

# Air Quality Advisory Committee

February 9, 2022

# Agenda

1. Welcome/Introductions
2. Recap of Previous Meeting
3. Community Opens
4. AQAC Opens
5. Good Neighbor Agreement Items Update
6. Agenda for Next Meeting
7. Public Comments/Questions

# GNA-Specified Agenda Items

- Intel to report to the AQAC at its quarterly meetings on:
  - Stack testing completed since the last AQAC meeting, any stack testing planned before next AQAC meeting,
  - Annual or semiannual reports submitted by Intel to DEQ pursuant to Intel's air permit.
  - Any requests to DEQ for authority to modify emission factors or emission sources that were submitted since the last AQAC meeting or that Intel anticipates will be submitted prior to the next AQAC meeting;
  - Update on the implementation of the measures identified on Attachment A and any measures raised in prior AQAC meetings that require further action or consideration;
  - Any excess emissions and upsets reported to the Department during the most recent calendar quarter

# Stack Testing Overview

- Why does Intel perform stack testing?
  - Determination of compliance with Best Available Control Technology (BACT) emission limits
  - Determination of Rotary Concentrator Thermal Oxidizer (RCTO) control efficiencies
  - Development of emission calculations for fluorides and hydrogen fluoride
  - Good Neighbor Agreement Attachment B requirements
- Stack testing plans are reviewed and approved by Oregon DEQ and utilizes standard EPA and/or DEQ test methods
- DEQ and AQAC committee members can be onsite and witness testing events
- Stack testing performed by a 3<sup>rd</sup> party stack testing firm

# 2021 Stack Testing Reports

- 2021 Stack testing reports – submitted December 12<sup>th</sup> (RCTO and Boiler testing) and January 11<sup>th</sup> (Scrubber testing)
  - Acid Gas Scrubbers
    - Initial testing of new scrubbers
  - Rotary Concentrator Thermal Oxidizers (RCTOs)
    - Initial testing of new RCTOs. Certify BACT compliance and establish DRE%
    - Recertify BACT compliance and update DRE% for D1D RCTO system
  - Boiler
    - Certify BACT compliance and establish equipment emission factors for new boiler

# 2021 Stack Testing Update – RCTO & Boiler Test Results

RCTO System	VOC DRE	NOx lb/hr	NOx BACT Limit	CO lb/hr	CO BACT Limit
D1D	99.3%	0.09	0.20	0.18	1.12
D1XM2-Anguill	99.8%	0.50	0.78	0.12	0.54

Boiler	NOx lb/MMBtu	NOx BACT Limit	CO lb/MMBtu	CO BACT Limit
N2 Plant	0.008	0.011	<=0.0001	0.037

# 2021 Stack Testing Update – Scrubber Test Results

Scrubber System	Hydrogen Fluoride lb/hr	Total Fluoride lb/hr
D1XM2 EXSC	0.050	Non-Detect
D1XM1 EXSC	0.108	0.032

# 2022 Stack Testing Plan - Tentative

- Late Q1/Early Q2
  - Boiler stack testing to update emission factors
- Q4
  - D1XM3 – initial testing of new scrubber system
  - D1XM1 RCTO #5 - recurring RCTO stack testing



# Continuous Emissions Monitoring System Overview

- Rotor Concentrator Thermal Oxidizer (RCTO)
  - Used to control emissions of VOCs
  - Method of control: Thermal oxidation (combustion)
    - Temperature = Key operating parameter
    - Measurement via thermocouple
    - Minimum temperature established during stack testing
    - Temperature measurements are reviewed on an ongoing basis
    - Alarms are also set to alert when measured value outside the acceptable range
      - Alarms are indication of off-spec operation, not an indication of excess emissions or bypass

# Continuous Emissions Monitoring System Overview

- Wet Scrubbers
  - Used to control emissions of acid gases, primarily Fluorides, HF, and HCl
  - Method of control: pH adjusted water absorption
    - Water flow rate and pH = Key operating parameters
    - Measurements via pH probe and flow meter
    - Minimum pH and flow established during stack testing
    - Measurements are reviewed on an ongoing basis
    - Alarms are also set to alert when measured value outside the acceptable range
      - Alarms are indication of off-spec operation, not an indication of excess emissions or bypass

