

Response to Comments to Draft Flash Memo (Dec. 2008)

Mr. David Dannhaus, FESCO Laboratories

Concern: Mr. Dannhaus's concern regarded the location from which an inlet gas sample should be taken; the diagram in the current memo recommends that the sample be taken after the well head, but before the first separator. Mr. Dannhaus noted that it is potentially dangerous to take a sample at that particular point.

Response: The current diagram of a generic oil and gas site gives incorrect, and potentially dangerous, information regarding where an inlet gas sample should be taken. The diagram will be revised based on additional information we have received.

Mr. Jason Kubicek, Sphere 3 Environmental

Concern: Mr. Kubicek's concern regarded the location from which an inlet gas sample should be taken.

Response: The current diagram of a generic oil and gas site gives incorrect, and potentially dangerous, information regarding where an inlet gas sample should be taken. The diagram will be revised based on additional information we have received.

Concern: When using E&P Tanks, (Low Pressure Gas option), where should the oil sample be collected (for measurement of API gravity, RVP, C7:C8:C9:C10+ molar ratios, C10+ MW, and C10+ SG), from the separator or from the tank?

Response: According to E&P Tanks, for measurement of C7:C8:C9:C10+ molar ratios, C10+ MW, and C10+ SG, the sample should be taken from the separator. For measurement of API gravity and RVP, the sample should be taken from the tank itself. However, we will allow some flexibility in where sampling is conducted. We do not expect the C7:C8:C9:C10+ molar ratio, the C10+ MW, or the C10+ SG to change significantly between the separator and the tank; therefore, either location would be acceptable. There may be some difference in API gravity and RVP between the separator and the tank, although we do not expect it to make a significant difference in the final emission calculation. So again, either location would be acceptable; the final memo will provide clarification.

Concern: The draft memo contains a sample E&P Tank report with a text bubble pointing to the "Uncontrolled Recovery Info." However, the bubble is empty (the text was deleted).

Response: There is an error in the E&P Tank sample report. The bubble pointing to "Uncontrolled Recovery Info" should have contained the following text: "Can be used for

Flare calculations (Flow Rate of Source, SCF/hr) if the number is multiplied by 1000, then divided by 24”. The error will be corrected in the final memo, as well as other errors that were found.

Concern: In the TCEQ method to calculate short-term tank emissions, $L_{MAX} = [(L_W * FR_M) / (N * T_{CG})]$, the L_W variable (working losses at max temperature, in lb/yr) normally comes from Tanks 4.0. However, when E&P Tanks is used, the L_W value is not given.

Response: The short-term emission calculation method that you refer to was designed to estimate emissions from tanks that are filled sporadically. Because E&P Tanks is used to estimate emissions from a tank receiving liquids from a pressurized separator that is operating continuously, we do not expect there to be dramatic differences in the short-term emission rate at different times. Therefore, we do not require that this calculation method be used. For short-term emissions, the hourly emission rate calculated by E&P Tanks can be used (although a separate run of E&P Tanks could be performed using the maximum ambient and bulk temperatures to get an hourly rate that would be more representative of what is occurring in the summer). This is the simplest method for calculating short term tank emissions when using E&P Tanks.

Texas Pipeline Association

Concern: They would like flash emissions at downstream facilities to be designated *de minimis* and suggest some wording changes in the memo.

Response: We need further technical information/sampling/sample calculations to justify making this exception. We cannot rely on “operator knowledge,” but rather concur this option is possible.

Concern: The current memo discusses more than just flash. They requested references to flares, VRUs, dehydrators, etc. be removed.

Response: As requested, we deleted the references to subjects other than flash emissions.

Concern: The concern was that multiple methods should be available to calculate flash. Furthermore, accuracy should not be the sole determinant in which methods are preferred by the TCEQ; other factors, such as cost, should affect which methods are preferred.

Response: We understand that not all methods to estimate flash emissions are feasible in every instance. However, we stand by our statement that we always *prefer* more accurate methods. This being said, we are not requiring that the more accurate methods be used. We will accept any of the methods listed in the memo, provided that they are used according to our guidance.

Concern: Direct measurement should not be mandatory under any circumstance, since it is time-consuming and expensive.

Response: We agree that direct measurement of tank emissions should not be mandatory. At this time, it has only been included as an option for estimating tank emissions. While it can give very accurate emission estimates, it is time-consuming and expensive. Any of the other methods may be used, provided that they are used according to our guidance.

