STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING A NEW)
AIR CONTAMINANT SOURCE FOR)
RS TITAN-LOTUS, LLC)
TITAN DATA CENTER)

Preliminary Determination
ORDER No. 11AQ-E4xx

TO: Lee Willis
RS Titan-Lotus, LLC
Titan Data Center
4949 Randolph Road NE
Moses Lake, WA 98837

EQUIPMENT

1. The list of equipment that was evaluated for this order of approval consists of nine (9) Cummins Model QSK78 and five (5) Model QSK60 diesel fueled engines used to power emergency electrical generators. The fourteen (14) 2.0 to 2.5 megawatt (MWe) generators will have a combined capacity of 32.5 MWe, and annual operations will be restricted by fuel consumption limitations and hours of operation restrictions. Annual operations and emissions will be restricted to approximately 76,019 gallons per year of fuel consumption and an average of 58.5 hours per year of engine operation. The 14 Model QSK78 and QSK60 engines will be operated for monthly maintenance testing for approximately 1.5 hours per month each, and an average of 16.5 hours per year each at an electric load of 50% or less of the standby rating. Nitrogen oxide emissions will be reduced to meet the 1-hour nitrogen dioxide (NO_2) National Ambient Air Quality Standard (NAAQS) by the installation of a diesel oxidation catalyst (DOC), also referred to as 3 way catalyst, on each engine. The generators will be installed in two construction phases with a total of 14 new engines. Phase 1 will consist of two 2.0 MWe generators that will be installed upon approval. Phase 2 will consist of twelve 2.0 to 2.5 MWe generators to be installed at the facility as independent companies contract for space at the Titan Data Center.

Table 1: 2.5 MW Engine & Generator Serial Numbers

Project	Unit ID	Capacity MWe	Engine SN	Generator SN	Engine date
Phase 1	1	2.0	33182862	J100162676	9/09/10
"	2	2.0	33182818	J100162677	9/07/10
Phase 2	3	2.0			
"	4	2.0			
"	5	2.0			
"	6	2.5			
"	7	2.5			
"	8	2.5			
"	9	2.5			
"	10	2.5			
"	11	2.5			
"	12	2.5			

"	13	2.5			
"	14	2.5			
total	14	32.5			

There was no other project equipment other than the generator engines that required review under the state and federal air quality requirements.

PROJECT SUMMARY

1. The Titan Data Center is located in a 120,000 ft^2 building consisting of three floors that are being prepared for occupancy by companies that require fully supported data storage and processing space. Besides office space on the first floor utilized by the Titan Data Center, there are currently two tenants. ASK.com occupies sections of the first and second floors that are utilized for data storage and processing. The Department of Ecology Air Quality Program (AQP) issued ASK.com Notice of Construction (NOC) approval Order No. 07AQ-E236 on November 5, 2007, and amended the Order on December 4, 2007. The Order approved the installation and limited operation of two Caterpillar Model 3516CDITA emergency generators with a combined capacity of 5.0 MWe. The two ASK.com engines are limited to 672 hours per year of full standby operation, which equates to approximately 115,584 gallons of diesel fuel per year.

   The Bonneville Power Administration occupies a relatively small space on the first floor that contains communications equipment. Emergency power is provided by two existing diesel fueled 650 kilowatt (kWe) generators that are owned and operated by the Titan Data Center. Those two generators were originally installed by the military in the 1960's, and pre-date air quality permitting requirements in Grant County. Phase 1 construction will replace emergency power from the two existing 650 kWe, and the two existing generators will be rendered inoperable and removed.

2. Air contaminant emissions for the Titan Data Center expansion project have been calculated based on operation of the emergency generators. Table 2a contains criteria pollutant potential to emit for the ASK.com engines and the Titan Data Center expansion project. Table 2b contains toxic air pollutant potential to emit for the ASK.com engines and the Titan Data Center expansion project. The ASK.com emissions are included in these tables for informational purposes only. Although ASK.com and the Titan Data Center share the same building, they are considered different sources under state and federal air quality regulations. ASK.com emissions are not aggregated with the Titan Data Center expansion emissions to determine potential to emit or Air Operating Permit applicability.