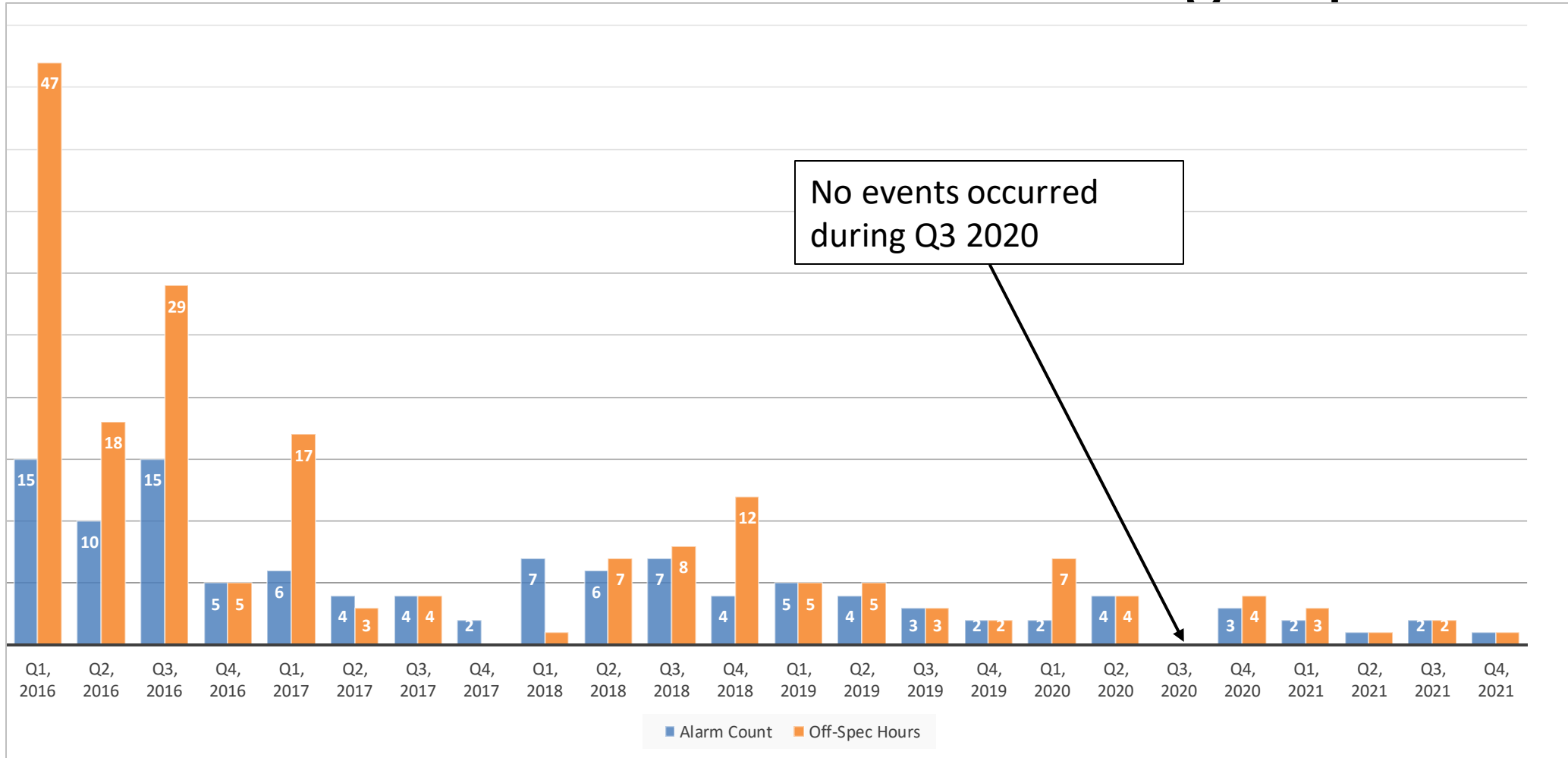
# Continuous Emissions Monitoring Report

## – Q4 2021

### Attachment C

Source	Frequency	Parameter	Equipment	Q4, 2021 Report
Rotary Concentrator Thermal Oxidizers (RCTO)	Continuous	Temperature	Thermocouple	No issues
Acid Gas Scrubbers	Continuous	Flow  pH	Flow Meter  pH probe	One low flow event
Emergency Generators	When used	Hours of operation including time of engine start, time of engine stop and reason for operating		No issues

# Continuous Emissions Monitoring Report



- Normal hourly operations for Q4 2021 is over 99.99%
  - Off-spec operation is not an indication of excess emissions and was limited to <0.01% of the hours for Q4 2021
- Blue bars indicate the number of alarms per quarter
- Orange bars indicate the number of hours outside of normal operation per quarter

# DEQ Submittals

- Application for Moderate Technical Permit Modification – in process of submitting
  - To incorporate a Federal Rule anticipated to become applicable later this year - NESHAP WWWW (‘‘6W’’)
    - This regulation affects area hazardous air pollutant (‘‘HAP’’) sources that use/emit specific metal HAPs in plating/polishing operations
    - Anticipate will apply to a nickel plating process at Aloha
    - Plan to comply with the regulation by:
      - Routing exhaust to control device (scrubber system) in addition to
      - Numerous management practices. Key actions:
        - » Regular equipment inspections,
        - » Minimizing bath agitation / heating (temperature control),
        - » Periodic washdowns

# DEQ Submittals

- Type 1 Notice of Construction
  - Small heater at Aloha
  - Plan to submit in February
- Updated Emission Factors
  - Equipment EF Request submitted January 31
  - Plan to submit Process EF Request in February

# Agenda for Q2

May 14<sup>th</sup> 5:00 PM

- AQAC members to have input into the next agenda for each AQAC meeting
  - Standing agenda items
    - DEQ Submittals
    - Stack Testing Update
    - Project Update
  - Other?

# Public Comments/Questions



**BACKUP**

# Attachment A

Emission Reduction Project	Target Date	Status / Method of Confirmation
Advocate to contractors working at the Facility to use newer onroad and nonroad diesel engines	2 <sup>nd</sup> quarter 2016	Ongoing collaboration with suppliers to encourage reductions
Evaluate ways to reduce (if possible) diesel particulate matter emissions either with onsite or offsite projects	3 <sup>rd</sup> quarter 2016	Reported out during Q3, 2016 AQAC quarterly meeting
Decommission four Fab 5 boilers	3 <sup>rd</sup> quarter 2016	Completed
Assess feasibility of reducing waste tank emissions	4 <sup>th</sup> quarter 2016	Completed
Retrofit RCTOs to optimize natural gas usage	2 <sup>nd</sup> quarter 2017	Completed
Boiler replacement with ultra low-NOx burner boilers at RA2 and RP1	3 <sup>rd</sup> quarter 2017	Project completed. Report out during Q3, 2017 AQAC meeting
Compare actual emissions inventory in 2020 to inventory used in HRA	2 <sup>nd</sup> quarter 2021	Report to AQAC at quarterly meeting