



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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May 13, 2015

Mrs. Karen Wood
Air Quality Program
Eastern Regional Office
4601 N. Monroe Street
Spokane, WA 99205-1295

Re: Second Tier Petition by Microsoft Corporation Regarding TAP Emissions Increases from Permit Revisions Requested for the Oxford Data Center in Quincy, WA

Dear Mrs. Wood:

The Washington State Department of Ecology's Air Quality Program (Ecology) has completed a review of health risks from diesel engine exhaust particulate (DEEP) emissions from the Microsoft Corporation (Microsoft) Oxford Data Center (Oxford) in Quincy, WA. Microsoft had previously obtained a permit to install and operate:

- Thirty-two (32) cooling towers
- Thirty-two (32) emergency generators rated at 2,500 kilowatt (kW) electrical output
- Four (4) emergency generators rated at 2,000 kW
- One (1) emergency generators rated at 750 kW

In December 2014, Microsoft submitted an application to revise the permit to allow generators to operate over a wider range of operating loads. This wider range results in an increase in the amount of air pollution the facility could emit. Ecology required Microsoft to revise the health impact assessment to evaluate the health risks from exposure to diesel engine exhaust particles.

The revised diesel particle emissions resulted in an increase lifetime cancer risk from the previous estimate of four in one million to a new estimate of about six in one million. The maximum risk was estimated at a residential location north of Oxford. This risk was quantified assuming that both filterable and condensable particulate emitted from Oxford's engines constitutes DEEP. Typically, only filterable particles are considered to represent DEEP. This is because the health studies that form the basis for quantifying the health risk from diesel exposure used measurements of respirable particulate from "fresh" diesel exhaust and elemental carbon as a surrogate for diesel emissions. Therefore, the increased risk reported in the HIA represents a conservatively high estimate. Based on Oxford's filterable emissions only, an additional risk of about 1.4 in one million at that location is a more realistic estimate.

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Ecology's review of noncancer hazards indicates that Oxford's emissions by themselves are not likely to result in adverse noncancer health effects. Because the increase in cancer risk attributable to the new data center alone is less than the maximum risk allowed by a second tier review of 10 in one million, and the noncancer hazard is low, the project is approvable under WAC 173-460-090.

As part of the community-wide approach in Quincy, Ecology also considered the cumulative impacts of DEEP emissions in the area. Emissions from Oxford and other local sources of DEEP could result in lifetime increased cancer risk of up to approximately 46 in one million (46×10^{-6}) at a location to the southeast of Oxford and just south of State Route 28. The cumulative noncancer hazard quotient at this location is much lower than unity (one) meaning that noncancer adverse health effects are unlikely.

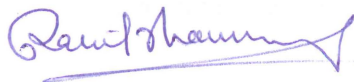
Ecology recommends approval of the proposed project because project-related health risks are permissible under WAC 173-460-090 and the cumulative risk from DEEP emissions in Quincy is less than the cumulative maximum risk threshold established by Ecology for permitting data centers in Quincy (100 per million or 100×10^{-6}).

Although not required as part of a second tier review, Ecology also evaluated short-term impacts of nitrogen dioxide (NO_2) emitted from numerous emergency engines in the event of a simultaneous power outage affecting all Quincy data centers. This evaluation indicated that elevated NO_2 levels could occur, but the combined probability of an outage coinciding with unfavorable meteorology is very low.

This project has satisfied all requirements of a second tier analysis. Ecology recommends that you incorporate our findings as part of your ambient air impacts analysis and you may begin the public comment period when you are ready to do so. Ecology also recommends that outages at Quincy data centers be tracked and re-evaluated periodically to determine if the assumptions used in the outage scenario analysis remain plausible.

If you would like to discuss this project further, please contact Gary Palcisko at (360) 407-7338 or gary.palcisko@ecy.wa.gov.

Sincerely,



Ranil Dhammapala, Ph.D.
Acting Science and Engineering Section Manager
Air Quality Program

Enclosure

cc: Greg Flibbert, Ecology
John Radick, Microsoft
Jim Wilder, Landau Associates