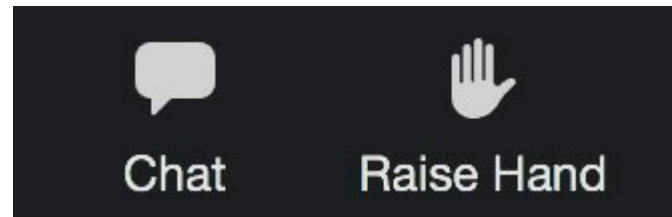


Intel Air Permit Modification Information Meeting

Oct. 11, 2023
Zoom Meeting

Asking a question

- You should see the following along the bottom of your screen.



- To ask a question: type it into the chat or raise your hand and the host will un-mute you. (*9 if you're on the phone)
- Use chat if you're having technical difficulties.

Purpose of tonight's meeting

- Provide information about Intel's Major New Source Review construction permit application
- Answer questions
- Learn what you would like DEQ to consider during the permit drafting process

Topics covered tonight

This permit application has 3 parts:

1. Cleaner Air Oregon Emission Inventory
(for purpose of this proposed permit modification)
2. Major New Source Review Construction permit
 - a. Significant production increase, with increased emissions
 - b. Best Available Control Technology analysis for multiple emissions sources
3. Air Quality Analysis/Modeling

Intel locations



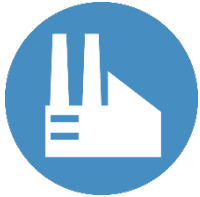
Cleaner Air Oregon

J.R. Giska, Cleaner Air Oregon Program Engineer



State of Oregon
Department of Environmental Quality

How Cleaner Air Oregon works



Report air toxics

Companies to report use of over 600 pollutants to state regulators



Assess risk

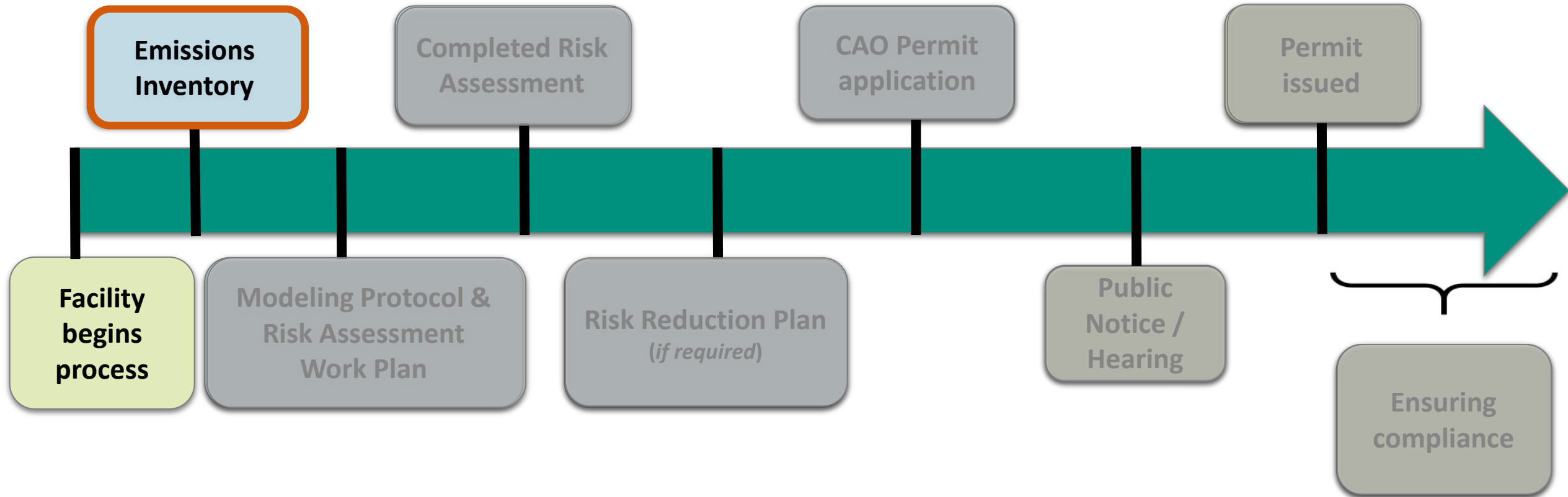
Facilities calculate potential health risks to people who live, work, and go to school nearby



Regulate to reduce risk

Companies would have to act if the levels of air toxics they emit exceed health risk action levels

Cleaner Air Oregon process



CAO emissions inventory

- Which activities emit Toxic Air Contaminants?
- What TACs are being emitted?
- How much of each TAC is being emitted?
- Where are emissions coming from?
- Are there controls? How well do they work?



