May 8, 2019

Washington State Department of Ecology
Eastern Regional Office
4601 North Monroe Street
Spokane, WA 99205

Attn: Karin Baldwin

Transmitted via email to: *kbal461@ecy.wa.gov*

Re: Approval Order Amendment Request
Microsoft MWH Data Center
Quincy, Washington
LAI Project No. 1409008.000

Dear Ms. Baldwin:

Microsoft Corporation (Microsoft) operates the MWH Data Center campus at 1515 Port Industrial Parkway in Quincy, Washington under Approval Order 18AQ-E024 (Approval Order) from the Washington State Department of Ecology (Ecology). This letter and its attachments comprise an Approval Order amendment request prepared by Landau Associates, Inc. (LAI) on behalf of Microsoft.

In October 2018, Ecology issued the Approval Order that permits construction and operation of Phases 1 through 6 on the MWH data center campus. Microsoft is currently permitted to install and operate the following emission units:

- Sixty-eight (68) 3.0-megawatt electrical (MWe) Cummins Model C3000 D6e or Caterpillar (CAT) Model C175 diesel-powered electrical emergency generators
- Forty (40) 2.5-MWe CAT Model 3516C-HD-TA generators (eight of which are reserve generators)
- Four (4) 2.0-MWe CAT Model 3516C-TA generators
- Four (4) Cummins Model 1500DQGAF (1.5 MWe) or CAT Model C32 or 3512C (1.0-MWe) generators
- One (1) 0.75-MWe CAT Model C27ATAAC
- Thirty-two (32) SPX-Marley Model MD5008PAF2 or EVAPCO cooling towers with similar design values
- One hundred thirty-six (136) evaporative coolers, Baltimore Aircoil Company (BAC) Model HXV-1012C-24T-L-2 or equivalent.

All generators will be Tier 2-certified and will be equipped with a catalyzed diesel particulate filter (DPF) and urea-based selective catalytic reduction (SCR) to meet the emission requirements of US

Environmental Protection Agency (EPA) Tier 4 engines. Microsoft proposes no changes to the equipment or facility configuration.

The operating limitations and emission limits in the existing Approval Order are calculated based on the assumption that Microsoft may average annual fuel use (1,898,945 gallons per year) and annual operating hours (86 hours per generator per year) over a 3-year rolling period, meaning that theoretical maximum emissions are based on a worst-case year in which Microsoft would use three times the average annual fuel limit and operate for three times the average annual hourly limit. This application proposes to remove Microsoft's option to average annual usage over a rolling 3-year period.

The proposed change to the operating limits represents a decrease in permitted worst-case annual emissions. Hourly emission limits and operating scenarios would not change. Because this change will result in a decrease or no change in emissions of all regulated criteria pollutants and toxic air pollutants, we understand the project does not trigger New Source Review (NSR) under Washington Administrative Code (WAC) 173-400-110 and 173-460.

In consideration of the reduced annual potential-to-emit (PTE) associated with this change, we request that Ecology issue an administrative modification to the Approval Order allowing for the proposed changes.

Proposed Permit Amendments

Microsoft provides a suggested markup of the Approval Order in Attachment 1. As shown in the attached markup, we propose that the references to averaging over a 3-year period or 36-month rolling average be replaced with a requirement for a 12-month rolling average in the following sections:

- Operating Limits 3.a and 3.b.i
- Emission Limit 5.b
- Recordkeeping 8.b and 8.c
- Reporting 9.a.i, 9.a.ii, and 9.a.iv.

Approval Order Tables 3.a and 3.b present "theoretical maximum emissions" based on the worst-case scenario of using all allowed fuel consumption and operating hours in a single year. "Theoretical maximum with commissioning emissions" are based on commissioning of all new generators occurring in the same worst-case year. Microsoft proposes to remove the "theoretical maximum emissions" columns. Additionally, "theoretical maximum with commissioning emissions" would be reduced to represent a year in which all generators are operated at their operating limits and all new generators are commissioned, as shown in the proposed revisions to Approval Order Tables 3.a and 3.b presented in Attachment 2.

Note that the changes described above would not affect references to 3-year periods described under operating limitations 3.b.vi, 3.b.vii, 3.b.viii, or 3.b.ix since the flexibility allowed in these conditions are a result of National Ambient Air Quality Standard statistical exceedance allowances for specific short-term averaged pollutants (i.e., 1-hour average NO_2, 24-hour average PM_{10}, and 24-hour average $PM_{2.5}$), which are unrelated to long-term average PTE allowances.

Emission Estimates

The PTE estimates for each pollutant are revised to reflect Microsoft's request that compliance with fuel and operating hour limits will be demonstrated on a 12-month rolling average, instead of a 36-month rolling average. Revised PTE estimates are presented in Attachment 2. No changes were made to the calculation methodologies that were used to develop the original PTE estimates for MWH-01-02 and MWH-03-06, which are presented in the April 2016 NOC Application (LAI 2016) and June 2018 NOC Application (LAI 2018), respectively. Additionally, no changes were made to equipment specifications, operating load assumptions, hourly worst-case emissions, exhaust temperature, exhaust flow, generator startup emission factors or cooling tower operations.

The PTE estimates on an annual average basis and for commissioning are unchanged. Only the theoretical maximum 1-year PTE has been reduced to reflect the reduction in potential fuel use and operating hours. As shown in Attachment 2, the new proposed facility-wide (MWH-01-06) PTE estimates are below Title V major source thresholds for all pollutants.

Regulatory Review

The sections below present the results of a regulatory review for the proposed project.

New Source Review

NSR is required in the case of a modification to an existing stationary source [WAC 173-400-110(1)(A)], where a "modification" is defined in WAC 173-400-030(51) as "any physical change in, or change in the method of operation of, a stationary source that *increases the amount of any air contaminant emitted by such source* or that results in the emissions of any air contaminant not previously emitted." Additionally, "new source review of a modification is limited to the emission unit or units proposed to be modified and the air contaminants whose emissions would increase as a result of the modification" [WAC 173-400-110(1) (d)]. As shown in Attachment 2, the proposed changes would result in a decrease of all air contaminants emitted; therefore, NSR is not triggered, subject to Ecology review and approval. Further, the proposed changes meet the requirements noted in WAC 173-400-111(8). A signed and completed NOC application form (Form ECY 070-410) is provided as Attachment 3.

Best Available Control Technology Analysis

LAI's understanding is that EPA Tier 2 certification requirements currently represent best available control technology (BACT) for emergency generators. No changes to the permitted generators are

proposed, and the proposed changes would result in an emission reduction (see Attachment 2). On that basis, we request no changes to the BACT limitations as currently permitted.

Ambient Air Quality Analysis

An ambient air quality analysis is not automatically required under this amendment request process because NSR requirements are not triggered. The requested modification would not change the hourly or 24-hour average emission rates for the MWH Data Center, therefore would not change the estimated project impacts for those averaging periods. Worst-case annual emissions would decrease significantly, resulting in a reduction to project-related impacts on an annual average basis.

Conclusions and Recommendations

In summary, Microsoft requests that Approval Order 18AQ-E024 be amended to remove the ability to average fuel consumption and annual per-generator operating hours over 3 years. The proposed Approval Order amendment will result in no change to short-term potential emissions and a decrease to potential annual emissions. The reduction in potential-to-emit for all pollutants will allow the MWH data center to be established as a synthetic minor source. We request that Ecology process this amendment as an administrative modification that is not subject to NSR.