Table 2a: Criteria Pollutant Potential to Emit for Titan Data Center		
Pollutant	**Existing Units: ASK.com**	**Expansion Units: Titan**
Criteria Pollutant	tons/yr	tons/yr
2.1.1 NO_x w/ DOC	6.735	6.00[1]
2.1.2 CO	0.546	4.58
2.1.3 SO_2	0.012	0.008
2.1.4 $PM_{2.5}$	0.039	0.262
2.1.5 VOC	0.134	0.37

Table 2b: Toxic Air Pollutant Potential to Emit for Titan Data Center		
Pollutant	**Existing ASK.com**	**Proposed Expansion**
Toxic Air Pollutants	tons/yr	tons/yr
2.1.6 Primary NO_2*	0.674	0.60[1]
2.1.7 Acrolein	6.5E-05	4.1E-05
2.1.8 Benzene	6.2E-03	4.0E-03
2.1.9 Toluene	2.2E-03	1.5E-03
2.1.10 Xylenes	1.6E-03	1.0E-03
2.1.11 1,3 Butadiene	not reported	1.0E-04
2.1.12 Formaldehyde	6.3E-04	4.1E-04
2.1.13 Acetaldehyde	2.0E-04	1.3E-04
2.1.14 Benzo(a)Pyrene	not reported	6.7E-07
2.1.15 Benzo(a)anthracene	not reported	3.2E-06
2.1.16 Chrysene	not reported	7.9E-06
2.1.17 Benzo(b)fluoranthcene	not reported	5.7E-06
2.1.18 Benzo(k)fluoranthcene	not reported	5.6E-07
2.1.19 Dibenz(a,h)anthracene	not reported	9.0E-07
2.1.20 Ideno(1,2,3-cd)pyrene	not reported	1.1E-06
2.1.21 PAH (sum)	not reported	2.0E-05
2.1.22 PAH (w/ TEF)	not reported	2.6E-06
2.1.23 Diesel Engine Exhaust Particulate	not reported	0.262
2.1.24 Carbon monoxide	0.546	4.58
2.1.25 Sulfur dioxide	0.012	0.008

*Assumed to be equal to 10% of the total NOx emitted.
[1] With 3 way catalyst DOC

3. The Titan Data Center relies on dry cooling systems to dissipate heat from electronic equipment at the facility. The existing cooling system was installed for ASK.com in 2008. It was determined during review of the ASK.com project that the cooling system has no air contaminant emissions, and does not require approval under state and federal

air quality requirements. Additional cooling systems will be added to the facility as necessary to meet the cooling needs of tenants.

4. There is a small (> 500 hp) emergency fire pump engine required by uniform fire code at the Titan Data Center. Ecology shall be notified of the installation of any life/safety emergency engines under 500 hp that may be required under local building or fire safety regulations. The installation of any life/safety emergency engine may be installed without triggering new source review at Ecology's discretion.

DETERMINATIONS

In relation to this project, the State of Washington Department of Ecology (Ecology), pursuant to Revised Code of Washington (RCW) 70.94.152, Washington Administrative Code (WAC) 173-460-040, and WAC 173-400-110, makes the following determinations:

1. The project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC, and Chapter 173-460 WAC, and the operation thereof, at the location proposed, will not emit pollutants in concentrations that will endanger public health.

2. The proposed project, if constructed and operated as herein required, will utilize best available control technology (BACT) as defined below:

Table 2: Best Available Control Technology Requirements

Pollutant(s)	BACT Determination
Particulate matter (PM), carbon monoxide and volatile organic compounds	a. Use of good combustion practices; b. Use of EPA Tier 2 certified engines if the engines are installed and operated as emergency engines, as defined at 40 CFR§60.4219; or applicable emission standards found in 40 CFR Part 89.112 Table 1 and 40 CFR Part 1039.102 Tables 6 and 7 if Model Year 2011 or later engines are installed and operated as non-emergency engines; c. compliance with the operation and maintenance restrictions of 40 CFR Part 60, Subpart IIII; and d. Compliance with the NOx BACT requirement.
Nitrogen oxides (NOx)	a. Use of good combustion practices; b. Use of an engine design that incorporates fuel injection timing retard, turbocharger and a low-temperature aftercooler; c. Use of EPA Tier 2 certified engines if the engines are installed and operated as emergency engines, as defined at 40 CFR§60.4219; or applicable emission standards found in 40 CFR Part 89.112 Table 1 and 40 CFR Part 1039.102 Tables 6 and 7 if Model Year 2011 or later engines are installed and operated as non-emergency engines; d. Compliance with the operation and maintenance restrictions of 40 CFR Part 60, Subpart IIII; and e. Installation of a two-stage oxidation catalyst system (i.e., 3-

