Air Quality Advisory Committee

November 4, 2019

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 3rd party stack testing firm

Q4, 2019 Stack Testing Update

- Stack test protocols submitted on August 16th and 22nd for the upcoming RCTO and Scrubber compliance stack testing programs
- Stack test plans approved by DEQ prior to the start of the testing program
- 3rd Party Stack Testing Firm arrived on September 18th with the first tests performed on September 20th
- Oregon DEQ onsite on October 14th to witness stack testing
- D1B, RB1, D1C, RP1, D1X Mod1, D1X Mod2 testing completed to date
- D1D and F15 (Aloha) remaining and expected to be completed around November 19th
- Opportunity to witness stack testing communicated to AQAC members on September 10, 2019
- Testing Scope
  - RCTOs
    - VOC %Destruct Removal Efficiency
    - NOx and CO Best Available Control Technology Determination
  - Scrubbers
    - HF and Total Fluoride emission rates

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

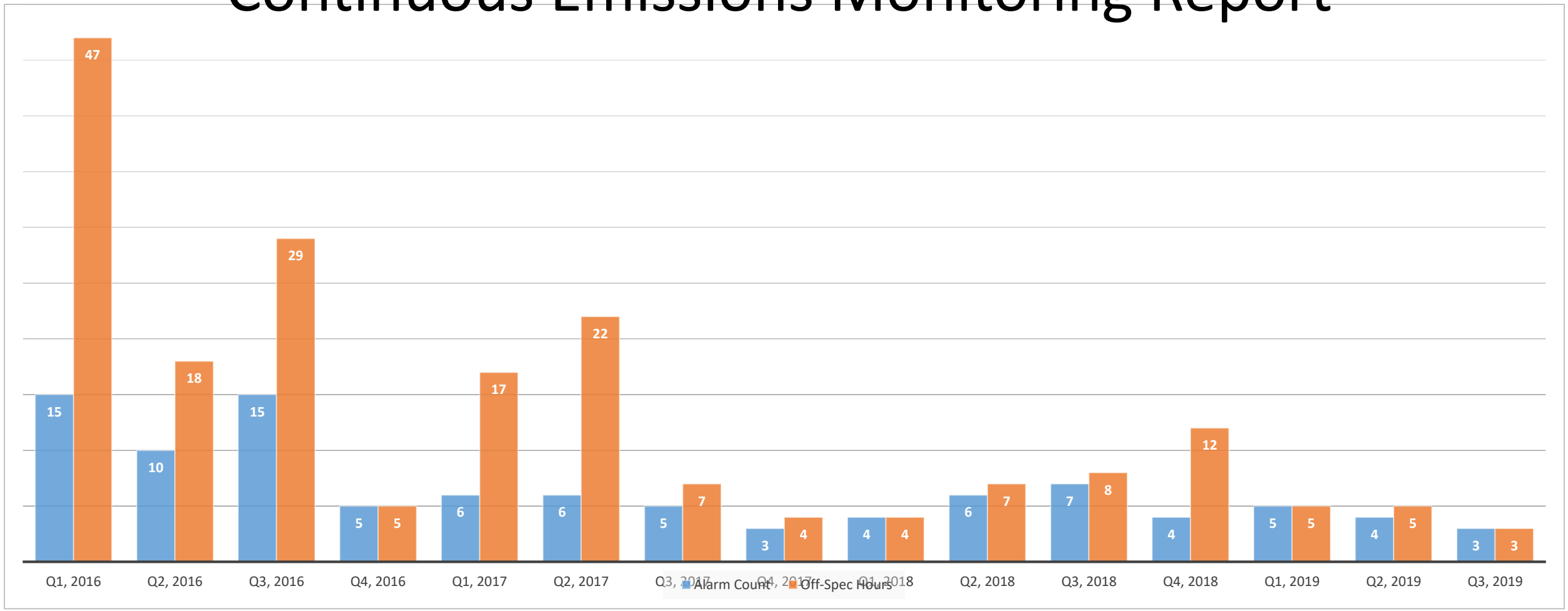
- Wet Scrubbers
  - Used to control emissions of acid gases, primarily Fluorides, HF, and HCl
  - Method of control: pH adjusted water absorption
    - Water flow rate and pH = Key operating parameters
    - Measurements via pH probe and flow meter
    - Minimum pH and flow established during stack testing
    - 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 – Q3, 2019

Attachment C

Source	Frequency	Parameter	Equipment	Report
Rotary Concentrator Thermal Oxidizers (RCTO)	Continuous	Temperature	Thermocouple	1 low temp alarm
Acid Gas Scrubbers	Continuous	Flow pH	Flow Meter pH probe	2 low flow alarms No issues
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 Q3, 2019 is over 99.99%
  - Off-spec operation is not an indication of excess emissions and was limited to <0.01% of the hours for Q3, 2019
- Blue bars indicate the number of alarms per quarter
- Orange bars indicate the number of hours outside of normal operation per quarter

Submittals

- Non-technical administrative amendment submitted on August 21, 2019
  - Requesting minor correction to EGEN operating conditions to match air dispersion modeling analysis
  - Issued by DEQ on October 11, 2019
- Title V application update expected to be submitted later this month (November)
  - Updated Title V application will include minor administrative corrections and incorporate requirements related to all of the Type 1 and Type 2 minor applications since the initial Title V submittal in March of 2016

Agenda for Next Meeting

- Planning – 2020 quarterly meeting dates
- 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	2nd 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	3rd quarter 2016	Reported out during Q3, 2016 AQAC quarterly meeting
Decommission four Fab 5 boilers	3rd quarter 2016	Completed
Assess feasibility of reducing waste tank emissions	4th quarter 2016	Completed
Retrofit RCTOs to optimize natural gas usage	2nd quarter 2017	Completed
Boiler replacement with ultra low-NOx burner boilers at RA2 and RP1	3rd quarter 2017	Project completed. Report out during Q3, 2017 AQAC meeting
Compare actual emissions inventory in 2020 to inventory used in HRA	2nd quarter 2021	Report to AQAC at quarterly meeting