* * * * *

Please contact me if you have any comments or questions about this request. Thank you for your time and consideration of our request.

Respectfully submitted,

LANDAU ASSOCIATES, INC.

Mark Brunner
Senior Associate

AEM/MWB/ccy
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References

LAI. 2016. Letter: April 2016 Updated Request for Revisions to Approval Order No. 14AQ-E537, Microsoft Oxford Data Center, Quincy, Washington. From James Wilder, Landau Associates, Inc., to Gary Huitsing, Washington State Department of Ecology. April 8.

LAI. 2018. Notice of Construction Application Supporting Information Report, MWH-03/04/05/06 Data Center, Quincy, Washington. Landau Associates, Inc. June 6.

Attachments

Attachment 1: Proposed Revisions to Approval Order
Attachment 2: Proposed Revisions to Approval Order Tables 3.a and 3.b
Attachment 3: Notice of Construction Application Form ECY 070-410

ATTACHMENT 1

Proposed Revisions to Approval Order

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING A NEW AIR CONTAMINANT SOURCE FOR MICROSOFT CORPORATION MWH DATA CENTER	))))	**Approval Order No. 18AQ-E024**

TO: Jaymes Kirkham
Microsoft Corporation
1515 Port Industrial Pkwy
Quincy, WA 98848

On January 27, 2014, Ecology received a Notice of Construction (NOC) application submittal from the Microsoft Corporation (Microsoft), requesting approval for Phases 1 and 2 of a new facility named the Oxford Data Center located at 1515 Port Industrial Parkway in Quincy, Washington. Approval Order 14AQ-E537 was issued on August 15, 2014. On April 8, 2016 Ecology received an NOC from Microsoft requesting revisions to Approval Order 14AQ-E537 and changing the facility name to the MWH Data Center (or MWH). The application was considered complete on September 20, 2016.

On March 6, 2018, Ecology received a NOC application from Microsoft, requesting an expansion of the MWH Data Center MWH 03/04/05/06. The application was considered complete on June 7, 2018.

EQUIPMENT

A list of equipment for this project is provided in Tables 1.a–1.d below. Engine sizes listed in Tables 1.a–1.c and 2.a -2.b are in megawatt (MWe) units with the "e" indicating "electrical" based on generator power ratings listed on the engine specifications provided with the application. MWe is the assumed engine power rating unit for all Approval Conditions related to this Order.

Table 1.a. 2.5 MWe Engine & Generator Serial Numbers for MWH 01 & 02

Phase/Building	Unit ID	Engine SN	Generator SN	Date of Commission Completion
Primary Emergency Generators				
Ph 1/AZA, Cell 1	MWH01.AS1.AZA.CE1.XXX.GEN1	DD500650	G7J00455	11/13/2015
"Cell 2	MWH01.AS1.AZA.CE2.XXX.GEN1	DD500647	G7J00451	11/13/2015
"Cell 3	MWH01.AS1.AZA.CE3.XXX.GEN1	DD500655	G7J00458	11/13/2015
"Cell 4	MWH01.AS1.AZA.CE4.XXX.GEN1	DD500642	G7J00446	11/13/2015
Ph 1/AZB, Cell 1	MWH01.AS1.AZB.CE1.XXX.GEN1	DD500625	G7J00440	9/21/2015
"Cell 2	MWH01.AS1.AZB.CE2.XXX.GEN1	DD500641	G7J00442	9/21/2015
"Cell 3	MWH01.AS1.AZB.CE3.XXX.GEN1	DD500626	G7J00439	11/13/2015

Table 1.a. 2.5 MWe Engine & Generator Serial Numbers for MWH 01 & 02				
Phase/Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
"Cell 4	MWH01.AS1.AZB.CE4.XXX.GEN1	DD500637	G7J00441	11/13/2015
Ph 1/AZC, Cell 1	MWH01.AS1.AZC.CE1.XXX.GEN1	DD500651	G7J00456	11/13/2015
"Cell 2	MWH01.AS1.AZC.CE2.XXX.GEN1	DD500657	G7J00457	11/13/2015
"Cell 3	MWH01.AS1.AZC.CE3.XXX.GEN1	DD500663	G7J00459	11/13/2015
"Cell 4	MWH01.AS1.AZC.CE4.XXX.GEN1	DD500644	G7J00447	11/13/2015
Ph 1/AZD, Cell 1	MWH01.AS1.AZD.CE1.XXX.GEN1	DD500643	G7J00445	9/21/2015
"Cell 2	MWH01.AS1.AZD.CE2.XXX.GEN1	DD500645	G7J00448	9/21/2015
"Cell 3	MWH01.AS1.AZD.CE3.XXX.GEN1	DD500664	G7J00460	11/13/2015
"Cell 4	MWH01.AS1.AZD.CE4.XXX.GEN1	DD500648	G7J00450	11/13/2015
Ph 2/AZA, Cell 1	MWH02.AZA.CE1.GEN01	SBK02066-O	G7J00739	12/6/2017
"Cell 2	MWH02.AZA.CE2.GEN01	SBK02088-H	G7J00754	12/6/2017
"Cell 3	MWH02.AZA.CE3.GEN01	SBK02107-N	G7J00759	12/6/2017
"Cell 4	MWH02.AZA.CE4.GEN01	SBK02068-F	G7J00738	12/6/2017
Ph 2/AZB, Cell 1	MWH02.AZB.CE1.GEN01	SBK02056-C	G7J00732	4/9/2018
"Cell 2	MWH02.AZB.CE2.GEN01	SBK02070-G	G7J00741	4/9/2018
"Cell 3	MWH02.AZB.CE3.GEN01	SBK02069-P	G7J00740	7/13/2018
"Cell 4	MWH02.AZB.CE4.GEN01	SBK02081-J	G7J00748	4/9/2018
Ph 2/AZC, Cell 1	MWH02.AZC.CE1.GEN01	SBK02082-L	G7J00749	8/22/2017
"Cell 2	MWH02.AZC.CE2.GEN01	SBK02098-K	G7J00758	8/22/2017
"Cell 3	MWH02.AZC.CE3.GEN01	SBK02048-B	G7J00731	8/22/2017
"Cell 4	MWH02.AZC.CE4.GEN01	SBK02094-I	G7J00755	8/22/2017
Ph 2/AZD, Cell 1	MWH02.AZD.CE1.GEN01	SBK02058-D	G7J00735	6/7/2018
"Cell 2	MWH02.AZD.CE2.GEN01	SBK02064-E	G7J00736	6/7/2018
"Cell 3	MWH02.AZD.CE3.GEN01	SBK02085-M	G7J00752	6/7/2018
"Cell 4	MWH02.AZD.CE4.GEN01	SBK02046-A	G7J00730	6/7/2018
Reserve Emergency Generators				
Phase/Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
Ph 1/AZA	MWH01.AS1.AZA.ELECR1.GEN1	SBK02010-B	G7J00710	
Ph 1/AZB	MWH01.AS1.AZB.ELECR1.GEN1	SBK02009-A	G7J00709	
Ph 1/AZC	MWH01.AS1.AZC.ELECR1.GEN1	SBK02012-C	G7J00711	
Ph 1/AZD	MWH01.AS1.AZD.ELECR1.GEN1	SBK02011-D	G7J00712	
Ph 2/AZA	MWH02.AZA.ELECR1.GEN01	SBK02113-Q	G7J00762	12/6/2017
Ph 2/AZB	MWH02.AZB.ELECR1.GEN01	SBK02117-R	G7J00764	4/9/2018
Ph 2/AZC	MWH02.AZC.ELECR1.GEN01	SBK02119-S	G7J00768	8/22/2017
Ph 2/AZD	MWH02.AZD.ELECR1.GEN01	SBK02120-T	G7J00769	6/7/2018

