



Hillsboro Air & Water

Hillsboro, Oregon's Industrial Polluters and Their Effects on Neighborhoods

Hillsboro is home to a vast computer chip manufacturing industrial center which causes dangerous air and water chemical pollution. Community involvement is required for adequate government regulation as well as for voluntary measures from industry, such as adding extra filters to their fabrication stacks.

The last time the EPA calculated cancer risk from air pollution for Hillsboro was in December 2015 in the *National Air Toxics Assessment* using 2011 data. That nationwide study calculated that people in Hillsboro will experience 25-50 cancers per million residents due to chemical air pollution. This is roughly half as bad as downtown Portland. This study included air pollution from all sources except diesel soot from old, outdated, industrial trucks that still operate here. The Oregon Department of Environmental Quality *Portland Air Toxics Solutions* study reported diesel soot levels in Hillsboro were as bad as downtown Portland. State of California calculations on cancer risk from diesel soot predict people in Hillsboro will additionally experience more than 100 cancers per million residents from diesel soot alone.

According to *The Burden of Asthma* in Oregon, a 2013 government report by Oregon Health Authority, Oregon is among the six states with the highest percentage of adults with asthma.

In addition to exposure to unacceptably high amounts of diesel emissions, Hillsboro residents experience unusual air and water pollution problems from the computer chip industry.

Sometimes you can smell when there is danger from a chip plant and at other times the chemicals are severe but have no odor. The Hillsboro chip industry includes Intel's Ronler Acres, Hawthorn and Jones Farms facilities, Oorvo-Triquent, Jireh, Lattice, Sumitomo, Maxim Integrated, and Linde Gas supplier.

Chip manufacturing is a polluting process. Cleaning chips involves the use of Hydrofluoric acid, a chemical strong enough to dissolve gold, as well as other harsh substances. In 2014, Intel

was required to report to the State Fire Marshal and the Environmental Protection Agency stating that they are an "Extremely Hazardous Facility" because of the amount and kinds of chemicals stored and used.

Intel is getting bigger. Washington County Commissioners led by Chair Andy Duyck and Mayor Jerry

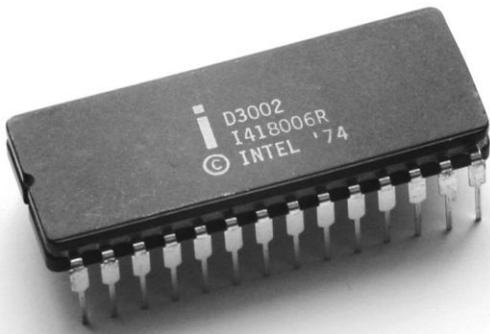
Willie are promoting Silicon Valley in Hillsboro. Intel's Ronler Acres, when fully built, will be at least an \$8 billion facility. To support Intel, supplier groups locate nearby. These satellite operations also produce hazardous emissions.

This publication explains pollution problems associated with living near computer chip factories and how residents can work together to win stronger regulation of these industries. Intel is a big money maker for Oregon and this can sway government to look the other way in regard to dangerous pollution. The public must be involved to make sure regulation of this industry fairly considers public health.



Intel started in Silicon Valley in California; they spilled enough poisonous chemicals that the site became a Federal superfund site. New Mexico's history with Intel's pollution is described in Barbara Rockwell's book *Boiling Frogs, Intel vs. the Village*. The incidence of Lou Gherig's disease is twenty-five times higher than average in the vicinity of the New Mexico Intel plant. The incidence of pulmonary fibrosis near that plant is nine times higher than average.

The same chemicals spilled in California were also spilled at the Aloha Intel FAB plant. It was declared in 1982 by DEQ to be an Environmental Cleanup Site because unknown quantities of



xylene, butyl acetate, and 1,1,1-TCA and possibly other toxic compounds were released from an underground solvent storage tank in 1982. In 1997, subsequent investigations found chlorinated solvents (HVOCs) in both soil and groundwater. The HVOCs are predominantly composed of toxic, chlorinated solvents, but breakdown products like the carcinogen vinyl chloride were also present at the site. A wide range of chlorinated solvents are also present in soil and groundwater.