	way catalysts) that is guaranteed by the catalyst manufacturer to remove 35% of nitrogen oxides, and is capable of reducing at least 50% each of carbon monoxide, volatile organic compounds and particulate matter from the exhaust stream.
Sulfur dioxide	Use of ultra-low sulfur diesel fuel containing no more than 15 parts per million by weight of sulfur.

3. The proposed project, if constructed and operated as herein required, will utilize best available control technology for toxic air pollutants (tBACT) as defined below:

Table 3: Best Available Control Technology for Toxics Requirements	
Toxic Air Pollutant(s)	**tBACT Determination**
Acetaldehyde, carbon monoxide, acrolein, benzene, benzo(a)pyrene, 1,3-butadiene, diesel engine exhaust particulate, formaldehyde, propylene, toluene, total PAHs, xylenes	Compliance with the VOC BACT requirement
Nitrogen dioxide	Compliance with the NOx BACT requirement
Sulfur dioxide	Compliance with the SO_2 BACT requirement

4. The modeled ambient concentrations of two toxic air pollutants – diesel engine exhaust particulate matter and nitrogen dioxide – exceed the Acceptable Source Impact Levels (ASILs) for those pollutants, as defined in Chapter 173-460 WAC. Ecology has evaluated the health risks associated with diesel engine exhaust particulate and nitrogen dioxide emissions from the proposed project, in accordance with WAC 173-460-090. Ecology has concluded that the health risks from the project are acceptable as defined in WAC 173-460-090(7). The technical analysis supporting this determination is hereby incorporated into this Notice of Construction Approval Order.

THEREFORE, IT IS ORDERED that the project as described in the Notice of Construction application and more specifically detailed in plans, specifications, and other information submitted to Ecology is approved for construction and operation, provided the following are met:

APPROVAL CONDITIONS

1. ADMINISTRATIVE CONDITION

1.1 Notice of Construction Approval Order No. 07AQ-E236, Amendment 1 was issued to ASK.com on December 4, 2007. It has been determined that, upon review of the Titan Data Center expansion project, the emissions from ASK.com shall not be aggregated with emissions from the Titan Data Center to determine potential to emit or Air Operating Permit applicability. ASK.com and the Titan Data Center, although co-

located in the same building, are not considered a single "source" as defined in WAC 173-400-030(76).

1.2 The two existing 650 kWe engines and generators shall be rendered inoperable immediately after acceptance testing is completed on the two new Model QSK60 generators. Permanent decommissioning of the two existing 650 kWe engines should be completed by no later than July 1, 2011.

1.3 RS Titan met with Columbia Basin Secondary School officials on February 10, 2011 to establish initial communication and provide a better understanding to the Columbia Basin Secondary School of emergency generator maintenance testing and operation during line power disruptions. RS Titan is required to provide school administrators with the telephone number for the Titan Data Center and a 24 hour contact number for a RS Titan manager. The school administrators shall also be provided a maintenance testing schedule as developed by RS Titan. The Titan Data Center will notify the school whenever Ecology-approved changes occur in the maintenance testing schedule. As decided by the school administrators and the Titan Data Center, an ongoing relationship shall be established to facilitate future communications.

2. EQUIPMENT RESTRICTIONS

2.1. The 9 Cummins Model QSK78 2.5 eMW engines and 5 Model QSK60 2.0 eWM used to power the electrical generators shall be certified by the manufacturer to meet 40 CFR 89 Tier II emission levels or other specifications as required by the EPA at the time the engines are manufactured and installed.

2.2. The only Cummins Model QSK78 and QSK60 engines and electrical generating units approved for installation and operation at the Titan Data Center are those listed in Equipment Table 1.

2.3. Replacement of failed engines with identical engines (same manufacturer and model) requires notification prior to installation, but will not require Notice of Construction unless there is an emission rate increase from the replacement engines.