Table 1.b. 2.0 MWe Engine & Generator Serial Numbers for MWH 01 & 02				
Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
CNR-A	MWH01.XXX.CNA.XXX.XXX.GEN1	DD600483	G7F00184	7/27/2015
CNR-B	MWH01.XXX.CNB.XXX.XXX.GEN1	DD600485	G7F00185	7/27/2015
CNR-C	MWH01.XXX.CNC.XXX.XXX.GEN1	DD600480	G7F00186	8/31/2015
CNR-D	MWH01.XXX.CND.XXX.XXX.GEN1	DD600481	G7F00183	8/31/2015

Table 1.c. 0.750 MWe Engine & Generator Serial Numbers for MWH 01 & 02				
Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
Admin	MWH01.XXX.AB1.XXX.XXX.GEN1	MJE03975	GDG00160	8/31/2015

Table 1.d. Cooling Towers for MWH 01 & 02			
Phase/Building	**# Cooling Towers**	**# Cells per Tower**	**Total # Cooling Tower Cells**
Ph 1/AZA	4	4	16
Ph 1/AZB	4	4	16
Ph 1/AZC	4	4	16
Ph 1/AZD	4	4	16
Ph 2/AZA	4	4	16
Ph 2/AZB	4	4	16
Ph 2/AZC	4	4	16
Ph 2/AZD	4	4	16
Total	32	4	128

Table 2.a. 3.0 MWe Engine & Generator Serial Numbers for MWH 03/04/05/06				
Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
MWH 03				

Table 2.a. 3.0 MWe Engine & Generator Serial Numbers for MWH 03/04/05/06				
Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
MWH 04				
MWH 05				
MWH 06				

Table 2.a 3.0 MWe Engine & Generator Serial Numbers for MWH 03/04/05/06				
Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
MWH 06				

Table 2.b 1.0 MWe/1.5 MWe Engine & Generator Serial Numbers for MWH 03/04/05/06				
Building	**Unit ID**	**Engine SN**	**Generator SN**	**Date of Commission Completion**
MWH 03				
MWH 04				
MWH 05				
MWH 06				

Table 2.c Fluid Coolers for MWH 03/04/05/06	
Phase/Building	**Total # Fluid Coolers**
MWH 03	16
MWH 04	40
MWH 05	40
MWH 06	40
Total	136

PROJECT SUMMARY

1. **Phase 1 and 2 Installed Equipment Summary:**
   - The MWH Data Center contains four Phase 1 Availability Zone (AZ) buildings designated AZ-A, AZ-B, AZ-C, AZ-D; four core network room (CNR) buildings; an administrative building; and four phase 2 AZ buildings designated AZ-A, AZ-B, AZ-C, AZ-D.
   - Forty Caterpillar Model 3516C-HD-TA diesel powered electric emergency generators in the activity zone buildings with a power rating of 2.5 MWe per generator.
   - Four Caterpillar Model 3516C-TA diesel powered electric emergency generators in the CNR buildings with a power rating of 2.0 MWe per generator.
   - One Caterpillar Model C27ATAAC diesel powered electric emergency generator in the administrative building with a power rating of 0.75 MWe.
   - Eight of the 40 combined Phases 1 and 2 engines rated 2.5 MWe are reserve emergency generators (reserve engines).
   - MWH uses cooling towers (Phase 1 will use SPX-Marley Model MD5008PAF2; Phase 2 use EVAPCO cooling towers with similar design values) to dissipate heat from the AZ buildings. Each cooling tower has four cells and four fans. Each of the eight AZ buildings will have four cooling towers for a total of 32 cooling towers. Each of the 32 individual cooling towers has a design recirculation rate of 950 gallons per minute (gpm) and 143,600 cubic feet per minute (cfm).

2. **MWH 03/04/05/06 Equipment Summary:**
   - Four Cummins Model 1500DQGAF or Caterpillar (CAT) Model C32 or 3512C generators. The 1,000-kilowatt and 1,500-kilowatt electrical generators will have a combined capacity of up to 6.0 megawatts electrical (MWe).
   - Sixty-eight Cummins Model C3000 D6e or CAT Model C175 generators. The sixty-eight 3.0-MWe generators will have a combined capacity of 204 MWe.
   - All generators will be Tier 2-certified and will be equipped with a catalyzed diesel particulate filter (DPF) and urea-based selective catalytic reduction (SCR) to be compliant with EPA Tier 4 emission standards.
   - One hundred thirty-six Baltimore Aircoil Company (BAC) Model HXV-1012C-24T-L-2 evaporative fluid coolers or an equivalent cooling tower model.

The words "engine," or "generator" are used synonymously through the remainder of this permit to refer to the overall unit.

Combined MWH 01/02/03/04/05/06 emissions for MWH are contained in Tables 3.a and 3.b.

Table 3.a Criteria Pollutants[b] Potential to Emit for Total Facility MWH 01/02/03/04/05/06 (Tons/Year)

Pollutant	Annual Emissions	Theoretical Maximum Emissions	T[illegible] w[illegible] n g
PM smaller than 10 microns in diameter (PM_{10})	39.3	46.1	
PM smaller than 2.5 microns in diameter ($PM_{2.5}$)[a]	13.6	20.3	
PM2.5/PM10 (Gens Only)	3.4	10.1	
Carbon monoxide (CO)	12.7	38.1	
Nitrogen oxides (NO_X)	58.5	175.4	
Volatile organic compound (VOC)	5.7	17.0	
Sulfur dioxide (SO_2)	0.21	0.62	0.70

Annual with Commissioning Emissions

See revised table

[a] All PM emissions from the generator engines are $PM_{2.5}$, and all filterable $PM_{2.5}$ from the generator engines is considered Diesel Engine Exhaust Particulate (DEEP).
[b] Pollutants above WAC 173-400-110(5) de minimis levels.

