STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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June 13, 2014

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 from the Proposed Oxford Data Center in Quincy, WA**

Dear Ms. Wood:

The Washington State Department of Ecology's Air Quality Program (Ecology) has completed their review of health risks from diesel engine exhaust particulate (DEEP) emissions from the proposed Microsoft Corporation (Microsoft) Oxford Data Center (Oxford) in Quincy, WA.

Ecology's review indicates that the proposed project could result in an increased cancer risk of up to **four in one million** ($4 \times 10^{-6}$) at the maximally impacted residential location, which occurs to the north of Oxford. This risk was quantified assuming that both filterable and condensable particulate emitted from Oxford's engines constitutes DEEP. It is important to note that California's airborne toxics control measure for stationary compression engines only requires the filterable fraction to be quantified. 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 estimated by Landau represents a conservatively high estimate. A lower risk of about **one in one million** was estimated at the same location based on filterable emissions only.

Ecology's review of noncancer hazards indicates that the hazard quotient attributable to Oxford's DEEP emissions is much lower than unity (one) meaning that chronic noncancer adverse health effects are unlikely. 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 acceptable, 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 45 in one million (45 x $10^{-6}$) 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 x $10^{-6}$).

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,

Jeff Johnston, Ph.D.
Science and Engineering Section Manager
Air Quality Program

jj/te

Enclosure

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