. Circumvention	all subsections	yes	entire source