Table 3.b Toxic Air Pollutants[c] Potential To Emit for Total Facility MWH 01/02/03/04/05/06 (Tons/Year)

Pollutant	Annual Emissions	Theoretical Maximum Facility Emissions	T[illegible] m g
CO	12.7	38.1	
Ammonia	4.0	12.0	
DEEP[a]	1.3	3.8	
SO_2	0.21	0.62	
Primary nitrogen dioxide (NO_2)[b]	5.9	17.5	
Benzene	7.3E-02	2.2E-01	
Toluene	2.6E-02	7.9E-02	
Xylenes	1.8E-02	5.4E-02	
1,3-Butadiene	3.7E-03	1.1E-02	
Formaldehyde	7.4E-03	2.2E-02	
Acetaldehyde	2.4E-03	7.1E-03	
Acrolein	7.4E-04	2.2E-03	
Benzo(a)pyrene	2.4E-05	7.2E-05	
Benzo(a)anthracene	5.8E-05	1.7E-04	
Chrysene	1.4E-04	4.3E-04	
Benzo(b)fluoranthene	1.0E-04	3.1E-04	3.7E-04

Annual with Commissioning Emissions

See revised table

Table 3.b Toxic Air Pollutants[c] Potential To Emit for Total Facility MWH 01/02/03/04/05/06 (Tons/Year)			
Pollutant	Annual Emissions	Theoretical Maximum Facility Emissions	T... m ... g
Benzo(k)fluoranthene	2.0E-05	6.1E-05	
Dibenz(a,h)anthracene	3.2E-05	9.7E-05	
Ideno(1,2,3-cd)pyrene	3.9E-05	1.2E-04	
Napthalene	1.2E-02	3.7E-02	
Propylene	2.6E-01	7.8E-01	
Fluoride	4.8E-03	4.8E-03	
Manganese	7.5E-04	7.5E-04	
Copper	2.6E-03	2.6E-03	
Chloroform	2.6E-04	2.6E-04	
Bromodichloromethane	2.6E-04	2.6E-04	
Bromoform	6.9E-03	6.9E-03	6.9E-03

Annual with Commissioning Emissions

See revised table

[a] DEEP is considered filterable (front-half) particulate emissions.
[b] NO_2 is assumed to be equal to 10 percent of the total NO_X emitted.
[c] Pollutants above WAC 173-460-150 de minimis levels.

DETERMINATIONS

In relation to this project, the Washington State 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 meet applicable air quality requirements as defined in Table 4.a:

Table 4.a Best Available Control Technology (BACT) Determinations	
Pollutant(s)	BACT Determination
PM, CO, and VOCs	a. Use of EPA Tier 2 certified engines installed and operated as emergency engines, as defined in 40 CFR Section 60.4219. b. Compliance with the operation and maintenance restrictions of 40 CFR Part 60, Subpart IIII. c. Use of high-efficiency drift eliminators which achieve a liquid droplet drift rate of no more than 0.0005 percent of the recirculation flow rate within each cooling tower.

Table 4.a Best Available Control Technology (BACT) Determinations	
Pollutant(s)	**BACT Determination**
NO_X	a. Use of EPA Tier 2 certified engines installed and operated as emergency engines, as defined in 40 CFR Section 60.4219, and satisfy the written verification requirements of Approval Condition 2.e. b. Compliance with the operation and maintenance restrictions of 40 CFR Part 60, Subpart IIII.
SO_2	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 (TAPs) (tBACT) as defined below:

Table 4.b tBACT Determinations	
TAPs	**tBACT Determination**
Acetaldehyde, CO, acrolein, benzene, benzo(a)pyrene, 1,3-butadiene, DEEP, formaldehyde, toluene, total PAHs, xylenes, chrysene, benzo(a)anthracene, napthalene, benzo(b)fluoranthene, propylene, dibenz(a,h)anthracene, Ideno(1,2,3-cd)pyrene, fluoride, manganese, copper, chloroform, bromodichloromethane, bromoform,	Compliance with the VOC and PM BACT requirement.
Ammonia	MWH 01 & 02 - No more than 15 parts per million volume-dry (ppmvd) at 15 percent oxygen per engine. MWH 03/04/05/06 – No more than 40 parts per million volume-dry (ppmvd) at 15 percent oxygen per engine.
NO_2	Compliance with the NO_X BACT requirement.
SO_2	Compliance with the SO_2 BACT requirement.

4. In accordance with WAC 173-460-090, the applicant has submitted a second tier health risk analysis for DEEP and NO_2 ambient impacts. Ecology has concluded that this project has satisfied all requirements of a second tier analysis.

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

APPROVAL CONDITIONS

1. ADMINISTRATIVE CONDITION

   a. Notice of Construction Approval Order No. 17AQ-E002 is rescinded and replaced entirely with this Approval Order.

   b. The emergency engine generators approved for operation by this Order are to be used solely for those purposes authorized for emergency generators under 40 CFR 60, Subpart

IIII. This includes the hourly operation requirements described in 40 CFR 60.4211(f), except that there shall be no operation of this equipment to produce power for demand-response arrangements, peak shaving arrangements, nor to provide power as part of a financial arrangement with another entity, nor to supply power to the grid.

c. The MWH Data Center shall coordinate engine maintenance and testing schedules with NTT and the Microsoft Columbia Data Center in Quincy to minimize overlap between data center scheduled testing. Microsoft shall maintain records of the coordination communications with the other data centers, and those communications shall be available for review by Ecology.

2. EQUIPMENT RESTRICTIONS

a. The sixty-eight 3.0 MWe engines, thirty-two 2.5 MWe engines, eight 2.5 MWe reserve engines, four 2.0 MWe engines, four 1.0 MWe or 1.5 MWe, and the single 0.750 MWe engine shall be operated in accordance with applicable 40 CFR 60, Subpart IIII requirements including but not limited to: certification by the manufacturer to meet the 40 CFR 89 EPA Tier 2 emissions levels as required by 40 CFR 60.4202; and installed and operated as emergency engines, as defined in 40 CFR 60.4219.

i. At the time of the effective date of this permit, Tier 4 interim and Tier 4 final certified engines (as specified in 40 CFR 1039.102 Table 7 and 40 CFR 1039.101 Table 1, respectively), are not required for 0.750 MWe, 1.0 MWe, 1.5 MWe, 2.0 MWe, 2.5 MWe and 3.0 MWe electrical generators used for emergency purposes as defined in 40 CFR 60.4219 in attainment areas in Washington State. Any engines installed at the MWH Data Center after Tier 4 or other limits are implemented by EPA for emergency generators, shall meet the applicable specifications as required by EPA at the time the emergency engines are installed.

b. Each engine shall be equipped with selective catalytic reduction (SCR) and catalyzed diesel particulate filter (DPF) controls to meet with emission requirements of EPA Tier 4 engines. The only engines and electrical generating units approved for operation at the MWH Data Center are those listed in Tables 1.a -1.c and 2.a -2.b above.

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

d. Table 5 Stack Dimension Requirements

Quantity	Engine Size	Minimum Stack Height (feet)	Maximum Stack Diameter (inches)	Height above building roof (feet)
68	3.0 MWe	72'	30"	26'+
40	2.5 MWe	40'	22"	12'
4	2.0 MWe	40'	22"	19'
4	1.0/1.5 MWe	72'	24"	26'+
1	0.75 MWe	35'	14"	12'

e. In addition to meeting EPA Tier 2 certification requirements, the source shall have written verification from the engine manufacturer that each engine of the same make, model, and rated capacity installed at the facility uses the same electronic Programmable System Parameters, i.e., configuration parameters, in the electronic engine control unit.

3. OPERATING LIMITATIONS

a. Fuel consumption at the MWH Data Center facility shall be limited to a total of 1,898,945 gallons per year and 506,310 gallons per day of diesel fuel equivalent to on-road specification No. 2 distillate fuel oil (less than 0.00150 weight percent sulfur). Total facility annual fuel consumption may be averaged over a three-year period using monthly rolling totals.

