Stakeholder Consultation on Options for Updating $HNO_{3,MAX}$:

Nitric Acid Production Project Protocol, Version 2.0

January 27, 2016

Overview

It is common for nitric acid plants (NAPs) to undergo technological upgrades and other changes that impact the performance of the plant. The Nitric Acid Production Project Protocol (NAPPP) acknowledges such upgrades, and allows for certain project parameters to be adjusted according to these plant changes. However, the value of $HNO_{3,MAX}$ is currently required to be fixed for the life of the project. Based on stakeholder input, the Reserve is exploring the possibility of allowing for updates to $HNO_{3,MAX}$ when a NAP is upgraded or relocated. This memo outlines a number of questions and information requests that the Reserve believes would help inform a potential change to the current rules for establishing $HNO_{3,MAX}$.

Through this consultation, the Reserve would like to elicit feedback on proposed options for updating the requirements related to historical maximum annual average total output of nitric acid ($HNO_{3,MAX}$), and will welcome the submission of alternative proposals for updating $HNO_{3,MAX}$ in these situations. The Reserve would also like to hear from any stakeholders who feel that the current requirement should remain as stated in the current protocol, without an option for updating $HNO_{3,MAX}$. The results of this stakeholder consultation may be used to inform a protocol clarification, or included in a future protocol update.

Background

In the NAPPP, $HNO_{3,MAX}$ represents the historical maximum annual average total output of 100% concentration nitric acid. $HNO_{3,MAX,SCALED}$ represents this value scaled to the length of a given campaign. $HNO_{3,MAX}$ and $HNO_{3,MAX,SCALED}$ are used to establish a cap on the maximum level of nitric acid produced under "business-as-usual" , based on historical HNO_3 production data prior to the installation of a secondary or tertiary catalyst and the commencement of a carbon offset project. A NAP may produce more nitric acid than allowed by $HNO_{3,MAX,SCALED}$ in a given campaign, but no offsets are issued for N_2O abated beyond $HNO_{3,MAX,SCALED}$. This cap ensures that a NAP would not increase HNO_3 production for the purpose of increasing the number of offset credits issued to the project, helping ensure that all offset credits issued to a project are additional and real.

$HNO_{3,MAX}$ is established at the start of the project and is maintained for the life of the project, regardless of whether the NAP is upgraded or relocated during the crediting period. Establishing $HNO_{3,MAX}$ is based on a stepped approach, described in section 5.1.1 and 5.2.1 of

the protocol and reproduced below. This differs from the protocol's rules for designating Allowable Operating Conditions (AOCs), described in Section 5.1.2 and 5.2.2, which are established at the start of the project based on historical data, but are updated for recently upgraded or relocated NAPs.

Options to Update the NAPPP:

Stakeholders have indicated that due to changing conditions at the NAPs, $HNO_{3,MAX}$ does not necessarily represent "business-as-usual" conditions for the life of a project. For instance, technological improvements, plant upgrades, and changing economic conditions that increase demand for nitric acid may all lead to legitimate increases in nitric acid production over time.

In response, the Reserve is considering including guidance that allows projects to update $HNO_{3,MAX}$ following an upgrade or relocation, in a similar manner to what is done for AOCs. The likely approach would be a clarification to Section 5.1.1 and 5.2.1 of the NAPPP. Two reference points are currently under consideration for the updated value: 1) new campaign production data and 2) nameplate/design capacity. The Reserve is open to alternative proposals from stakeholders, including the possibility of leaving the $HNO_{3,MAX}$ requirement as currently stated in the protocol.

Questions for stakeholders:

- Post-upgrade campaign production data would likely be the most accurate for informing a new $HNO_{3,MAX}$. However, multiple campaigns are preferable, and acquiring data from multiple campaigns would delay the verification schedule. How variable is HNO_3 production from campaign to campaign over time? Would the campaign directly following an upgrade or relocation be representative of normal production?
- The Reserve is also considering using nameplate/design capacity to determine the new $HNO_{3,MAX}$. Nameplate/design capacity is currently the last option in establishing $HNO_{3,MAX}$, and in practice is rarely used. How feasible is it for NAPs to demonstrate the nameplate or design capacity of the NAP? What are the documented sources of such capacity ratings?
- The Reserve may issue additional guidance to expand upon what would constitute an "upgrade" or "modification". We are interested to hear from NAP operators: what types of upgrades or modifications are commonly undertaken that would necessitate an update to HNO_3max? Further, with what frequency would such upgrades or modifications be undertaken?

Next Steps

The Reserve will host a public webinar to discuss this issue with interested stakeholders. The webinar will be scheduled based on stakeholder availability, in February or March. Please contact Sarah Wescott at swescott@climateactionreserve.org if you are interested in participating, and with any questions and/or comments you would like to submit in advance of the webinar. The Reserve will also accept written comments to be submitted by stakeholders following the consultation.

Relevant Excerpts from Nitric Acid Production Project Protocol

Section 5.1.1 Determination of $HNO_{3,MAX}$ and $HNO_{3,MAX,scaled}$ (Secondary Catalysts)

$HNO_{3,MAX}$ represents the historical maximum annual average total output of 100% concentration nitric acid. In order to use this factor for quantification of emission reductions, it must be scaled to the length of the campaign for which emission reductions are being calculated, which results in $HNO_{3,MAX,scaled}$.

In order to determine $HNO_{3,MAX}$, five consecutive years of historic data are used to calculate five values, each representing average HNO_3 production levels during a one year period at the process unit where the project is located. Average HNO_3 production can be calculated by averaging daily HNO_3 production data over a 12 month period, excluding days when the nitric acid plant was not operating.

If five years of historical data are not available to calculate five average HNO_3 production values, then five historical average HNO_3 production values may be calculated from five consecutive campaigns of HNO_3 production data, reported as an average hourly, daily, or per campaign value. If one of the five consecutive campaigns is determined to be justifiably anomalous, the project may instead use five non-consecutive historical campaigns (i.e., exclude the anomalous campaign and add another campaign from the next available historical record). Under these circumstances, an explanation and justification for excluding the anomalous campaign must be included in the verification report for the project. Otherwise, if data from five consecutive campaigns are not available, then the nameplate capacity of the NAP shall be used to determine $HNO_{3,MAX}$.

Section 5.2.1 Determination of $HNO_{3,MAX}$ and $HNO_{3,MAX,scaled}$ (Tertiary Catalysts)

$HNO_{3,MAX}$ represents the historical maximum annual average total output of 100% concentration nitric acid. In order to use this factor for quantification of emission reductions, it must be scaled to the length of the campaign for which emission reductions are being calculated, which results in a second factor: $HNO_{3,MAX,scaled}$. To determine $HNO_{3,MAX}$, five consecutive years of historic data are used to calculate five values, each representing average HNO_3 production levels during a one year period at the process unit where the project is located. Average HNO_3 production can be calculated by averaging daily HNO_3 production data over a 12 month period, excluding days when the nitric acid plant was not operating.

If five years of historical data are not available to calculate five average HNO_3 production values, then five historical average HNO_3 production values may be calculated from five consecutive campaigns of HNO_3 production data, reported as an average hourly, daily or per campaign value. If one of the five consecutive campaigns is determined to be justifiably anomalous, the project may instead use five non-consecutive historical campaigns (i.e., exclude the anomalous campaign and add another campaign from the next available historical record). Under these circumstances, an explanation and justification for excluding the anomalous campaign must be included in the verification report for the project. Otherwise, if data from five consecutive campaigns are not available, then use the nameplate capacity of the NAP to determine $HNO_{3,MAX}$.