TCEQ's Responses to Texas Chemical Council's Comments on Air Permit Reviewer Reference Guide (APDG 6110) Air Pollution Control: How to Conduct a Pollution Control Evaluation

1. As stated in the Introduction on Page 1, this document is intended to be a training guide for new permit reviewers and refresher training for experienced permit reviewers so it should not supersede any policies and regulations.

   TCEQ responds: This guidance document is a training guide that is intended to replace previous guidance by clarifying policies and providing support for the implementation of rules in 30 Texas Administrative Code (TAC) Chapter 116. A change will be made to the "NOTE" in section one (see response in comment #3 below for complete changes made to this note).

2. Page 1, Section I, Air Pollution Control, Introduction, 5th paragraph, the listing of other standards like LAER and RACT should be clearly described as "other documents" or "other guidelines" to be considered. These standards should not be confused or mixed in with the BACT review.

   TCEQ responds: This is an air pollution control guidance document. The intent of the document is to provide guidance on all standards that may apply during the review of an air permit project application. While the main focus of the document is on the BACT review, other standards like LAER and RACT must also be evaluated for applicability. Additionally, these other standards may have an effect on BACT. No change to the guidance document will be made based on this comment.

3. Page 2 Section I, Air Pollution Control, Introduction, under the "Note" statement, TCC suggests listing the April 2001 draft guidance as well as the October 2000, version.

   TCEQ responds: TCEQ agrees, and has added the reference to the April 2001 draft guidance in the Note statement. Additionally, the agency has listed other guidance documents that this document replaces and guidance that the document brings forward and updates. A change will be made to the note as follows (also see TCEQ response in comment #1 above):

   ***NOTE**: This guidance document is a training tool that is intended to replace previous guidance by clarifying policies and providing support for the implementation of rules in 30 TAC Chapter 116. While this document replaces all previous agency air pollution control guidance documents, including the April 2001 TCEQ Evaluating Best Available Control Technology (BACT) in Air Permit Applications, October 30, 2000 Texas Natural Resource Conservation Commission Best Available Control Technology (BACT)(Draft), and the Best Available Control Technology (BACT) Tier III Cost Analysis guidance documents (Draft), it also brings forward and updates the "Control Technology" guidance document of the Texas Air Control Board (TACB) which was finalized in Spring 1987.*

4. The 1st paragraph on Page 5 states that **"**The FCAA does not authorize BACT to allow emissions that will exceed the rates allowed by any applicable standard established pursuant to sections 111 (NSPS) or 112 (NESHAP) of the FCAA or any applicable standard under 40 CFR parts 60 (Standards of Performance for New Stationary Sources), 61 (National Emission Standards for

Hazardous Air Pollutants), and 63 (NESHAPS - Maximum Achievable Control Technology (MACT) Standards). Emissions from any source utilizing clean fuels or any other means, to comply with BACT shall not be allowed to increase above levels that would have been required under the FCAA as it existed prior to enactment of the Clean Air Act Amendments of 1990."

TCC is concerned that this statement will mislead the permit reviewers to require the applicant to meet MACT for BACT even though the affected facility is required to comply with all applicable MACT standards already regardless of the BACT option selected. TCC suggests the wording change as follows:

Permittees must comply with the most stringent applicable control requirement for each source, which in some cases may be more stringent than BACT. The FCAA does not allow a permit authorization or provision to supersede a more stringent applicable control standard. BACT analyses may result in selection of control technologies that vary from those required by an applicable standard established pursuant to sections 111 (NSPS) or 112 (NESHAP) of the FCAA or an applicable standard under 40 CFR parts 60 (Standards of Performance for New Stationary Sources), 61 (National Emission Standards for Hazardous Air Pollutants), and 63 (NESHAPS - Maximum Achievable Control Technology (MACT) Standards). In addition, the control standards contained in these Federal rules do not define BACT for permitting purposes. Emissions from any source utilizing clean fuels or any other means, to comply with BACT shall not be allowed to increase above levels that would have been required under the FCAA as it existed prior to enactment of the Clean Air Act Amendments of 1990.

TCEQ responds: To clarify that the most stringent requirement of all applicable requirements applies to each project, source and pollutant, the TCEQ will make a change to the guidance document. However, the change will occur in the introductory paragraph immediately preceding the subheading "Best Available Control Technology (BACT)" rather than making the any changes in the paragraph suggested. The change is as follows:

While NSPS and NESHAPs provide minimum requirements that must be met by all affected sources, additional air pollution control requirements must also be considered. The most stringent requirement of all applicable requirements applies to each project, source and pollutant. These additional requirements are as follows:

5. Page 7 Section II, Federal Authority for Emissions Controls and Pollutants Subject to Federal Control Analysis, Table 1 under BACT, the "Applicable Pollutants" Column states "*Each regulated NSR pollutant (criteria pollutants, precursors, etc.).*" To avoid confusion, "etc." should not be used but rather should list out what is applicable.