12-month

b. The one hundred nine MWH Data Center primary engines and eight reserve engines shall not exceed the following load specific engine hour limits:

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i. Each engine shall not exceed 86 hours per year of operation averaged across all generators in service over a 36-month rolling average. If a reserve engine is used to temporarily replace a primary engine during a power outage, then the actual runtime for the reserve engine shall be deducted from the primary engine's allowable runtime.

ii. Each reserve engine shall not exceed 40 hours per year for purposes other than stack testing or power outages, averaged across all reserve generators in service over a 36-month rolling period.

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iii. For commissioning events, each engine shall not exceed a one-time total of 50 hours of operation over a full range of loads, averaged over all facility engines commissioned in that year.

iv. Stack testing shall be conducted according to the testing requirements and the schedule in Approval Condition 4. Each engine shall operate no more than 45 hours per stack testing event. If more than 45 hours are needed for re-testing to satisfy Approval Condition 4.d, those hours should be deducted from other preapproved hours in Approval Condition 3.b. Additional operation of the engines for the purpose of emissions testing beyond the operating time and fuel consumption limits authorized by this Order will be considered by Ecology upon request in writing.

v. Daily generator usage of all MWH 01 and 02 generators combined (including reserve engines), shall not exceed a maximum limit of 160 generator hours per calendar day, except during up to four days per year of emergency power outage.

vi. Operation of more than five MWH 03/04/05/06 generators for more than 18 hours per generator in any 24-hour period shall not occur more than three times in any three calendar year period.

vii. The operation of more than five MWH 03/04/05/06 generators, operating concurrently at any one time, shall not occur on more than 18 calendar days in any three calendar year period.

viii. The operation of between three and five MWH 03/04/05/06 generators operating concurrently at any one time shall not occur on more than 24 calendar days in any three calendar year period. Operation during this scenario is limited to daytime hours only (7:00 am to 7:00 pm).

ix. The operation of two MWH 03/04/05/06 generators operating concurrently at any one time shall not occur on more than 144 calendar days in any three calendar year period. Operation during this scenario is limited to daytime hours only (7:00 am to 7:00 pm).

x. There is no limit on the number of days that operation of one MWH 03/04/05/06 generator at a time can occur, but operation under this scenario is limited to daytime hours (7:00 am to 7:00 pm).

xi. Concurrent operation of generators occurs when two or more generators operate at exactly the same moment. Generators are considered to operate concurrently even on occasions when the operational overlap occurs for just a short period of time (e.g., 1 minute or less). Sequential operation of generators is not considered concurrent operation even if multiple generators operate in the same minute, hour, or day.

c. All of the 32 MWH 01 and 02 cooling towers and the 136 MWH 03/04/05/06 fluid coolers shall comply with the following conditions:

i. Each individual cooling tower unit or fluid cooler unit shall use a mist eliminator that achieves a liquid droplet drift rate of no more than 0.0005 percent of the recirculation flow rate within each cooling tower.

ii. Chemicals containing hexavalent chromium cannot be used to pre-treat the cooling tower or fluid cooler makeup water.

4. GENERAL TESTING AND MAINTENANCE REQUIREMENTS

a. The MWH Data Center will follow engine-manufacturer's recommended diagnostic testing and maintenance procedures to ensure that each of the sixty-eight 3.0 MWe engines, thirty-two 2.5 MWe primary engines, eight reserve engines, four 2.0 MWe engines, four 1.0 MWe or 1.5 MWe engines and one 0.750 MWe engine will conform to applicable engine specifications in Approval Condition 2.a, 2.b, and applicable emission specifications in Approval Condition 5 throughout the life of each engine.

b. Any emission testing performed to verify conditions of this Approval Order or for submittal to Ecology in support of this facility's operations, requires that Microsoft comply with all requirements in 40 CFR 60.8 except subsection (g). 40 CFR 60.8(g) may be required by Ecology at their discretion. A test plan will be submitted to Ecology at least 30 days prior to testing that will include a testing protocol for Ecology approval that includes the following information:

i. The location and Unit ID of the equipment proposed to be tested.

ii. The operating parameters to be monitored during the test.

iii. A description of the source including manufacturer, model number, design capacity of the equipment and the location of the sample ports or test locations.

iv. Time and date of the test and identification and qualifications of the personnel involved.

v. A description of the test methods or procedures to be used.

c. The MWH Data Center shall source test engines as described in Approval Condition 4.d to show compliance with emission limits in Table 6.

d. The following testing requirements are for ammonia, PM, NO_X, CO, and non-methane hydro-carbons (NMHC). The test methods in Table 6 shall be used for each test event unless an alternate method is proposed by Microsoft and approved in writing by Ecology prior to the test. Test reports shall be submitted to Ecology as provided in Condition 9.e of this Order.

Table 6. Emission Limits and Testing Requirements

Pollutant	Load Test	Test Method[a]	Emission Limits	Compliance Test Frequency
PM	Five-load weighted avg.	EPA Method 5 or alternative method from 40 CFR 1065	0.03 g/kW-hr	See Approval Conditions 4.d.iv, 4.d.v, 4.d.vi.
NO_X	Five-load weighted avg.	EPA Method 7E, or alternative method from 40 CFR 1065	0.67 g/kW-hr	
CO	Five-load weighted avg.	EPA Method 10, or alternative method from 40 CFR 1065	3.5 g/kW-hr	
NMHC/ VOC	Five-load weighted avg.	EPA Method 25A and EPA Method 18; or alternative method from 40 CFR 1065	0.19 g/kW-hr	
Ammonia	100%-load (± 2%)	BAAQMD Method ST-1B or EPA Method 320 or EPA CTM-027; or alternative method suitable for use with 40 CFR 1065	0.19 lb/hr (0.75 MWe)	
			0.50 lb/hr (1.5 MWe)	
			0.48 lb/hr (2.0 MWe)	
			0.61 lb/hr (2.5 MWe)	
			0.95 lb/hr (3.0 MWe)	

(a) In lieu of these requirements, Microsoft may propose an alternative test protocol to Ecology in writing for approval.

i. For the five load tests, testing shall be performed at each of the five engine torque load levels described in Table 2 of Appendix B to Subpart E of 40 CFR Part 89, and data shall be reduced to a single-weighted average value using the weighting factors specified in Table 2. Microsoft may replace the dynamometer requirement in Subpart E of 40 CFR Part 89 with corresponding measurement of gen-set electrical output to derive torque output.

ii. For all tests, the F-factor described in Method 19 shall be used to calculate exhaust flow rate through the exhaust stack, except that EPA Method 2 shall be used to

calculate the flow rate for purposes of particulate testing (Method 2 is not required if 40 CFR 1065 is used). Fuel meter data measured according to Approval Condition 4.f, shall be included in the test report, along with the emissions calculations.

iii. Three test runs shall be conducted for each engine, except as allowed by the sampling protocol from 40 CFR 1065. Each run shall last at least 60 minutes except as allowed by the sampling protocol from 40 CFR 1065. Source test analyzers and engine control unit data shall be recorded at least once every minute during the test. Engine run time and torque output (measured ekW to convert to torque) and fuel usage shall be recorded during each test run for each load and shall be included in the test report.

iv. For the 3.0 MWe and 1.5 MWe engines or new engine models or manufacturers or control generation other than those in Tables 1.a-1c, and 2.a-2.b, at least one representative engine from each manufacturer and each size engine from each manufacturer shall be tested initially with the five-load test as soon as possible after commissioning.

v. Every 60 months after initial source testing, Microsoft shall test at least one 2.5 MWe engine and one 3.0 MWe engine, including the engine with the most operating hours as long as it is a different engine from that which was tested during the previous 60 month interval testing.

vi. In the event that any source test of a 1.0 MWe, 1.5 MWe, 2.0 MWe, 2.5 MWe or a 3.0 MWe engine shows non-compliance with any applicable Table 6 emission standards for the engines specified in Approval Condition 2.a, Microsoft shall repair or replace the engine and repeat the test on the same engine plus two additional equivalent engines. If the 0.750 MWe engine fails a test, it shall be repaired or replaced and retested.