Concern: They would like us to allow the use of defaults in the Vasquez-Beggs Equation (VBE).

Response: Using the defaults suggested would be very conservative, so we could allow the use of the defaults. However, we don't want to recommend the use of any variables that fall outside of the valid range of inputs. The circumstances under which the defaults of the VBE are accepted are listed on in the memo and on the associated table. If there is no information available from a sister site, defaults may be used with a justification as to why that information is appropriate. In order for this guidance to match the guidance given by Emissions Inventory (EI), the maximum API gravity allowed in the VBE will be 40.

Concern: Individual samples should not be required from each tank or "pigging" operation.

Response: We agree that individual samples should not be required for each tank or "pigging" operation, as long as a representative sample is used and an explanation is provided as to why the sample used is appropriate. We will be sure to clarify this in the final memo.

Concern: They want a statement included in the memo that says that flash emissions should be attributed to the owner, not the site (for facilities that are co-located), since this follows the federal definition of a stationary source.

Response: We issue authorizations to the owner/operator who applies for them and follow all state and federal rules.

Texas Oil and Gas Association (TxOGA)

Accuracy of Flash Emissions Estimates

Concern: TxOGA would like the results of the current study being conducted by Hy-Bon (EI) be used to validate APDs ranking of accuracy of the methods. They would also like companies to be allowed to volunteer for the study, and they would like the results and recommendations of the study to be publicly available.

Response: During a TxOGA meeting representatives from the Chief Engineers Office (CEO) solicited for volunteers to participate in this project. It is not known if TxOGA members contacted the contractor (ERG) and participated as the site and company names participating in the sampling are being held confidential by the contractor. The draft report will be posted for comment on the contract's web-page for comment in the summer of 2009.

Concern: They would like clarification in the memo on what method will be accepted and under what circumstances.

Response: At this time, we do not have any restrictions on which of the methods listed in the flash memo can be used. Any of them may be used, provided that they are used in accordance with our guidance. We do prefer more accurate methods, but at this point, it is not a requirement. We will be sure to clarify this in the final memo. Once the results of the current Hy-Bon study are available, we may revise our accuracy ratings and place certain restrictions on some of the methods, but we will not do so at this point.

NOTE: There is a risk if methods used are subsequently determined to be unacceptable or they substantially underestimate emissions.

Concern: Several members reported permit reviewers refusing “inaccurate emission estimates.” They would like less accurate methods to be allowed for facilities whose emissions are well below regulatory thresholds.

Response: At this time, any of the methods described in the current memo may be used, provided that they are used according to our guidance. There is a risk if in the future we do require more accurate methods under some circumstances and if the results are high and make the site ineligible for certain authorization types. The risk is lower even if a less preferred method is used, but the site is well below the regulatory limits ($\leq 5-10$ TPY depending on the site throughput and equipment for the current § 106.352). We will release a revised memo to clarify the situations in which the more accurate method will be necessary should this guidance change.

HARC Report

Concern: The methodology used to derive the 33 lb VOC/bbl condensate produced was flawed.

Response: The TCEQ has forwarded the comments on the “VOC Emissions from Oil and Condensate Storage Tanks” report to the Houston Advanced Research Center (HARC). The contractor who wrote the report is reviewing the comments and expects to issue a revised version of the report before July 2009. The revised version of the report will be posted on HARC’s website:

<http://www.harc.edu/Projects/AirQuality/Projects/Projects/H051C>

Other Specific Comments

Concern: Errors and typos in the memo were addressed.

Response: Thank you for catching these errors. We will be sure to fix them in the final draft.

Concern: The title of the memo should include working and breathing emissions since it is discussed.

Response: We do discuss working and breathing losses as they pertain to calculating all the emissions from the tank. The focus of this guidance is in regards to the most appropriate way to estimate flash emissions. We also discuss working and breathing losses in order to differentiate them from flash losses and show which method results include them and which do not.

Concern: TxOGA would like us to explain the basis for our ranking of accuracy.

Response: TCEQ based the rankings on the conservativeness of the parameters and the outputs of each method listed, EPA Publications, and best engineering judgment of APD staff.

Concern: The flash memo should state that AP-42 can be used to estimate working and breathing losses.

Response: AP-42 equations are an acceptable method to calculate working and breathing losses from a tank. We will be sure to include this in the final memo. Thank you for pointing out this omission.