TCEQ responds: TCEQ agrees to remove "etc." from Table 1 for clarification purposes. The table footnote "**" provides reference to the federal regulation where these pollutants are listed. Since this regulation may change, each pollutant will not be listed in the table and the document directs the reader to the appropriate federal regulation. The language in the "Applicable Pollutants" column has been changed as follows:

"Each regulated NSR pollutant (including, but not limited to, criteria pollutants and precursors, ~~etc.~~) **
However, TCEQ excludes greenhouse gases as an air contaminant and thus does not regulate them***"

** See 40 CFR 51.166 (b)(23)(i) and (b)(23)(ii)
*** 30 TAC § 101.01(107); See also § 116.12(17) and (18)
**** Recently promulgated rules or standards may be more stringent than BACT for a previously authorized facility.

6. Page 8 Section III, TCAA Authority for Emissions Controls and Contaminants Subject to State Control Analysis, Contaminants Subject to TCAA Control Analysis, the first paragraph reads "By TCAA statute and TCEQ rule, all air contaminants released to the atmosphere trigger a pollution control evaluation." The phrase "all air contaminants" can be broadly taken to include current non-regulated air contaminants such Greenhouse Gases like CO2 and CH4. TCC suggests the following revision to this statement:

   By TCAA statute and TCEQ rule, all air contaminants that meet the definition of Unauthorized Emissions in 30 TAC 101.1 released to the atmosphere trigger a pollution control evaluation.

   TCEQ responds: All air contaminants released to the atmosphere trigger pollution control evaluation. The term "air contaminant" is defined in the TCAA. The commission, through its rulemaking in 30 TAC § 101.1(107), excluded several air contaminants, including carbon dioxide, from list of air contaminants that are unauthorized emissions because they exceed a limit in a permit, rule or order of the commission. Therefore those excluded contaminants are not subject to evaluation for controls. The guidance document has been revised to clarify this statement.

7. Page 8 Section III, TCAA Authority for Emissions Controls and Contaminants Subject to State Control Analysis, Contaminants Subject to TCAA Control Analysis, under bullet labeled "Renewals", it is not necessary to include the discussions on options for Permits By Rule (PBR) authorizations or claims incorporation or BACT review in this document. TCC suggests keeping the issues relating to PBR authorizations or claims out of this document until EPA's position on PBRs is further understood.

   TCEQ responds: 30 TAC § 116.116(d)(2) requires that "All changes authorized under Chapter 106 of this title to a permitted facility shall be incorporated into that facility's permit when the permit is amended or renewed." It is the policy of the Air Permits Division that PBRs being incorporated in to the permit (not merely referenced), require current BACT for the PBR sources being incorporated. The ongoing discussion between the EPA and TCEQ regarding PBRs is not directly related to the 30 TAC § 116.116(d)(2) requirement or to the divisional policy. No changes will be made.

8. Page 9 Section IV, Specific Control Evaluations, BACT Review, discusses the process of TCEQ permit reviewers checking to see if there is any late-breaking, new BACT that could be applied, in lieu of the BACT proposed by applicant. This could be problematic if the TCEQ's BACT review occurs late in the project planning and procurement process. An applicant may have already planned for a certain control, say something in Tier 1 from the TCEQ website, and making changes could interfere with the project. There should be a statement saying something like "consideration will be given to the applicant's planning status." Refer to April 2001 guidance page 16 of 24 pages. A similar comment should be made on Page 18, Section IV, Specific Control Evaluations, Prevention of Significant Deterioration (PSD) and BACT, last paragraph.

TCEQ responds: Current BACT must be applied at issuance of the permit regardless of an applicant's stage in planning. When a permit is issued, current BACT must be met. No change will be made.

9. Page 9 Section IV, Specific Control Evaluations, EPA Top-Down Method: the Draft Guidance compares the Three-Tier and Top-Down methods and states "the end results from using either method should be the same." TCC suggests revising this statement to "the end results from using either method will likely ~~should~~ be the same." This statement is too broad and might be construed to require proof that Top-Down is met for every Three-Tier evaluation. Top-Down may force other controls beyond what Tier-1 requires. TCEQ needs to satisfy the EPA that its BACT review suffices for federal NSR, but the Three-Tier should suffice for State Minor Source BACT. Refer to the asterisk footnote that appears on page 11 discussing the "Performance Partnership Grant (PPG) Agreement."