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

f. Each engine shall be connected to a properly installed and maintained fuel flow monitoring system (either certified physical or generator manufacturer provided software) that records the amount of fuel consumed by the engine.

5. EMISSION LIMITS

The sixty-eight 3.0 MWe engines, thirty-two primary 2.5 MWe engines, eight reserve engines, four 2.0 MWe engines, four 1.0 MWe or 1.5 MWe engines, and the one 0.750 MWe engine shall meet the follow emission rate limitations:

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a. Each emergency engine shall not exceed the applicable emission limits in Table 6.

b. Total annual facility-wide emissions shall not exceed the 36-month rolling average emission estimates for PM_{10}, $PM_{2.5}$, CO, NO_X, VOC, SO_2, DEEP, NO_2, and ammonia as listed in Tables 3.a and 3.b.

c. Visual emissions from each diesel engine exhaust stack shall be no more than five percent, with the exception of a two-minute period after unit start-up. Visual emissions

shall be measured by using the procedures contained in 40 CFR 60, Appendix A, Method 9.

d. The actual one-hour aggregate NO_X emissions from all engines operating in any hour shall not exceed 1,167 lb. Actual NO_X emissions shall be based on algebraic equations of the most accurate load-specific NO_X emission factors available. NOx emission records shall be maintained as provided in Condition 8(f)(v).

6. OPERATION AND MAINTENANCE MANUALS

A site-specific O&M manual for the MWH Data Center facility equipment shall be developed and followed. Manufacturer's operating instructions and design specifications for the engines, generators, cooling towers, fluid coolers and associated equipment shall be included in the manual. The manual shall include the manufacturer's recommended procedures for low-load generator operation. 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.

a. The O&M manual for the diesel engines, engine exhaust control equipment, cooling towers, fluid coolers and associated equipment shall at a minimum include:

i. Manufacturer's testing and maintenance procedures that will ensure that each individual engine (and engine exhaust control equipment) will conform to the EPA Emission Standards appropriate for that engine (and engine exhaust control equipment) throughout the life of the engine (and engine exhaust control equipment).

ii. Normal operating parameters and design specifications.

iii. Operating maintenance schedule.

iv. Specification sheet for cooling towers and fluid coolers verifying 0.0005 percent drift rating, water flow, airflow, makeup water rate, and a list of chemicals used to pre-treat cooling tower and fluid cooler makeup water.

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

Or email:

Emissions.inventory@ecy.wa.gov

8. RECORDKEEPING

All records, O&M 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 except as required for stack testing in Condition 8.c. Any records required to be kept under the provisions of this Order shall be provided within 30 days to Ecology upon request. The following records are required to be collected and maintained.

a. Fuel receipts with amount ~~of~~ 12 el and sulfur content for each delivery to the facility.

b. Monthly~~, annual,~~ and 36-month rolling fuel usage.

c. Monthly~~, annual~~, and 36-month rolling hours of operation for each diesel engine. The cumulative hours of operation for each engine shall be maintained for the life of the engine while at Microsoft, and shall include which engines have been stack tested, and the report information from Condition 9.e. 12

d. Annual number of start-ups for each diesel engine.

e. Annual gross electrical power in MWe generated by facility-wide operation of the emergency backup electrical generators.

f. Record of each operational period for each engine with the following information:

   i. Date of engine operation

   ii. Engine unit ID

   iii. Reason for operating: an operational period for an engine will be identified as one of the following reasons for operating: EMERGENCY SITUATIONS, STACK TESTING, COMMISSIONING, MAINTENANCE CHECKS, READINESS TESTING, DEVIATION OF VOLTAGE OR FREQUENCY, or UNSPECIFIED NON-EMERGENCY SITUATIONS

   iv. Duration of operation, and percent of generator electrical load, for each category of generator load

   v. For each unplanned power outage, that activates 30 or more engines in an hour, record the actual one-hour NO_X emission rate from all operating engines, as provided in Conditions 5.d and 9.b.vi.

g. Upset condition log for each emission unit (the 109 engines, 8 reserve engines, 32 cooling towers, and 136 fluid coolers) and their respective control units that include unit ID, date, time, duration of upset, cause, and corrective action.

h. Applicable recordkeeping for emergency engines required by 40 CFR Part 60, Subpart IIII Section 60.4214 (b), (c), and (d).

i. Air quality complaints received from the public or other entity, the affected emissions units and any actions taken by Microsoft in response to those complaints.

9. REPORTING

a. The serial number, manufacturer make and model, and standby capacity for each engine and generator, and the engine build date will be submitted prior to installation of each engine.

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

i. Monthly, ~~annual~~, and 36-month rolling total summary of all air contaminant emissions for pollutants liste 12 Tables 3.a and 3.b of this approval order.

ii. Monthly, ~~annual~~, and 36-month rolling facility-wide generator hours of operation.

iii. Gross power generation with 12 ual total as specified in Approval Condition 8.e.

iv. Monthly, ~~annual~~, and 36-month rolling total summary of fuel usage (in gallons) compared to Approval Condition 3.a.

v. Calendar year annual total runtime hours.

vi. For each power outage operating scenario described in Condition 8.f.v, the aggregate NO_X emission rate for all operating engines during each hour in which the NO_X emission rate exceeds 1,167 lb/hour.

c. Written notification that the O&M manual described in Approval Condition 6 has been developed and updated within 60 days after the issuance of this Order. A copy of the most current O&M manual will be provided to Ecology if requested.

d. 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 Microsoft Corporation'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 days of receipt of any such complaint.

e. Stack test reports of any engine shall be submitted to Ecology within 60 days of completion of the test and shall include, at a minimum, the following information:

i. The information from Conditions 4.b.iii, 4.b.iv, and 4.b.v including field and analytical laboratory data, quality assurance/quality control procedures and documentation.

ii. A summary of results, reported in units and averaging periods consistent with the applicable emission standard or limit.

iii. A summary of control system or equipment operating conditions.

iv. A summary of operating parameters for the diesel engines being tested.

v. Copies of field data and example calculations.

vi. Chain of custody information.

vii. Calibration documentation.

viii. Discussion of any abnormalities associated with the results.

ix. A statement signed by the senior management official of the testing firm certifying the validity of the source test report.

f. Microsoft 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 or other unscheduled operation.