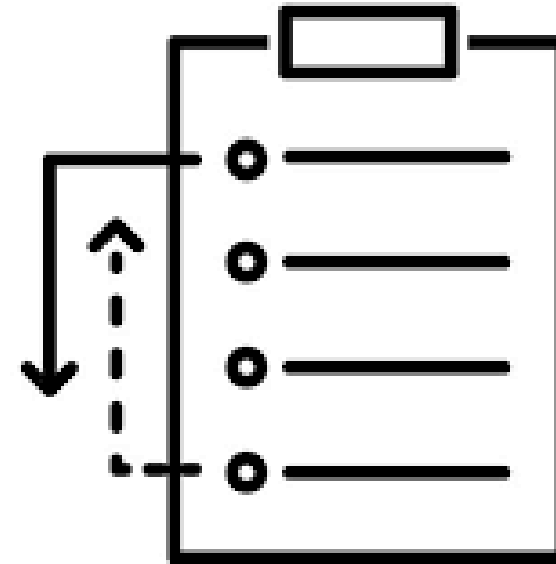
CAO - NSR permitting requirements

- Applies to Federal and State Type A and B NSR
- Source required to submit Emissions Inventory
- Inventory must be approved for application to be complete



CAO prioritization

- Emissions and demographic information
- Three Groups established
 - Groups 1 and 2 each have 20 facilities
- Intel is in Group #2
- Inventory met criteria to be approved for modification
- Intel will be 'called-in' according to existing schedule



Air Quality Permit

George Davis, Air Quality Permit Writer



State of Oregon
Department of Environmental Quality

What is the air quality permit for?

- New/modified air quality permit is required to approve Intel's proposed expansion and emissions increases
 - Permit to construct and operate
- Will replace Intel's current air quality permit.

New Source Review

- Construction permit process called New Source Review
- Ensure National Ambient Air Quality Standards are not exceeded
- Minimize emissions by using Best Available Control Technology

New Source Review Requirements

- Identify proposed changes and emissions increases
- Propose BACT
 - Applies to criteria pollutants, greenhouse gases and fluorides
- Obtain offsets or allocations from Growth Allowances
- New Source Review does not apply to hazardous air pollutants
 - Intel is a minor source of HAP
 - Less than 10 ton/yr for individual HAP
 - Less than 25 ton/yr for combined HAP

Requested Emission Limits

Pollutant	Requested Limit (ton/year)	Current Limit (ton/yr)	New Source Review?
Total Particulate Matter (PM)	68	41	No
Coarse Particulate Matter (PM10)	62	35	Yes
Fine Particulate Matter (PM2.5)	60	31	Yes
Sulfur Dioxide (SO2)	36	39	No
Oxides of Nitrogen (NOx)	413	197	Yes
Carbon Monoxide (CO)	598	229	Yes
Volatile Organic Compounds (VOC)	351	178	Yes
Fluorides	12.2	6.4	No
Greenhouse Gases (GHG, CO2e basis)	1,722,804	819,000	Yes

Proposed Best Available Control Technology

- Chip Production Emissions
 - Acid gases and ammonia:
Scrubbers
 - Volatile Organic Compounds
 - Rotor Concentrator Thermal Oxidizers (type of pollution control)

Proposed BACT

- Emergency engines (generators and fire pumps)
 - Newer engines must meet modern standards (EPA Tier 2)
- Boilers must use low-NOx or ultra-low NOx burners
- BACT doesn't always require control devices
 - Proper design, proper operating practices

Offsets/Industrial Growth Allowance

- Offsets required - emissions reductions from other sources to “offset” emissions increases
- DEQ found room for emissions increases in Portland AQMA, created Growth Allowances
- Offsets can be met with allocations from Industrial Growth Allowances
- Intel Growth Allowance requests (tons/yr):
NOx: 216 CO: 369 VOC: 173

Air Quality Analysis

Phil Allen
Kristen Martin

Air Quality Modelers



State of Oregon
Department of Environmental Quality

Purpose

To assess the potential adverse health effects of emissions from the operation of the facility using:

- a. Emissions
- b. Air dispersion computer modeling
- c. Comparison of model results to health standards

What emissions does DEQ evaluate?