   TCEQ responds: The referenced footnote discussing the PPG Agreement states the following:

   *Performance Partnership Grant (PPG) Agreement - TCEQ Review of BACT for PSD Project - As agreed in the PPG negotiations, the EPA is currently accepting the TCEQ's three-tiered approach to BACT as equivalent to their Top-Down approach when the review also includes the following:

   - Recently issued/approved permits within the State of Texas;
   - Recently issued/approved permits in other states; and
   - Control technologies contained within the EPA's RACT/BACT/LAER Clearinghouse (RBLC).

   Specifically, the phrase "EPA is currently accepting the TCEQ's three-tiered approach to BACT as equivalent to their Top-Down approach" supports the language in the guidance document where equivalent means the same, not "likely" the same. Regardless of the specific methodology used for determining BACT, be it "top-down," "bottom-up," or otherwise, the same core criteria apply to any BACT analysis: the applicant must consider all available alternatives, and demonstrate why the most stringent alternative should not be adopted. No change will be made. However, the referenced footnote has been changed to an endnote and moved to Section VII - Endnotes.

10. Page 10 Section IV, Specific Control Evaluations, TCEQ Three-Tier Analysis, under the bullet Tier III, the Draft Guidance misrepresents the complexity of Tier III reviews and unnecessarily restricts Tier III reviews. The document discourages the use of Tier III cost-effectiveness reviews, but that is an essential part of BACT and must be allowed.

    The following examples illustrate the need for a Tier III review even though initially it may appear that a Tier I review is applicable in these cases.

    a. For NOx control on a furnace, Tier I may be equivalent to selective catalytic control (SCR) or ultra-low NOx burners. To install SCR on an existing furnace, adequate plot space or platforms are needed to locate the catalyst bed, otherwise extensive ducting and additional fan capacity may be needed, either at significant costs beyond what may have been considered for a Tier-1 option.

b. Similarly, to install ultra-low NOx burners on an existing furnace, the furnace floor and refractory may need to be lowered to avoid flame impingement on heater tubes, also at significant costs beyond what may have been considered for Tier I.

TCC suggests the following changes to the second paragraph under Tier III. The statement that it is "usually in the best interest of … the applicant … to avoid the third tier of BACT evaluation" is inaccurate and TCEQ is not the one making the evaluation. The "highly-complex and time-intensive nature" of Tier III will likely be easier to the applicant than installing, maintaining, and operating additional unnecessary control equipment.

"A Tier III evaluation is rarely may be necessary. because Technical practicability and economic reasonableness have usually been firmly established by industry practice as identified in the first two tiers. Due to its highly-complex and time-intensive nature, it is usually in the best interest of both the applicant and the TCEQ to avoid the third tier of BACT evaluation. Furthermore, the completion of such an evaluation is not likely to result in substantially different emission reduction options than what would otherwise be indicated by the first two tiers."

Similarly, Page 16 Section IV, Specific Control Evaluations, TCEQ Three-Tier Analysis BACT Determination Procedure, under item 5, is incorrect:

> "Complete a Tier III analysis, if necessary, for the BACT proposal. There may be some cases when an applicant demonstrates that there are no process/industry types with similar emission streams. Additionally, there may be some cases when an applicant's BACT proposal cannot achieve an emission reduction performance level that is at least equivalent to those accepted as BACT in recent permit reviews for process/industry types with similar emission streams due to compelling technical or economic reasonableness differences between the applicant's process and others. In these cases, a Tier III BACT analysis is required.
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> As previously discussed, a Tier III evaluation is rarely not necessary in most cases because technical practicability and economic reasonableness have usually been firmly established by industry practice as identified in the first two tiers. Due to its highly-complex and time-intensive nature, it is usually in the best interest of both the applicant and the TCEQ to avoid the third tier of BACT evaluation."
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> Changes as suggested above should also be made to Appendix G, Tier III BACT Analysis. **Page 46:** The Tier III evaluation is highly-complex and time-intensive. Since technical practicability and economic reasonableness are usually firmly established by industry practice and are clearly identified in the first two tiers of a BACT review, a Tier III review should rarely be required.
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> **TCEQ responds:** The Three-Tier BACT determination procedure allows for a Tier III review when Tier III has been demonstrated by the applicant to be necessary. However, the Three-Tier process must be followed and the applicant must demonstrate that each tier has been fully evaluated before moving to the next tier. No changes will be made.