2.4. Two 3-way diesel oxidation catalysts as specified and described in the April 2011 Notice of Construction Support Document shall be installed on each of the fourteen Model QSK78 and QSK60 engines. The 3-way diesel oxidation catalysts shall reduce NO_x emissions to the limits contained in Section 5.3

2.5. The fourteen Model QSK78 and QSK60 engine exhaust stack heights shall be greater than or equal to 22.8 feet above ground level.

2.6. Manufacture and installation of the first 2 of 14 engine/generator sets proposed for Phase 1 of the project shall occur by July 1, 2011. The manufacture and installation of the final 12 of 14 engine/generator sets proposed for Phase 1 and Phase 2 of the project shall occur by July 1, 2013. If the manufacture and installation of these engines has not completed within the above schedule, a NOC application may be required prior to installation.

2.7. This Order only applies to the 9 Cummins Model QSK78 2.5 eMW engines and 5 Model QSK60 2.0 eWM engines that were evaluated in the Notice of Construction application and Tier 2 petition. At Ecology's discretion, a new NOC application may be required to install any engines other than the 9 Cummins Model QSK78 2.5 eMW

engines and 5 Model QSK60 2.0 eWM engines. The decision on whether a new NOC application is required will be based on engine manufacturer and model specifications, and how closely those specifications are to the Cummins Model QSK78 2.5 eMW engines.

3. OPERATING LIMITATIONS

3.1. The fuel consumption at the Titan Data Center facility shall be limited to a total of 76,019 gallons per year of diesel fuel equivalent to on-road specification No. 2 distillate fuel oil (less than 0.00150 weight percent sulfur). Total annual fuel consumption by the facility may be averaged over a three (3) year period using monthly rolling totals. The total annual facility fuel consumption limit does not include the fuel allocated to ASK.com in Order No. 07AQ-E236.

3.2 The fourteen (14) Titan Data Center engines are limited to the following average hours of specific operating activity (excluding initial start-up and commissioning, see Approval Condition 3.8), fuel limit, average load, and number of engines operating concurrently:

Table 3.2: Operating Restrictions for the 14 new engines

Operating Activity	Average hours/year per generator	Average Operating Load (%)	Maximum Diesel Fuel Gallons/year	Maximum # Operating Concurrently
Maintenance Testing	16.5	50%		2
Load Bank Testing	4	100%		1
Electrical Bypass[3]	30	59%[1] to 64%[2]		8
Power Outage	8	59%[1] to 64%[2]		14
Total	58.5		76,019	

[1] Average operating load for the 9 expansion QSK78 engines.

[2] Average operating load for the 5 expansion QSK60 engines.

[3] Defined in Section 3.6

3.3. The 14 Model QSK78 and QSK60 engines shall not operate during a power outage more than 8 hours per year averaged over 3 consecutive years at the average loads specified above in Table 3.2.

3.4. Operation of the 14 Model QSK78 and QSK60 engines for required monthly maintenance testing shall be limited to an average of 16.5 hours per year each averaged over 3 consecutive years at an electric load of no more than 50% of the standby rating. Testing will involve two engines at a time. A load bank will be used for electrical energy dissipation whenever maintenance testing occurs above idle load.

3.5. Operation of the 14 Model QSK78 and QSK60 engines for annual load bank testing shall be limited to an average of 4 hours per year each averaged over 3 consecutive years at an approximate electrical load of 100% of the standby rating. Testing will involve one engine at a time.

3.6. Operation of the 14 Model QSK78 and QSK60 engines for electrical bypass operations that includes corrective engine testing, main switchgear maintenance, and transformer maintenance shall be limited to an average of 30 hours per year each averaged over 3 consecutive years at the average loads specified above in Table 3.2. Electrical bypass operations will involve no more than eight (8) engines at a time.

3.7. The fourteen (14) Titan Data Center generator engines require maintenance testing each month. To mitigate engine emission impacts, Titan Data Center engines will perform all maintenance testing, scheduled bypass operations, and load testing during daylight hours. The Titan Data Center shall develop a maintenance operating schedule for the facility, and that schedule shall be available for review by Ecology upon request. Changes to the maintenance testing schedule will not trigger revision or amendment of this Order as long as long as the engines operating concurrently do not exceed Table 3.2 in this Order.

3.8. Initial start-up (commissioning) testing of each of the fourteen (14) Model QSK78 and QSK60 engines at the Titan Data Center is restricted to an average of 30 hours per generator at an average fuel usage of 2309 gallons per generator, averaged over all generators installed during any consecutive 3 year period.