Concern: The sample types listed in the table on page six should be more descriptive.

Response: We will revise the names of the sample types as you have suggested. Thank you for the suggestion.

Concern: Typo was made on page six.

Response: Thank you for catching the typo. We will be sure to fix it in the final draft.

Concern: If specific analytical lab methods are important, they should be specified in the memo.

Response: We have addressed the most typical lab analysis that would be used at an Oil and Gas site and will include them in the final draft. Several labs were contact to find out what are the most typical lab methods. At this time only one lab responded, and their responses have been incorporated into the memo.

Concern: “Same Depth in field” should be changed to “Same formation in field” on page seven.

Response: Thank you for the suggestion. We will incorporate the wording change in the final memo.

Concern: They would like the memo to state that we will only accept analyses from accredited labs (unless there is no accreditation available for a specific method).

Response: 30 Texas Administrative Code (TAC) § 25.6 discusses when laboratory analysis may be accepted by the Commission and when accreditation of a laboratory is required and when no accreditation of a laboratory is required. Please check the TCEQ website to determine if accreditation is offered for the laboratory and method required. This information can be found at:

http://www.tceq.state.tx.us/compliance/compliance_support/qa/env_lab_accreditation.html

Concern: They would like a wording change in the Direct Measurement description; they would like sampling to be allowed if production is at or above the average production rate, rather than at maximum pumping rate.

Response: We agree that for this method, sampling should be done at a time when production is either at or above the average production rate. We will not require that it be done at a maximum pumping rate.

Concern: Our guidance for E&P Tanks states that a high pressure separator is one with a pressure above ~300 psig. This is not consistent with E&P Tank’s definition.

Response: You are correct; our definition of a high pressure separator is not consistent with E&P Tanks. E&P Tanks does not specify any particular pressure, just the relative location of the separator that the sample was pulled from. We will revise the memo to reflect the correct information.

Concern: The recommendation to manually calculate control efficiencies when using E&P Tanks is unnecessary. They have not seen any unpredictable results when the efficiency built into the program is used.

Response: While we have observed a few instances of inconsistencies when using the built in control efficiency option in E&P Tanks, upon review of this, we were unable to recreate the issue. We will remove this portion of the memo as you suggested since it does not appear to be a wide-spread issue. And if by some circumstance this anomaly shows up again, it is fairly obvious (inconsistent results between “Uncontrolled” vs. “Controlled” emissions).

Concern: Several suggestions were made to make our terminology more specific on the upper table on page 11.

Response: We agree with your suggested changes, we will revise the final memo to reflect this.

Concern: The table on page 11 should state that we will allow the use of an API equation to estimate RVP from the API gravity in E&P Tanks.

Response: There is no known equation that will accurately estimate the RVP from the API gravity. RVP and API gravity are separate and distinct variables; there is no accurate equation to determine one based on the other. This is due to the fact that there can be a narrow or a broad range of specific gravities of the speciated liquids from the different production sites. This variability in specific gravity ranges will greatly affect the RVP at each site.

Concern: The web links to the VBE and EC/R equation are broken.

Response: Thank you for pointing out that these web links are broken. We will make sure they are correct in the final memo. There is no longer an EC/R link since Oklahoma Department of Environmental Quality has removed it from their website.

Chesapeake Oil Company

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<http://www.harc.edu/Projects/AirQuality/Projects/Projects/H051C>

Use of defaults in Vasquez-Beggs

Concern: They would like us to allow the use of defaults in the Vasquez-Beggs Equation (VBE).

Response: Using the defaults suggested would be very conservative, so we could allow the use of the defaults. However, we do not want to recommend the use of any variables that fall outside of the valid range of inputs. The circumstances under which the defaults of the VBE are accepted are listed on in the memo and on the associated table. If there is no information available from a sister site, defaults may be used with a justification as to why that information is appropriate. In order for this guidance to match the guidance given by Emissions Inventory (EI), the maximum API gravity allowed in the VBE will be 40.

Other Comments:

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Response: We agree that for this method, sampling should be done at a time when production is either at or above the average production rate. We will not require that it be done at a maximum pumping rate.

Concern: The web links to the VBE and EC/R equation are broken.

Response: Thank you for pointing out that these web links are broken. TCEQ is no longer accepting the E/CR equation as valid. The EC/R link is no longer working since Oklahoma Department of Environmental Quality has removed it from their website. We will make sure they are correct or removed in the final memo.