11. Pages 10 – 18: Three Tier BACT approach

The Draft Guidance states on Page 11:

"In each tier, BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness."

"A Tier I BACT evaluation can be relatively straightforward in that the technical practicability and economic reasonableness of a particular emission reduction option have already been demonstrated in prior reviews."

For Tier II "As with Tier I evaluations, the economic reasonableness of a particular emission reduction option should already be established by prior permit reviews.

The second and third statements above seem to be contrary to the first statement. If BACT is truly evaluated on a case-by-case basis, then the technical practicability and economic reasonableness of a particular emission reduction option cannot have been demonstrated by prior reviews unless it is the exact same facility and process.

Even though it is stated on page 11 that BACT is evaluated for technical practicability and economic reasonableness in each tier, the process to be followed by permit writers is not developed accordingly in the step by step progression later in the document. On page 17, it is stated that during a Tier I or Tier II analysis, only if a new or previously unconsidered reduction emission option is identified does the reviewer instruct the applicant to perform a Tier III like analysis. It is further stated that the instruction is only to be made under APD management direction.

Economic reasonableness should not be limited to just Tier III BACT analysis. It should be considered in all three tiers when evaluating BACT. Even for Tier I and Tier II, a BACT option used at one facility does not necessarily mean it is an acceptable BACT option for another facility in the same or similar industry. Economic reasonableness can vary between facilities due to factors such as differences in infrastructure and engineering standards. Even two facilities manufacturing the same product and owned/operated by the same company may not share the same BACT option if they came under common ownership through acquisition or built at different time periods. Furthermore, the determination on whether Tier III is needed should not be restricted to APD management direction. Most often through best project management practices, the applicant already has the data relating to technical practicability and economic reasonableness and should already determine prior to submitting an application whether the project can meet the emission reduction performance established by the previously accepted BACT options or will need to propose a new control option through a Tier III BACT analysis. Therefore, TCC suggests that economic reasonableness consideration is part of each BACT tier evaluation and that the progression into the next tier, including Tier III, be determined by the applicant as needed as early as at the time of application submittal rather than waiting for APD management direction later in the technical review.

> **TCEQ responds:** It is a divisional policy that the Three-Tier BACT determination procedure be followed for each proposed project. Each tier of this procedure must be completed before moving to the next tier. This policy ensures that all applicants are held to the same process and requirements while protecting against the risk of allowing backsliding of control technology application and allowing for the advancement of control technology. This policy makes certain that all applicants are held to the same BACT evaluation requirements, thus ensuring fairness in the BACT determination procedure. TCEQ will not make the suggested changes from TCC. However, for clarification purposes, TCEQ will make the following changes:

In each tier, BACT is evaluated on a case-by-case basis for technical practicability and economic reasonableness. The three tiers are briefly described as follows:

- **Tier I.** In the first tier, an applicant's BACT proposal is compared to the emission reduction performance levels accepted as BACT in recent NSR permit reviews for the same process and/or industry, which can be identified by the principal company product or business, Standard Industrial Classification (SIC) Code and the North American Industry Classification System (NAICS) system code.

  A Tier I BACT evaluation can be relatively straightforward in that the technical practicability and economic reasonableness of a particular emission reduction option may have already been demonstrated in prior reviews for the same process and/or industry. However, the BACT evaluation should also take into consideration any new technical developments, which may indicate that additional emission reductions are economically or technically reasonable.

12. Pages 13-15: Proposed emissions reduction options and Proposed BACT Performance Elements-100% On-Stream Time

As stated in the Draft Guidance, any of the following options or any combination of them may be proposed to satisfy BACT requirements: pollution prevention, equipment specification/monitoring, add-on abatement, and good engineering practice/best management practice. The proposed emission reduction option must either be on-stream 100 percent of the time or a backup emission reduction option must be reviewed and approved before the permit is issued. TCC is concerned that this will mislead the permit reviewers to require backup emission control device for all control options proposed or used. It is impractical to expect 100% control.

The view of 100% on stream time is also not consistent with certain EPA rules, which acknowledge that control devices do not have 100% uptime due to malfunctions. Specifically, in the MACT rules (40 CFR Part 63), EPA requires sources to develop and operate in accordance with Startup, Shutdown and Malfunction plans (SSMPs). SSMPs must address how sources respond to control device and process malfunctions.

Some specific EPA rules go so far as to establish numerical uptime requirements for control devices. For example, 40 CFR 63.2251 (Plywood and Composite Wood Panel MACT) establishes 97% and 99.5% minimum annual uptime requirements for control devices (e.g., thermal oxidizers) on certain wood drying sources (e.g., plywood veneer dryers).