DEQ also listed Intel's Jones Farms semi-conductor facility as a suspected or confirmed releaser of Trichloroethylene to groundwater. Three other Hillsboro companies had spills of Trichloroethylene, Tetrachloroethylene, Vinyl Chloride, 1,2-CIS-Dichloroethylene, Arsenic, 2,3,4,6-Tetrachlorophenol, Pentachlorophenol, Xylenes, Toluene, and the carcinogen Benzene.

Intel's Air pollution Permit

41 tons of particulate matter annually

Intel's stacks release particulates of various sizes, including 41 tons of regular size, 35 tons of coarse size, and 31 tons of small size. These particulates combine into a dust, known as "Intel snow" to Hillsboro workers and neighbors for its tendency to coat everything in the vicinity of Intel's fabrication plant. The EPA warns that particulates can aggravate asthma and cause heart attacks.

197 tons of nitrogen oxides annually

(NO₂). NO₂ is associated with increased breathing difficulties in healthy people; it causes exacerbated symptoms in those with respiratory diseases such as asthma. Children and the elderly are more susceptible to breathing difficulty following nitrogen oxide exposure.

9 tons of fluorides annually

Exposure to gaseous hydrogen fluoride can cause eye burns, pulmonary edema, which is fluid in the lungs, lung irritation, and cardiac arrest. Fluorides are notorious across the West for killing cattle and are toxic when ingested or inhaled.

819,000 tons of CO₂ annually

Greenhouse equivalent gases trap heat in the atmosphere as well as contribute to smog and exacerbate respiratory conditions. The largest four producers of greenhouse gases in Oregon are all grid power plants; Intel will soon become 5th largest.

Their DEQ permit annually allows:

178 tons of Volatile Organic Compounds

39 tons of sulfur dioxide, and

24 tons of Hazardous Air Pollutants

such as 4 tons of bromoform, and 9 tons of hexane, and 2.1 tons of hydrogen cyanide.

Another problem besides contamination is Intel's impact on sewage and rivers. The amount of water that Intel demands in their manufacturing process, millions of gallons a day, is as much as an average city uses in a day. Intel and political leaders have proposed raising Haag Lake Reservoir 12 feet primarily because the water is needed to cool the Tualatin River to meet Federal standards for water temperature for fish. They have also proposed building a six-foot diameter pipeline to take water from the Willamette River to be transported to Hillsboro. Public oversight is required to insure that the Sewage Agency has the technological capability and expertise to monitor Intel's pretreated wastewater discharges. The Agency must properly treat the water before it is discharged into the Tualatin River.

Until 2013 Intel successfully lobbied to not be deemed a "significant source of air pollution" by DEQ. This avoided the requirement of a Federal Title V permit for Intel to operate. A Federal Title V requires "major source reporting" to the EPA.

Comments from Area Residents

"Intel is my neighbor. They should use some of their \$11 billion in profits to keep their emissions at a minimal level. Besides, we give them a ton of tax breaks. We should not pay them for the privilege of making us sick through their operations."

~Anne Riley, Hillsboro resident

"I live near the plant and I am worried it will affect the health, not only of adults, but especially young children. There are many problems with the air quality in Hillsboro all ready."

~ Sondra Huber, Hillsboro resident

"I am a pediatrician and am very concerned of the poisons these plants will put into our communities."

~ Jim Lubischer, Hillsboro resident

In September of 2013 Intel was required to renew its permit. Eighteen area residents made official public hearing testimony against Intel's permit application. Intel's attorney convinced DEQ to postpone the permitting process so Intel could wait and see if the US Supreme court case on greenhouse gasses would weaken environmental rules - which the Supreme Court actually did - then Intel applied for a permit.

Investigations resulting from the 2013 Hearing controversy found that Intel had broken three major DEQ rules:

1. failure to notify DEQ of fluoride emissions
2. failure to obtain a permit to emit fluorides, and
3. constructing of Fab 19 and Fab 20

without first obtaining the proper construction permit. Environmental Quality Commission (EQC) hires and fires the Director of Oregon DEQ. EQC is the rule maker and has

attorneys from the Department of Justice to adjudicate lawsuits against DEQ. EQC fined Intel \$143,000.