3.8.1 Except during site integration testing as specified below, only one engine shall be operated at any one time during start-up testing.

3.8.2 During site integration testing, up to 2 generator engines may operate concurrently for up to eight (8) hours.

3.8.3 All startup and commissioning testing shall be conducted during daylight hours.

3.8.4 Emission limits contained in Approval Conditions 5 remain in effect during initial start-up and commissioning testing.

3.9. The 3 way diesel oxidation catalysts as specified and described in the April 2011 Notice of Construction Support Document shall be installed on, and fully operational for, each of the fourteen Model QSK78 and QSK60 engines during all periods of operation.

4. GENERAL EXHAUST STACK TESTING AND MAINTENANCE REQUIREMENTS

4.1. The Titan Data Center will follow engine-manufacturer's recommended diagnostic testing and maintenance procedures to ensure that each of the sixteen QSK78 and QSK60 engines will conform to 40 CFR 89 emission specifications throughout the life of each engine.

4.2 Within 12 months of installation of any new expansion engine approved in this Order, the Titan Data Center shall measure concentrations of nitric oxide (NO), nitrogen dioxide (NO_2), total nitrogen oxides (NOx), carbon monoxide (CO), and oxygen (O_2) leaving that engine's exhaust stack in accordance with Approval Condition 4.3. This testing will serve to demonstrate compliance with the emission limits contained in Approval Conditions 5.2, 5.3, and 5.4. Additional periodic testing shall be conducted at

the conclusion of the manufacturer's warranty term for each engine, or every 60 months from engine delivery date, or 3,000 hours of operation, whichever occurs first. Titan may request relaxation of periodic testing if the manufacturer's emissions warranty is extended; previous source tests conducted under this section indicate that actual emissions do not exceed 75% of the permit limits; and as long as manufacturer's maintenance procedures are followed.

4.3 The following procedures shall be used for nitric oxide, nitrogen dioxide, total nitrogen oxides (NOx), and carbon monoxide exhaust stack testing of new engines required by Approval Condition 4.2. After initial performance testing to verify compliance with Approval Conditions 5.2, 5.3, and 5.4, RS Titan may request alternative test methods. The alternative test methods must be approved in writing by Ecology prior to the testing.

4.3.1 Initial emissions exhaust stack testing should be combined with start-up testing or be combined with pre-scheduled monthly maintenance and annual load bank engine testing. Additional operation of the engines for the purpose of initial performance emissions testing beyond the operating hours allowed in this Order may be allowed by Ecology.

4.3.2 Initial performance testing for nitric oxide, nitrogen dioxide, total nitrogen oxides (NOx), and carbon monoxide from the first two QSK78 engines and the first two QSK60 engines shall be conducted using EPA 40 CFR 60 Reference Methods 7E and 10.

4.3.3 Initial performance testing emission measurements shall be conducted for the QSK78 engines and the QSK60 engines at 100%, 50%, and idle load.

4.3.4 A portable emissions instrument analyzer may be used as an alternative test method after compliance verification of the first two QSK78 and QSK60 engines. The analyzer model must be approved in writing by Ecology prior to the first required test. The analyzer shall be calibrated using EPA Protocol 1 gases according to the procedures for drift and bias limits outlined in EPA Methods 7E and Method 10. Alternate calibration procedures may be approved in advance by Ecology.

4.3.5 Three test runs shall be conducted for each engine with a portable emissions instrument analyzer. Each run must last at least 15 minutes. Analyzer data shall be recorded at least once every 1 minute during the test. Engine electrical power output shall be recorded during testing.

4.3.6 The F-factor method, as described in EPA Method 19, may be used to calculate exhaust flow rate through the exhaust stack. The fuel meter data, as measured according to Approval Condition 4.6, shall be included in the test report, along with the emissions calculations.

4.3.7 Ecology will use discretion to grant testing requirement relaxation that can include when and where the engines are manufactured, and design modifications that may affect emissions. Approval to relax exhaust stack engine testing will not require revision of this Order, or a Notice of Construction application.

4.4. Each engine shall be equipped with a properly installed and maintained non-resettable meter that records total operating hours.