10. GENERAL CONDITIONS

a. **Commencing/Discontinuing Construction and/or Operations:** This Approval Order shall become invalid if construction of the equipment described in the NOC application is not commenced within 18 months after receipt of the Approval Order. If construction or operation of a portion or all of the equipment described in the NOC application is discontinued for a period of 18 months, the portion of the Approval Order regulating the inactive equipment shall become invalid. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.

b. **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.

c. **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 emergency diesel electric generators, and cooling towers, and be available for review upon request by Ecology.

d. **Equipment Operation:** Operation of the generator units, cooling towers, 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.

e. **Modifications:** Any modification to the generators, engines, cooling towers or fluid coolers 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.

f. **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 Order, shall be subject to Ecology enforcement under applicable regulations.

g. **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.

All plans, specifications, and other information submitted to 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.

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

1. Violation of any terms or conditions of this authorization
2. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant facts

The provisions of this authorization are severable and, if any provision of this authorization, or application of any provisions of their circumstances, and the remainder 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	**Department of Ecology** Attn: Appeals Processing Desk P.O. Box 47608 Olympia, WA 98504-7608

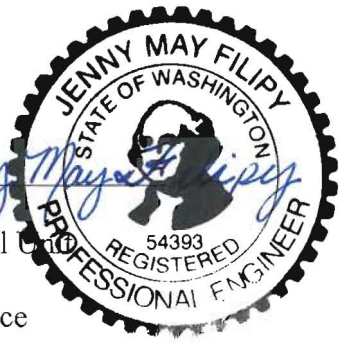
Street Addresses	Mailing Addresses
Pollution Control Hearings Board 1111 Israel Road SW, Suite 301 Tumwater, WA 98501	**Pollution Control Hearings Board** P.O. Box 40903 Olympia, WA 98504-0903

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 23rd day of October 2018, at Spokane, Washington.

PREPARED BY:



Jenny Filipy, P.E.
Commercial/Industrial Unit
Air Quality Program
Eastern Regional Office

APPROVED BY:

David T. Knight
Section Manager
Air Quality Program
Eastern Regional Office

ATTACHMENT 2

Proposed Revisions to Approval Order Tables 3.a and 3.b

DRAFT

Attachment 2
Revised Table 3.a and Table 3.b - Approval Order 18AQ-E024
Microsoft MWH Data Center
Quincy, Washington

Table 3.a Criteria Pollutants[(b)] Potential-to-Emit for Total Facility MWH 01/02/03/04/05/06 (Tons/Year)

Pollutant	Annual Emissions	Annual with Commissioning Emissions
PM smaller than 10 microns in diameter (PM_{10})	39.3	40.9
PM Smaller than 2.5 microns in diameter ($PM_{2.5}$)[(a)]	13.6	15.1
$PM_{2.5}/PM_{10}$ (Gens Only)	3.4	4.9
Carbon monoxide (CO)	12.7	16.1
Nitrogen oxides (NO_x)	58.5	73.3
Volatile organic compound (VOC)	5.7	8.4
Sulfur dioxide (SO_2)	0.21	0.28

(a) All PM emissions from the generator engines are $PM_{2.5}$, and all filterable $PM_{2.5}$ from the generator engines is considered Diesel Engine Exhaust Particulate

(b) Pollutants above WAC 173-400-110(5) de minimis levels.

Table 3.b Toxic Air Pollutants[(c)] Potential-to-Emit for Total Facility MWH 01/02/03/04/05/06 (Tons/Year)

Pollutant	Annual Emissions	Annual with Commissioning Emissions
CO	12.7	16.1
Ammonia	4.0	5.7
DEEP [(a)]	1.3	1.6
SO_2	0.21	0.28
Primary nitrogen dioxide (NO_2)[(b)]	5.8	7.3
Benzene	7.3E-02	1.1E-01
Toluene	2.6E-02	4.1E-02
Xylenes	1.8E-02	2.8E-02
1,3-Butadiene	3.7E-03	5.7E-03
Formaldehyde	7.4E-03	1.1E-02
Acetaldehyde	2.4E-03	3.7E-03
Acrolein	7.4E-04	1.1E-03
Benzo(a)pyrene	2.4E-05	3.7E-05
Benz(a)anthracene	5.8E-05	9.0E-05
Chrysene	1.4E-04	2.2E-04
Benzo(b)fluoranthene	1.0E-04	1.6E-04
Benzo(k)fluoranthene	2.0E-05	3.2E-05
Dibenz(a,h)anthracene	3.2E-05	5.0E-05
Indeno(1,2,3-cd)pyrene	3.9E-05	6.0E-05
Naphthalene	1.2E-02	1.9E-02
Propylene	2.6E-01	4.1E-01
Fluoride	4.8E-03	4.8E-03
Manganese	7.5E-04	7.5E-04
Copper	2.6E-03	2.6E-03
Chloroform	2.6E-04	2.6E-04
Bromodichloromethane	2.6E-04	2.6E-04
Bromoform	6.9E-03	6.9E-03

(a) DEEP is considered filterable (front-half) particulate emissions.

(b) NO_2 is assumed to be equal to 10 percent of the total NO_x emitted.

(c) Pollutants above WAC 173-460-150 *de minimis* levels.

ATTACHMENT 3

Notice of Construction Application Form ECY 070-410

Notice of Construction Application

A notice of construction permit is required before installing a new source of air pollution or modifying an existing source of air pollution. This application applies to facilities in Ecology's jurisdiction. Submit this application for review of your project. For general information about completing the application, refer to Ecology Forms ECY 070-410a-g, "Instructions for Ecology's Notice of Construction Application."

Ecology offers up to 2 hours of free pre-application help. We encourage you to schedule a pre-application meeting with the contact person specified for the location of your proposal (see below). For more help than the initial 2 free hours, submit Part 1 of the application and the application fee. You may schedule a meeting with us at any point in the process.

Completing the application, enclose it with a check for the initial fee and mail to:

WA Department of Ecology
Cashiering Unit
P.O. Box 47611
Olympia, WA 98504-7611

For Fiscal Office Use Only:
001-NSR-216-0299-000404

Check the box for the location of your proposal. For help, call the contact listed below.		
	Ecology Permitting Office	**Contact**
☐ **CRO**	**Chelan, Douglas, Kittitas, Klickitat, or Okanogan County** Ecology Central Regional Office – Air Quality Program	Lynnette Haller (509) 457-7126 lynnette.haller@ecy.wa.gov
☒ **ERO**	**Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Stevens, Walla Walla, or Whitman County** Ecology Eastern Regional Office – Air Quality Program	Jolaine Johnson (509) 329-3452 jolaine.johnson@ecy.wa.gov
☐ **NWRO**	**San Juan County** Ecology Northwest Regional Office – Air Quality Program	Dave Adler (425) 649-7267 david.adler@ecy.wa.gov
☐ **IND**	**Kraft and Sulfite Paper Mills and Aluminum Smelters** Ecology Industrial Section – Waste 2 Resources Program Permit manager: _____	James DeMay (360) 407-6868 james.demay@ecy.wa.gov
☐ **NWP**	**U.S. Department of Energy Hanford Reservation** Ecology Nuclear Waste Program	Phil Gent (509) 372-7983 phil.gent@ecy.wa.gov

To request ADA accommodation, call (360) 407-6800, 711 (relay service), or 877-833-6341 (TTY).