- 1) Toxic Air Contaminants (regulated by the Cleaner Air Oregon program). Already addressed by JR Giska
- 2) Criteria Pollutants (regulated by the EPA New Source Review program).
 - a. NO₂, SO₂, PM₁₀, PM_{2.5}, CO, and O₃
 - b. The standards (NAAQS) are based on health criteria

National standards for criteria pollutants

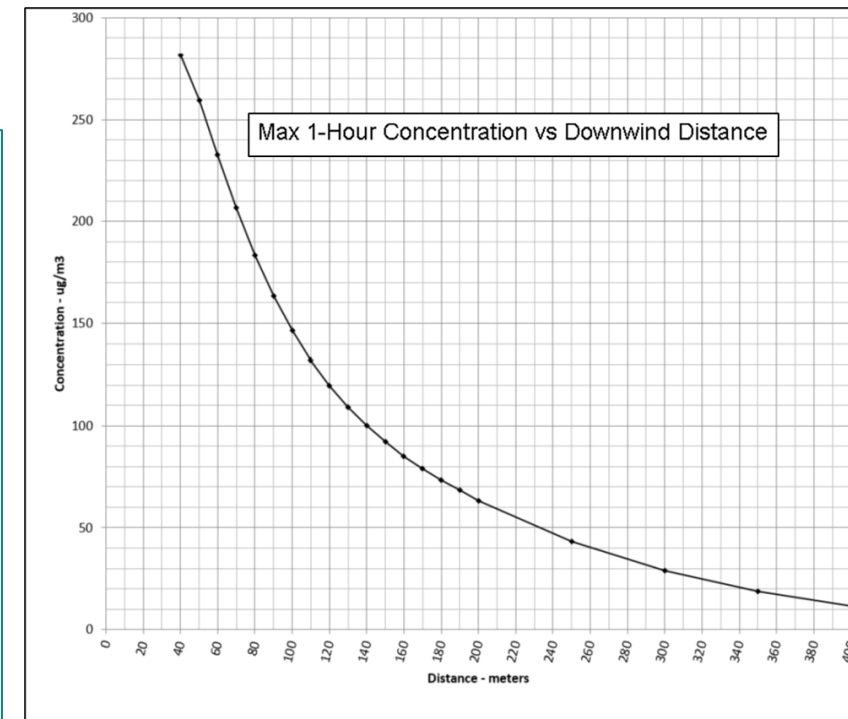
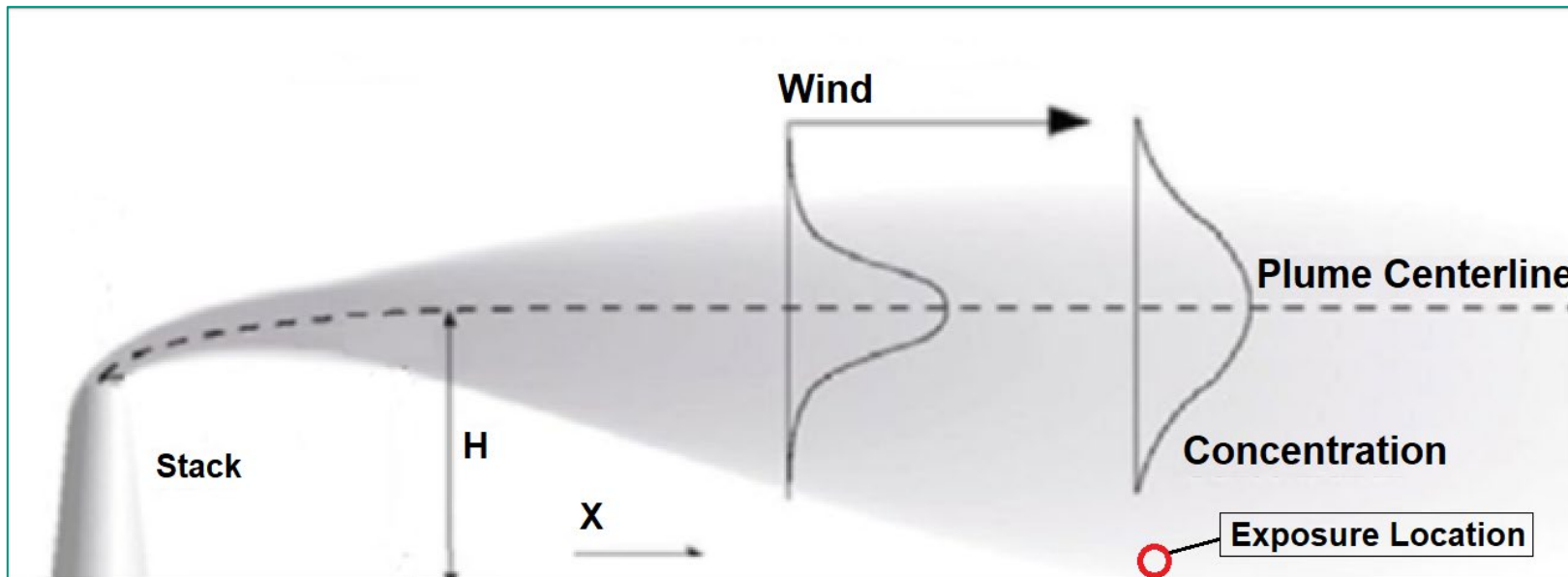
National Ambient Air Quality Standards			
Pollutant	Averaging Period	Concentration ug/m ³	Form
PM10	24-hour	150	Not to be exceeded > once/yr on avg over 3 yrs
PM2.5	Annual	12	Annual mean, averaged over 3 yrs
	24-hour	35	98%tile, averaged over 3 yrs
NO2	Annual	100	Annual mean
	1-hour	188	98%tile of annual daily maximum, averaged over 3 yrs
SO2	1-hour	196	99th %tile of 1-hr daily max, averaged over 3 years
CO	8-hour	10000	Not to be exceeded > once/yr
	1-hour	40000	Not to be exceeded > once/yr
O3	8-hour	138	H4H daily max 8-hr, averaged over 3 years

