

Microsoft Columbia Data Center Expansion Project

Between 2006 and 2008, Microsoft, Yahoo! and Intuit built three data centers in Quincy, Washington. Data centers house the servers that provide e-mail, manage instant messages, and run applications for our computers.

Microsoft needs an Ecology permit to install more diesel-powered generators. The data centers have 46 diesel-powered backup generators for use during power failures. Each generator produces about two megawatts of electricity. The generators also produce diesel engine exhaust particles, a toxic air pollutant. Health studies show this pollutant can cause serious health problems.

Q: Where is the Microsoft Columbia Data Center located?

A: Microsoft's Columbia Data Center operates on a 70-acre site on the outskirts of Quincy, Washington.

Q: What is a Data Center?

A: Data centers house the servers that provide e-mail, manage instant messages, and run applications for our computers.

Q: Why did Microsoft need to apply to the Department of Ecology for an Air Quality Permit?

A: A "notice of construction" (NOC) is required when industries upgrade or modify their equipment and there will be an increase in emissions. Its purpose is to protect air quality. Microsoft applied to Ecology for an NOC because they wanted to expand operations in Quincy and add more backup generator engines fueled by diesel.

Q: What do generators do for data centers? Why isn't electricity enough?

A: Back-up generators are just that: back-up. Quincy has some of the most reliable power in the country, according to the

WHY IT MATTERS

Any kind of diesel, when it is combusted or burned in an engine, releases particles and gases into the air.

Diesel engine exhaust contains soot (also known as particulate matter, or PM), nitrogen oxides (NOx), and sulfur. When breathed, these tiny particles can easily make their way deep into a person's lungs. Once in a person's body, diesel engine exhaust has been known to create and/or aggravate a variety of health problems, including heart disease, asthma and lung cancer.

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<http://www.ecy.wa.gov/pubs/1002032.pdf>

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Grant County Public Utilities District (PUD). But Quincy is still known to have occasional, infrequent power outages. Computer customers want reliable, 24/7 access to the internet and data online. These back-up generators ensure that even when the electrical power is out, there is still power to supply the data center.

Q: Why does Microsoft need more generators?

A: Microsoft is expanding operations at their site in Quincy. Microsoft requested to put in 13 additional diesel-powered backup generators to support the expansion.

Q: How many backup diesel generators does Microsoft currently have?

A: Microsoft currently has 24 generators. With the 13 new ones, they will have 37 backup diesel generators in total.

Q: What kind of pollution do diesel engines put into the air?

A: Any kind of diesel, when it is combusted or burned in an engine, releases particles and gases into the air. These particles and gases come from semi-trucks, pickup trucks, cars, combines, school buses and generators – anything that burns diesel. (Gas engines also release particles into the air, but diesel particles are especially harmful.)

Diesel engine exhaust contains soot (also known as particulate matter, or PM), nitrogen oxides (NOx), and sulfur. When breathed, these tiny particles can easily make their way deep into a person's lungs. Once in a person's body, diesel engine exhaust has been known to create and/or worsen a variety of health problems, including heart disease, asthma and lung cancer.

Q: Is there a risk to the community with this project?

A: Yes. Any new source of air pollution poses a risk to the people in a community. But as part of their permit application, Microsoft did a risk assessment, which is a tool to estimate increased health risks. Ecology reviewed the risk assessment, which showed there is actually less risk after Microsoft's expansion than before.

Q: How can there be less risk when you are adding more generators? That doesn't make sense.

A: Although Microsoft is adding 13 new generators to the existing 24, the *total* number of hours Microsoft is permitted to run those generators is going down. After operating for the last couple of years, Microsoft found that electricity supplied by Grant County PUD is so reliable that they do not need all of the hours we allowed in their initial permit. So, they chose to reduce their

number of permitted hours by more than half. By reducing their permitted hours, the long-term health risks associated with expansion went down by about one-half.

Q: Will the generators only run during power outages?

A: No. Each generator will also need to be run at least once each month for maintenance and testing. It takes anywhere from one half hour to a full hour to test each generator to make sure it is operating correctly. But running the generators is very expensive, so Microsoft will try to keep run times as short as possible.

Q: Mountain View Elementary School is located next to Microsoft's property. Why do the generators have to run during school hours?

A: In general, the warmer the air is in the atmosphere, the more it will move and carry gas and exhaust away from a place. This process is called air dispersion. During daytime hours, especially from 10am to 2pm, air dispersion is best. If we required Microsoft to perform engine maintenance and testing during evening hours, the air would be stagnant, or unmoving, due to the colder upper atmosphere at that time of day. The stagnant air would keep the diesel engine exhaust down low to the ground, where it would be more harmful to public health.

Also, we are requiring that no more than three generators can be tested at the same time. Because of the number of generators that need to be tested, this means testing needs to be spread out throughout the month and cannot be limited to weekends. Microsoft will coordinate testing schedules with the other data centers in Quincy to keep emissions as low as possible.

Q: Will Microsoft work with the Quincy School District so that the schools know when the generators are being tested?

A: Yes. As a result of our public hearing and comment process for the permit, we added a condition to the permit. It requires Microsoft to communicate with the Quincy School District to make sure they know the testing and maintenance schedules for the generators.

Q: Why doesn't Microsoft have to put additional technology on the generators to lower the pollution amount?

A: The new diesel engines that Microsoft is installing have an emission rate that meets federal standards. The federal standards are set to protect human health. Microsoft's cutback in use of the backup generators will actually decrease the health risks from diesel exhaust. Adding more filters or control technology would not be any more effective in reducing emissions.

Q: So with this new permit, Microsoft's emissions will go down. But what about when other companies build new data centers?

A: Quincy has become a desirable place for data centers to locate, thanks to the reliable power and the state legislature, which temporarily exempted data centers locating in Quincy from state sales tax. Between 2006 and 2008, Microsoft, Yahoo! and Intuit all built data centers in Quincy, and more are expected in the next year.

We are not able to restrict a company from building. And the law requires us to provide an Air Quality permit if they meet our approval criteria. However, one way to limit future sources of air pollution in Quincy is to address the issue with local government. Local government is responsible for zoning, including designating the boundaries for Urban Growth Areas. Zoning has a major impact on future industrial sources and locations in the city of Quincy.