4.5. Each engine shall be connected to a properly installed and maintained fuel flow monitoring system that records the amount of fuel consumed by that engine during each operation.

5. EMISSION LIMITS

The 14 new Model QSK78 and QSK60 engines shall meet the following average emission rate limitations. If required to demonstrate compliance with the g/kW-hr EPA Tier 2 average emission limits through exhaust stack testing, the Titan Data Center shall average emission rates for 5 individual operating loads (10%, 25%, 50%, 75% and 100%) according to 40 CFR §89.410 and Table 2 of Appendix B to 40 CFR Part 89, Subpart E.

5.1 Nitrogen oxide (NO_x) emissions for each new engine shall not exceed 6.1 g/kW-hr (equivalent to 4.55 g/hp-hr) as required in 40 CFR Part 60, Subpart IIII, or any other applicable EPA requirement, in effect at the time the engines are manufactured and installed.

5.2 Nitrogen dioxide (NO_2) emissions from each of the 14 expansion project engines shall not exceed the following controlled emission rates at the stated loads, based on emission factors provided by the engine manufacturer:

Table 5.2a: QSK78 2500 kWe Nitrogen Dioxide (NO_2) emission rate limits

	Operating Load		controlled emissions[1]	controlled emissions[1]
5.2.1	100%		0.585 g/hp-hr	4.64 lbs/hr
5.2.2	59%		0.416 g/hp-hr	1.95 lbs/hr
5.2.3	50%		0.398 g/hp-hr	1.58 lbs/hr
5.2.4	5% idle		0.450 g/hp-hr	0.18 lbs/hr

Table 5.2b: QSK60 2000 kWe Nitrogen Dioxide (NO_2) emission rate limits				
	Operating Load		controlled emissions[1]	controlled emissions[1]
5.2.5	100%		0.525 g/hp-hr	3.38 lbs/hr
5.2.6	64%		0.477 g/hp-hr	1.97 lbs/hr
5.2.7	50%		0.465 g/hp-hr	1.50 lbs/hr
5.2.8	5% idle		0.403 g/hp-hr	0.13 lbs/hr

[1] Required emission limits with two 3-way diesel oxidation catalysts on each engine.

5.3 Nitrogen Oxide (NOx) emissions from each of the 14 expansion project engines shall not exceed the following controlled emission rates at the stated loads, based on emission factors provided by the engine manufacturer:

Table 5.3a: QSK78 2500 kWe Nitrogen Oxide (NOx) emission rate limits				
	Operating Load		controlled emissions[1]	controlled emissions[1]
5.3.1	100%		5.85 g/hp-hr	46.4 lbs/hr
5.3.2	59%		4.16 g/hp-hr	19.5 lbs/hr
5.3.3	50%		3.98 g/hp-hr	15.8 lbs/hr
5.3.4	5% idle		4.50 g/hp-hr	1.8 lbs/hr

Table 5.3b: QSK60 2000 kWe Nitrogen Oxide (NOx) emission rate limits				
	Operating Load		controlled emissions[1]	controlled emissions[1]
5.3.5	100%		5.25 g/hp-hr	33.8 lbs/hr
5.3.6	64%		4.77 g/hp-hr	19.7 lbs/hr
5.3.7	50%		4.65 g/hp-hr	15.0 lbs/hr
5.3.8	5% idle		4.03 g/hp-hr	1.3 lbs/hr

[1] Required emission limits with two 3 way diesel oxidation catalysts on each engine.

5.4 Each new engine shall not exceed CO emissions of 3.50 g/kW-hr (equivalent to 2.61 g/hp-hr) as required in 40 CFR Part 60, Subpart IIII, or any other applicable EPA requirement, in effect at the time the engines are manufactured and installed.

5.5 Each new engine shall not exceed PM emissions of 0.20 g/kW-hr (equivalent to 1.49 g/hp-hr) as required in 40 CFR Part 60, Subpart IIII, or any other applicable EPA requirement, in effect at the time the engines are manufactured and installed. All PM emissions shall be considered diesel engine exhaust particulate and $PM_{2.5}$ emissions.

5.6 Particulate matter emissions from all 14 engines combined shall not exceed 0.262 tons/yr. All PM emissions shall be considered diesel engine exhaust particulate and $PM_{2.5}$ emissions.