Modeling and Air Quality

How do we estimate downwind concentrations in ug/m³ from emissions in lbs/hr?

- **Concentrations** are used for comparison to the NAAQS
- A dispersion model such as AERMOD, developed and extensively tested by EPA, is used to calculate concentrations.
- AERMOD is the primary approved regulatory model for the New Source Review program.

Plume dispersion and concentration

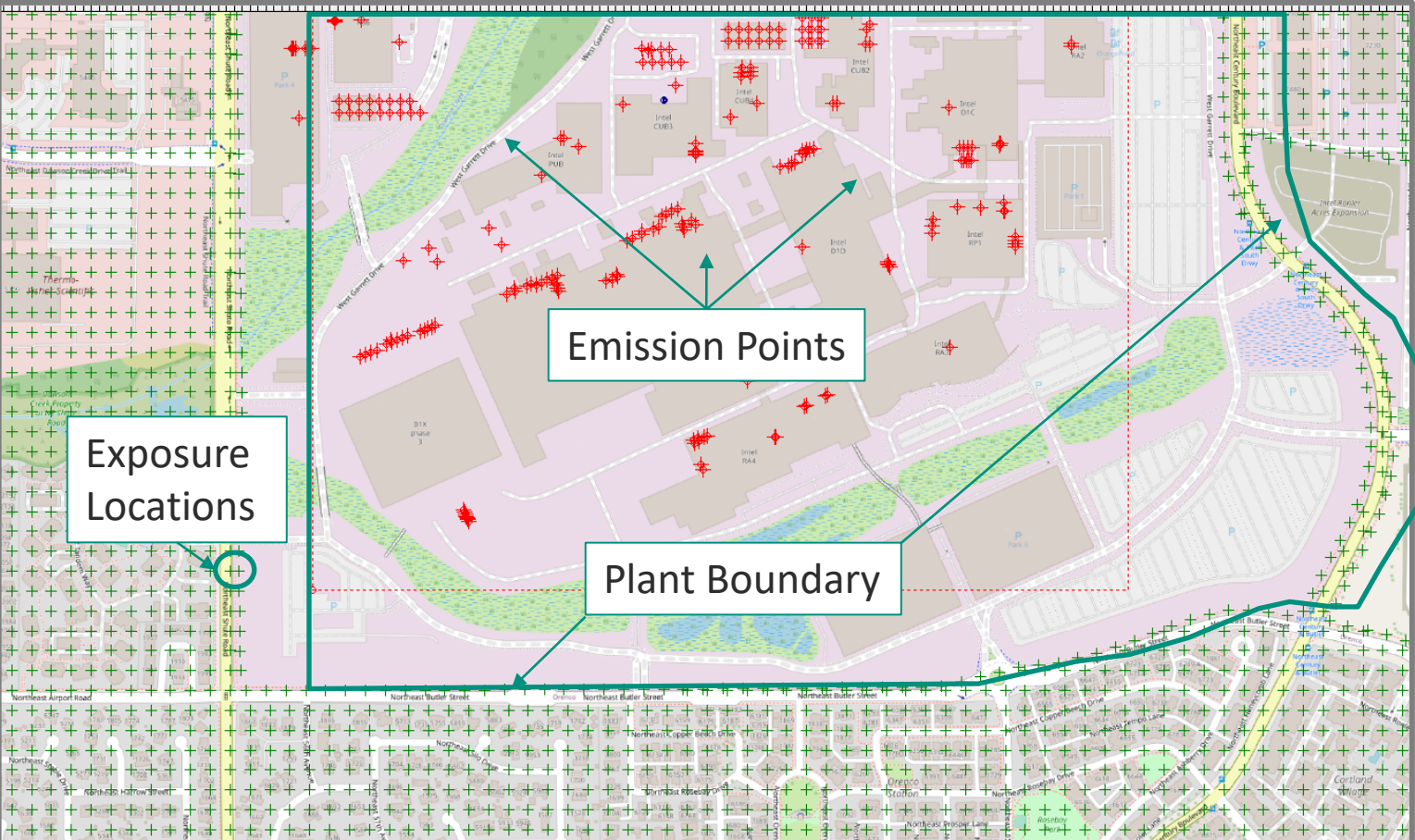
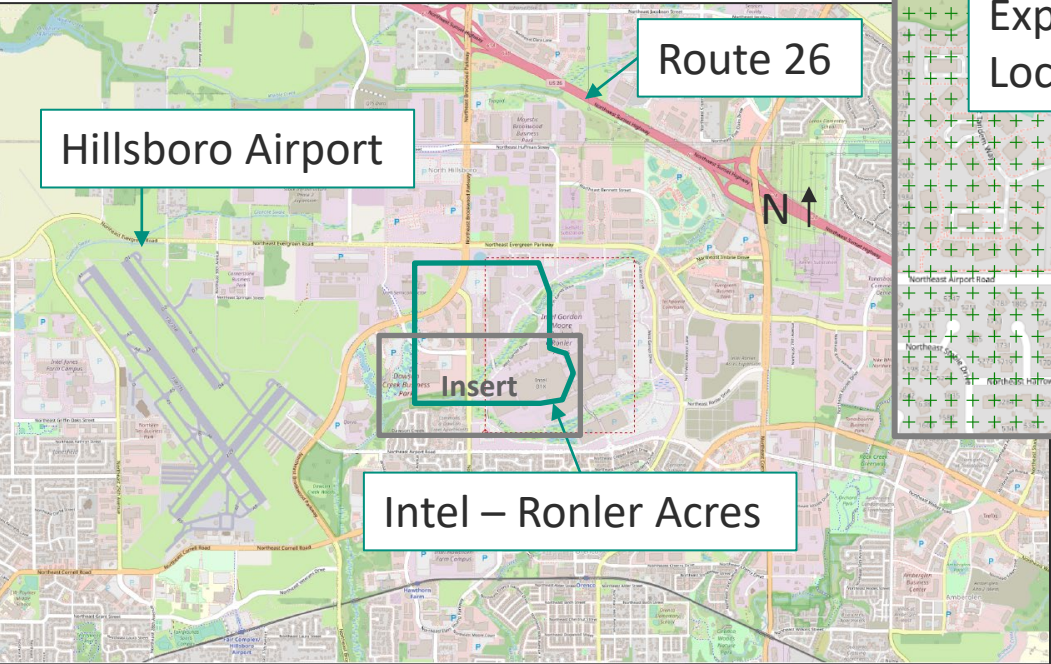