TCEQ and EPA define BACT as "an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility." It is important to note that the definition includes the term "is achievable". Control device uptime is highly specific to the specifics of the process and control device. For example, a thermal oxidizer that controls emissions from storage tanks at a refinery might be considered a "clean" service for an oxidizer, resulting in high uptime, while a "dirty" service, such as a plywood dryer, would have lower uptime. Failure to consider control device downtime is to ignore the realities of how control devices function in practice.

Backup control devices can improve overall uptime of an emission control system. However, backup control devices have significant economic impacts as well as startup requirements. For example, if a thermal oxidizer shuts down on high temperature, a backup control device (e.g., second oxidizer) is only effective if it is always in a standby mode, consuming fuel and generating emissions. If the backup is not operated in a standby mode, it will require time to startup and be ready to control emissions. In our example, it may take less time to restart the primary thermal oxidizer after the high temperature shutdown than to start up a backup control device. Another example is the process technology employed may not allow the use of an emission abatement device until a certain temperature or pressure is attained during the startup activity. In this situation, a backup control device would not have helped meeting the 100% on-stream criteria. Therefore, for many processes, it is likely that backup control device will be economically infeasible or have adverse energy and environmental impacts.

Thus, considering the definition of BACT, EPA's acknowledgement that control devices are not 100% reliable, and the necessity to consider that BACT is based on control device performance in practice (i.e., what has been achieved in practice at other sources), BACT analyses should consider control device reliability / uptime, with a specific focus on the case-by-case factors.
For the above reasons, TCC suggest that TCEQ adopt the concept to make allowance for a percent (i.e. 5%) down time of the control device to exclude periods of unit maintenance, equipment function test, instrument calibrations, equipment startup, etc. The emissions during periods of startup and maintenance of the control device should be permitted through any of the authorization methods where applicable requirements are met. As illustrated, back-up emission reduction options are not practical in all cases. Methods of minimizing emissions other than a backup control device, including operation procedures, should be also considered as a method to minimize emissions during control device downtime. For example, procedurally transferring from a storage tank when the tank control device is unavailable.

TCEQ responds: For both production and MSS, BACT must be on-stream 100 percent of the time and the authorization will reflect this requirement. However, the TCEQ does acknowledge that BACT may be different for production than it is for MSS. All permits will be issued with conditions requiring BACT to be on-stream 100 percent of the time. The TCEQ recognizes that this requirement may not be attainable during certain events or activities; however, such cases become an enforcement issue. For clarification, the "On-stream Time" bullet has been changed as follows:

- **On-stream Time.** The goal for the proposed emission reduction option ~~must either be~~ is to have it on-stream 100 percent of the time or to have a backup emission reduction option that must be reviewed and approved before the permit is issued. Backup or installed spare control devices are always encouraged, especially if the uncontrolled stream is large. Any backup or spare control devices must meet established BACT performance levels for the specific type of control device. If backup or spare control devices are not feasible, methods to minimize downtime and corrective action plans must be proposed. The applicant must also address the disposition of emissions during control system downtime, even if the proposed downtime is low.
- The TCEQ recognizes that BACT may be different for normal production than it is for MSS. In such cases, BACT must be proposed and evaluated for both normal production and planned MSS scenarios.

13. Equivalent emission reduction performance – throughout the document starting on Page 16, the Draft Guidance specifies that the proposed BACT option must have the emission reduction

performance at least equivalent to those previously accepted as BACT. TCC believes the focus should not be on the emission reduction performance compared to other facilities but should be on the proposed emission rates being evaluated. Depending on the starting point of the facility for which the proposed BACT is being evaluated, it is not appropriate to expect the same level of percent emission reduction from the proposed facility as compared to a similar facility if the proposed facility's starting point is significantly different than those previously evaluated. Depending on several factors such as engineering design and the chemical process, it is not reasonable to expect every facility to achieve the same percent reduction particularly relating to NOx reduction which is typically expressed in terms of concentration (ppmv). The level attainable by each proposed facility is based on the properties of the specific vent stream being controlled.

> **TCEQ responds:** The control device or control technique sets BACT; the activity (production) is involved in setting the emission rates. There is a difference between BACT and reduction efficiency. For example, a flare should get 98 percent reduction efficiency regardless of the process or the uncontrolled emission rate (a flare at a refinery should not get a different efficiency than a flare at a chemical plant). Control efficiencies apply to devices. Different starting points for the process or uncontrolled emission rates do not affect the emission reduction performance. No changes will be made.