5.7 Nitrogen dioxide emissions from all 14 engines combined shall not exceed 20.2 pounds per hour.

5.8 Each new engine shall not exceed VOC emissions of 0.282 g/kW-hr (equivalent to 1.95 g/hp-hr) as required in 40 CFR Part 60, Subpart IIII, or any other applicable EPA requirement, in effect at the time the engines are manufactured and installed.

5.9 Visual emissions from each diesel electric generator exhaust stack shall be no more than 5 percent, with the exception of a ten (10) minute period after unit start-up. Visual emissions shall be measured by using the procedures contained in 40 CFR 60, Appendix A, Method 9.

5.10 SO_2 emissions from each diesel electric generator exhaust stack shall not exceed 0.11 g/hp-hr (equivalent to 0.08 g/hp-hr).

6 OPERATION AND MAINTENANCE MANUALS

A site-specific O&M manual for the Titan Data Center facility equipment shall be developed and followed. Manufacturers' operating instructions and design specifications for the engines, generators, cooling towers, and associated equipment shall be included in the manual. The O&M manual shall be updated to reflect any modifications of the equipment or its operating procedures. Emissions that result from failure to follow the operating procedures contained in the O&M manual or manufacturer's operating instructions may be considered proof that the equipment was not properly installed, operated, and/or maintained. The O&M manual for the diesel engines and associated equipment shall at a minimum include:

6.1 Manufacturer's testing and maintenance procedures that will ensure that each individual engine will conform to the EPA Tiered Emission Standards appropriate for that engine throughout the life of the engine.
6.2 Normal operating parameters and design specifications.
6.3 Operating maintenance schedule.

7 SUBMITTALS

All notifications, reports, and other submittals shall be sent to:

Washington State Department of Ecology
Air Quality Program
4601 N. Monroe Street
Spokane, WA 99205-1295

8 RECORDKEEPING

All records, Operations and Maintenance Manual, and procedures developed under this Order shall be organized in a readily accessible manner and cover a minimum of the most recent 60-month period. The following records are required to be collected and maintained.

8.1 Fuel receipts with amount of diesel and sulfur content for each delivery to the facility.

8.2 Monthly and annual hours of operation for each diesel engine, including reasons for each type of operation.

8.3 Annual number of engine start-ups, purpose of each engine start-up, load, and duration for each diesel engine period of operation.

8.4 Annual gross power generated.

8.5 Upset condition log for each engine and generator that includes date, time, duration of upset, cause, and corrective action.

8.6 Recordkeeping required by 40 CFR Part 60 Subpart IIII.

8.7 Air quality complaints received from the public or other entity, and the affected emissions units.

9 REPORTING

9.1 Within 10 business days after entering into a binding agreement to purchase the Phase 2 engine/generator sets identified in Equipment Table 1.1 above, the Titan Data Center shall notify Ecology in writing. The serial number of the engine and the generator, and the engine build date will be submitted prior to installation of each Phase 1 and 2 engine.

9.2 The following information will be submitted to the AQP at the address in Condition 7 above by January 31 of each calendar year. This information may be submitted with annual emissions information requested by the AQP.

9.2.1 Monthly rolling annual total summary of estimated air contaminant emissions, monthly rolling hours of operation with annual total, and monthly rolling gross power generation with annual total.

9.2.2 Written notification that the O&M manual has been developed and updated within 60 days after the issuance of this Order.

9.2.3 RS Titan will use emissions factors as contained in the permit to calculate annual emissions until initial performance testing provides more accurate data.

9.3 Any air quality complaints resulting from operation of the emissions units or activities shall be promptly assessed and addressed. A record shall be maintained of Titan's action to investigate the validity of the complaint and what, if any, corrective action was taken in response to the complaint. Ecology shall be notified within three (3) days of receipt of any such complaint.

9.4 Titan shall notify Ecology by e-mail or in writing within 24 hours of any engine operation of greater than 60 minutes if such engine operation occurs as the result of a power outage. This notification does not alleviate Titan from annual reporting of operations contained in any section of Approval Condition 9.