In 2014, three local environmental groups in the Hillsboro vicinity got involved and worked to sue Intel over illegal fluoride emissions. Intel settled out of court on December 31st, 2015 but that settlement agreement never impacted the amount of tons of toxic emissions that Intel asked DEQ to be allowed to emit. DEQ issued an air permit without any modifications to Intel's application.

Intel makes billions in profit and they can afford the best available pollution control technology. Intel needs to reduce its water usage. Intel needs to buy Open-Path Fourier Transform Infrared Spectrometers and have them installed at their fence line so that people who live nearby can be

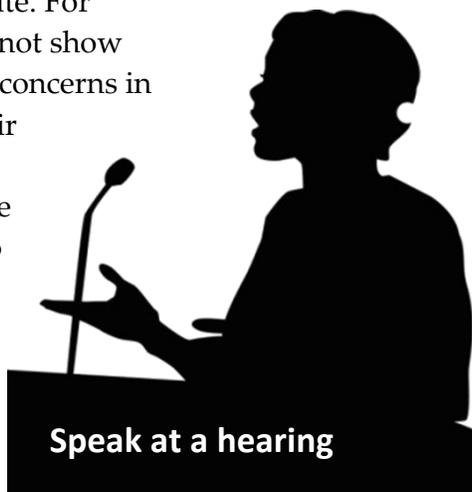
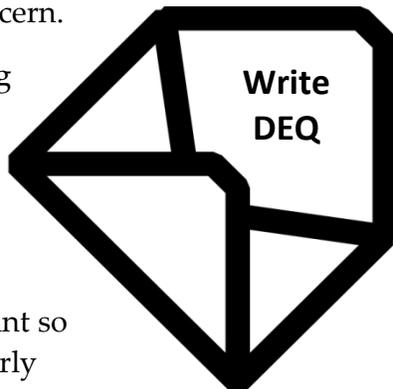
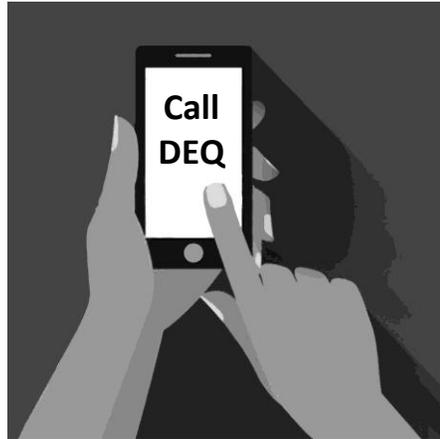


assured that the air they breathe is safe. These spectrometers need to be monitored and analyzed by competent independent agencies and neighbors throughout Hillsboro.

We all use computers and like the skilled jobs offered by the semiconductor industry in Hillsboro. Intel and the other chip industries here should not be in charge of their own testing. Neighbors need to be involved in the permitting and rule-making process.

Currently DEQ gives advance notice when they come to inspect Intel's emissions. At Intel's New Mexico facility, the US Environmental Protection Agency arrived unannounced and found one area of Noncompliance and eight Areas of Concern.

DEQ will be conducting Public Hearings because Intel still needs to get a valid Oregon Operating Permit. Citizen involvement is important so neighbors views are fairly considered. Hillsboro Air & Water posts the details on this permit on our website. For those of us who cannot show up it is best to send concerns in writing to DEQ, their address is on our website. The website also provides a map of air polluters in Hillsboro so you can inventory air pollution where you live or work.



What You Can Do:

Go to our website at HillsboroAirWater.org
The What You Can Do section explains how to inventory your neighborhood to see what polluters and pollutants affect you. Also you can read about how to get involved in hearings,

Oregon Department of Environmental Quality rule making, and the permit process for these industries. It is important to make complaints when you smell something. You are welcome to volunteer with Hillsboro Air & Water. People help with research, monitoring, and outreach. If you have more questions or want to get more involved email

Greg@HillsboroAirWater.org

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