DEPARTMENT OF ECOLOGY State of Washington

Notice of Construction Application

Check the box for the fee that applies to your application.

New project or equipment

☐	**$1,500: Basic project** initial fee covers up to 16 hours of review
☐	**$10,000: Complex project** initial fee covers up to 106 hours of review

Change to an existing permit or equipment

☒	**$200: Administrative or simple change** initial fee covers up to 3 hours of review Ecology may determine your change is complex during completeness review of your application. If your project is complex, you must pay the additional $675 before we will continue working on your application.
☐	**$875: Complex change** initial fee covers up to 10 hours of review
☐	**$350** flat fee: **Replace or alter control technology equipment** (WAC 173-400-114) Ecology will contact you if we determine your change belongs in another fee category. You must pay the fee associated with that category before we will continue working on your application.

Read each statement, then check the box next to it to acknowledge that you agree.

☒	The initial fee you submitted may not cover the cost of processing your application. Ecology will track the number of hours spent on your project. If the number of hours Ecology spends exceeds the hours included in your initial fee, Ecology will charge you $95 per hour for the extra time.
☒	You must include all information in this application. Ecology may not process your application if it does not include all the information requested.
☒	Submittal of this application allows Ecology staff to inspect your facility.

DEPARTMENT OF ECOLOGY
State of Washington

Notice of Construction Application
Part 1: General Information

I. Project, Facility, and Company Information

1. Project Name MWH Data Center Approval Order Amendment Request
2. Facility Name MWH Data Center
3. Facility Street Address 1515 Port Industrial Parkway, Quincy, WA 98848
4. Facility Legal Description PARCEL 'C' OXFORD SP 28-8
5. Company Legal Name (if different than Facility Name) Microsoft Corporation
6. Company Mailing Address (street, city, state, zip) 1515 Port Industrial Parkway, Quincy, WA 98848

II. Contact Information and Certification

1. Facility Contact Name (who will be on-site) Jaymes Kirkham	
2. Facility Contact Mailing Address (if different than Company Mailing Address) 1515 Port Industrial Parkway, Quincy, WA 98848	
3. Facility Contact Phone Number 509-237-3633	4. Facility Contact Email jayki@microsoft.com
5. Billing Contact Name (who should receive billing information) Mark Brunner, Landau Associates, Inc.	
6. Billing Contact Mailing Address (if different than Company Mailing Address) 130 2nd Avenue S, Edmonds, WA, 98020	
7. Billing Contact Phone Number (206) 631-8695	8. Billing Contact Email mbrunner@landauinc.com
9. Consultant Name (optional – if 3rd party hired to complete application) Mark Brunner	
10. Consultant Organization/Company Landau Associates Inc.	
11. Consultant Mailing Address (street, city, state, zip) 130 2nd Avenue S, Edmonds, WA, 98020	
12. Consultant Phone Number (206) 631-8695	13.Consultant Email mbrunner@landauinc.com
14. Responsible Official Name and Title (person responsible for project policy or decision-making) Jaymes Kirkham	
15. Responsible Official Mailing Address 1515 Port Industrial Parkway, Quincy, WA 98848	
16. Responsible Official Phone 509-237-3633	17. Responsible Official Email jayki@microsoft.com
18. Responsible Official Certification and Signature I certify that the information on this application is accurate and complete. Signature _____ Date 5/8/19	

Notice of Construction Application
Part 2: Technical Information

The Technical Information may be sent with this application to the Ecology Cashiering Unit, or may be sent directly to the appropriate Ecology office along with a copy of this application.

For all sections, check the box next to each item as you complete it.

III. Project Description

Attach the following to your application:

- ☐ Description of your proposed project
- ☐ Projected construction start and completion dates
- ☐ Operating schedule and production rates
- ☐ List of all major process equipment with manufacturer and maximum rated capacity
- ☐ Process flow diagram with all emission points identified
- ☐ Plan view site map
- ☐ Manufacturer specification sheets for major process equipment components
- ☐ Manufacturer specification sheets for pollution control equipment
- ☐ Fuel specifications, including type, consumption (per hour and per year), and percent sulfur

IV. State Environmental Policy Act (SEPA) Compliance

Check the appropriate box below.

☐ SEPA review is complete.
Include a copy of the final SEPA checklist and SEPA determination (e.g., DNS, MDNS, EIS) with your application.

☒ SEPA review has not been conducted.

- ☐ If SEPA review will be conducted by another agency, list the agency. You must provide a copy of the final SEPA checklist and SEPA determination before Ecology will issue your permit.

  Agency Reviewing SEPA:

  _____

- ☐ If SEPA review will be conducted by Ecology, fill out a SEPA checklist and submit it with your application. You can find a SEPA checklist online at http://www.ecy.wa.gov/programs/sea/sepa/forms.htm.

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V. Emissions Estimations of Criteria Pollutants

Does your project generate air pollutant emissions? ☐ Yes ☒ No

If yes, provide the following information about your air pollutant emissions:

☐ Air pollutants emitted, such as carbon monoxide (CO_2), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), and volatile organic compounds (VOC), particulate matter ($PM_{2.5}$, PM_{10}, TSP), sulfur dioxide (SO_2)

☐ Potential emissions of criteria air pollutants in tons per hour, tons per day, and tons per year (include calculations)

☐ Fugitive air pollutant emissions – pollutant and quantity

VI. Emissions Estimations of Toxic Air Pollutants

Does your project generate toxic air pollutant emissions? ☐ Yes ☒ No

If yes, provide the following information about your toxic air pollutant emissions:

☐ Toxic air pollutants emitted (specified in WAC 173-460-150[1])

☐ Potential emissions of toxic air pollutants in pounds per hour, pounds per day, and pounds per year (include calculations)

☐ Fugitive toxic air pollutant emissions - pollutant and quantity

VII. Emission Standard Compliance

Does your project comply with all applicable standards identified? ☒ Yes ☐ No

☐ Provide a list of all applicable new source performance standards, national emission standards for hazardous air pollutants, national emission standards for hazardous air pollutants for source categories, and emission standards adopted under the Washington Clean Air Act, Chapter 70.94 RCW.

VIII. Best Available Control Technology

☐ Provide a complete evaluation of Best Available Control Technology (BACT) for your proposal.

[1] http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460-150

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IX. Ambient Air Impacts Analyses

Does your project cause or contribute to a violation of any ambient air quality standard or acceptable source impact level? ☐ Yes ☒ No

Provide the following:

☐ Ambient air impacts analyses for criteria air pollutants (including fugitive emissions)

☐ Ambient air impacts analyses for toxic air pollutants (including fugitive emissions)

☐ Discharge point data for each point included in ambient air impacts analyses (include only if modeling is required)

- ☐ Exhaust height
- ☐ Exhaust inside dimensions (diameter or length and width)
- ☐ Exhaust gas velocity or volumetric flow rate
- ☐ Exhaust gas exit temperature
- ☐ Volumetric flow rate
- ☐ Discharge description (i.e., vertically or horizontally) and if there are any obstructions (e.g., raincap)
- ☐ Emission unit(s) discharging from the point
- ☐ Distance from the stack to the nearest property line
- ☐ Emission unit building height, width, and length
- ☐ Height of tallest building on-site or in the vicinity, and the nearest distance of that building to the exhaust
- ☐ Facility location (urban or rural)