10 STACK TESTING REQUIREMENTS

10.1 Any emission testing performed to verify conditions of this Approval Order or for submittal to Ecology in support of this facility's operations shall be conducted as follows:

10.1.1 As soon as possible in advance of such testing, the Permittee shall submit a testing protocol for Ecology approval that includes the following information:

10.1.1.1 The location and Unit ID of the equipment proposed to be tested.
10.1.1.2 The operating parameters to be monitored during the test and the personnel assigned to monitor the parameters during the test.
10.1.1.3 A description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations.
10.1.1.4 Time and date of the test and identification and qualifications of the personnel involved.
10.1.1.5 A description of the test methods or procedures to be used.

10.1.2 Test Reporting: test reports shall be submitted to Ecology within 45 days of completion of the test and shall include, at a minimum, the following information:
10.1.2.1 A description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations.
10.1.2.2 Time and date of the test and identification and qualifications of the personnel involved.
10.1.2.3 A summary of results, reported in units and averaging periods consistent with the applicable emission standard or limit.
10.1.2.4 A summary of control system or equipment operating conditions.
10.1.2.5 A summary of production related parameters.
10.1.2.6 A description of the test methods or procedures used including all field data, quality assurance/quality control procedures and documentation.
10.1.2.7 A description of the analytical procedures used including all laboratory data, quality assurance/quality control procedures and documentation.
10.1.2.8 Copies of field data and example calculations.
10.1.2.9 Chain of custody information.
10.1.2.10 Calibration documentation.
10.1.2.11 Discussion of any abnormalities associated with the results.
10.1.2.12 A statement signed by the senior management official of the testing firm certifying the validity of the source test report.

11 GENERAL CONDITIONS

11.1 **Commencing/Discontinuing Construction and/or Operations:** This approval shall become void if the construction or operation of this diesel electric generation facility is discontinued for a period of eighteen (18) months, unless prior written notification is received by Ecology.

11.2 **Compliance Assurance Access:** Access to the source by representatives of Ecology or the EPA shall be permitted upon request. Failure to allow such access is grounds for enforcement action under the federal Clean Air Act or the Washington State Clean Air Act, and may result in revocation of this Approval Order.

11.3 **Availability of Order and O&M Manual:** Legible copies of this Order and the O&M manual shall be available to employees in direct operation of the diesel electric generation station, and be available for review upon request by Ecology.

11.4 **Equipment Operation:** Operation of the Cummins Model QSK60 and QSK78 engines and related equipment shall be conducted in compliance with all data and

specifications submitted as part of the NOC application and in accordance with the O&M manual, unless otherwise approved in writing by Ecology.

11.5 **Modifications:** Any modification to the generators, engines, or cooling towers and their related equipment's operating or maintenance procedures, contrary to information in the NOC application, shall be reported to Ecology at least 60 days before such modification. Such modification may require a new or amended NOC Approval Order.

11.6 **Activities Inconsistent with the NOC Application and this Approval Order:** Any activity undertaken by the permittee or others, in a manner that is inconsistent with the NOC application and this determination, shall be subject to Ecology enforcement under applicable regulations.

11.7 **Obligations under Other Laws or Regulations:** Nothing in this Approval Order shall be construed to relieve the permittee of its obligations under any local, state or federal laws or regulations.

11.8 **Fees:** Per WAC 173-455-120, this Approval Order and related regulatory requirements have a fee associated for review and issuance. This Order is effective upon Ecology's receipt of the fee, for which Ecology's fiscal office will provide a billing statement.

All plans, specifications, and other information submitted to the Department of Ecology relative to this project and further documents and any authorizations or approvals or denials in relation thereto shall be kept at the Eastern Regional Office of the Department of Ecology in the "Air Quality Controlled Sources" files, and by such action shall be incorporated herein and made a part thereof.

Nothing in this approval shall be construed as obviating compliance with any requirement of law other than those imposed pursuant to the Washington Clean Air Act and rules and regulations thereunder.

Authorization may be modified, suspended or revoked in whole or part for cause including, but not limited to the following:

a. Violation of any terms or conditions of this authorization;

b. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant fact.

The provisions of this authorization are severable and, if any provision of this authorization, or application of any provisions of their circumstances, and the reminder of this authorization, shall not be affected thereby.

YOUR RIGHT TO APPEAL

You have a right to appeal this Approval Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Approval Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this Approval Order:

- File your appeal and a copy of this Approval Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Approval Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel RD SW STE 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov

To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser

DATED this 29th day of April, 2011, at Spokane, Washington.

Reviewed By:

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Department of Ecology
State of Washington

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