Modeling and exposure

- The model calculates concentrations at discrete human exposure locations, also called modeling receptors
- Modeling receptors are placed in areas outside facility boundaries where people might be exposed to emissions from the facility
- The goal of modeling is to identify the most conservative, worst-case concentration for comparison to the NAAQS.

Modeling and exposure

Plant Boundary and Exposure Locations



Evaluating health impacts

For each pollutant and exposure location we calculate the total of:

1. Modeled concentrations from Intel
2. Modeled concentrations from nearby sources
3. Background from more distant and general sources.

Then, we compare total to the NAAQS.

Example of preliminary modeling results

Intel Expansion Project 2023				
Preliminary Results				
Pollutant	Avg Period	Total Concentration ug/m3	NAAQS ug/m3	Percent of NAAQS
NO2	1-hr	163.5	188	87%
	Annual	48.85	100	49%
SO2	1-hr	46.97	196	24%
PM10	24-hr	46.78	150	31%
PM2.5	24-hr	25.38	35	73%
	Annual	8.35	12.0	70%

Questions?



State of Oregon
DEQ Department of Environmental Quality

What's Next

- **Cleaner Air Oregon:** Program call-in based on group prioritization (2024).
- **Permitting:** Consider public input while drafting permit.
- **Modeling:** Continued review of Intel's dispersion modeling to ensure compliance with national standards.

When the draft permit is complete, DEQ will make it available for public comment, and will hold a public hearing.

To stay informed...

For additional information: nina.deconcini@deq.oregon.gov

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Thank you!



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