Produced Water Emissions Inventory Workgroup; Call #1

Thursday, November 2, 2017

8:24 AM

**Attendance:**

* UDAQ
  + Whitney Oswald
  + Todd Wetzel
  + Patrick Barickman
  + Joe Thomas
  + Greg Mortensen
  + Lexie Wilson
* QEP
  + Eric Anderson
* USU
  + Seth Lyman
  + Mark Mansfield
  + Huy Tran
* EPA R
  + Cindy Beeler
* Kleinfelder
  + Bob Hammer
* Western Energy Alliance
  + Ryan Streams
* Newfield
  + Kevin Cooley
* XTO
  + Karen Pratt

**Goals:**

* Method to adjust emission factor for ponds from 2014 EI, completed NEI update by November 15 2017

**DAQ Suggested Method:**

Slide 1: EI results 2014

* 7 facilities sampled on State land (Nov/Dec 2016), unsure about how to permit these ponds
* Collect sample from 1st open-top waterway (1st evaporation pond)
  + Exception, company E collected from skim ponds instead of evaporation ponds
* Result: our emission factor for skim ponds *needs* to be refined - it does not currently reflect the amount of emissions coming from these produced water facilities.
* At this point, we have collected between 3-4 months of new data from 2 additional companies, but these data have yet to be implemented (new data are just for evap.ponds).

Slide 2: Current calculation methodology

* Skim pond emissions = (emission factor) X (water throughput)

Slide 3: Correcting the Emission Factor

* Suggested new method:
  + Skim pond emissions = (skim pond emission factor X water throughput) - (oil recovery) + equipment emissions
  + Oil recovery emissions = emission factor X oil recovery throughput
    - Emissions factor = air emissions if oil were 100% evaporated
    - Oil recovery throughput = % of oil recovered from throughput
      * This value is not reported anywhere, values seem to range from 3 - 7%
      * So, we will just need to pick a value as an estimate

Slide 4: Equipment Emissions

* Tanks
  + Could use EPA Tanks program
    - Inputs:
      * Total water throughput
      * Number of tanks (average # of tanks on permitted facilities X the # of facilities)
      * Produced water composition data
* Centrifuges
  + How can we calculate emissions from centrifuges?
  + Currently, we estimate using oil throughput from an open-top tank

**Discussion:**

* Treat skim ponds as open-top tanks. Skim ponds are fairly small with generally invariant areas over time. This would avoid having to make an unverifiable assumption about the amount of oil skimmed off.
  + Water evaporates more quickly than oil, so emission rate will be different.
  + Open-tank assumption would under-predict the amount of emissions.
  + Open-top tanks are different than skim ponds in many ways, and estimating them using only as open-top tanks would involve some very large assumptions.
  + 100% of the (3-7% of the oil in the water of the pond) is recovered. We cannot assume that that oil is evaporating to the atmosphere because it is being recovered.
* Explore methodologies of other states?
  + Already in calls with other western/central states
    - UDAQ, EPA, Colorado, Wyoming, New Mexico, Oklahoma
* Should we not have data from these major sources already in the books, as required by the EPA?
  + Many of these ponds were unaware of the magnitude of their emissions, many thought they were emitting less than 5 TPY, but sampling has indicated that those emissions are much larger.
* What about methanol?
  + Difficult when it comes to permitting - risk putting producers out of business with permitting fees
  + (that is not what this call is about)
  + We have been classifying most alcohols as VOCs instead of speciating them out (excluding methanol)
* What's the rush? Why do we need to make all these assumptions right now?
  + We need to update the 2014 NEI by early November. If we find a better method for 2017, we can use the updated 2014 as evidence for EPA to accept our new method (?)
  + Better inventory for SIPs
    - 2017 will most likely be the inventory used for these SIPs
* Should the O&G producers be in on this call? Do they know the magnitude of these decisions?
  + Outreach has occurred.
* Timeline:
  + 2014: November 15th is our extended deadline
  + 2017: more time
* Another meeting next week: November 9th, 2017