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Michael Parrish, MC-205
Office of Legal Services
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087
http://www5.tceq.state.tx.us/rules/ecomments

Re: Rule Project Number 2010-018-106-PR; Comments on TCEQ's Proposed Permit by Rule for Oil and Gas Sites and Standard Permit for Oil and Gas Facilities

Dear Mr. Parrish:

Thank you for the opportunity to provide the attached comments on the Texas Commission on Environmental Quality's ("TCEQ") proposed permit by rule ("PBR") for oil and gas sites and the related standard permit for oil and gas facilities.

We appreciate TCEQ's recognition that there is a need to significantly revise the PBR and standard permit for oil and gas facilities. EDF supports a central goal of TCEQ's proposed PBR and standard permit: that these authorizations should be protective of human health and welfare.

We agree with the TCEQ's statement in the preamble of the critical importance of these updates for oil and gas sites in urban locations or in close proximity to the public. Consequently, we suggest the TCEQ adopt our recommendations to apply more stringent conditions in such locations to maximize the protection of the health and welfare of Texans.

Please let me know if you have any questions about our comments or require any additional information.

Sincerely,

RA

Ramón Alvarez, Ph.D.
Senior Scientist

44 East Avenue
Austin, TX 78701

T 512 478 5161
F 512 478 8140
www.edf.org

New York, NY / Austin, TX / Bentonville, AR / Boston, MA / Boulder, CO / Raleigh, NC
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Comments of Environmental Defense Fund on
TCEQ's Proposed Permit by Rule for Oil and Gas Sites
and Standard Permit for Oil and Gas Facilities
(Rule Project Number 2010-018-106-PR)

September 30, 2010

I. Dispersion Modeling and Associated Values in Tables 2 - 6

EDF supports a central goal of TCEQ's proposed PBR and standard permit (SP): that these authorizations should be protective of human health and welfare. (See, e.g., 35 Tex Reg 6938) In practice, this would be achieved by the rigorous adherence to and conduct of the impacts evaluation in subsection (k) of the proposed PBR and SP. This is why the TCEQ's dispersion modeling and associated values in Tables 2-6 are such a vital part of the TCEQ's proposed authorization framework for these sources.

EDF retained Source Environmental Sciences, Inc. to evaluate the air modeling and technical support documentation associated with TCEQ's proposed authorizations for oil and gas sites. Included as part of this review, Source Environmental Sciences performed its own modeling to ascertain the level of protectiveness afforded by the values in Tables 2-6 of the proposal. The results of this evaluation, and their implications in the context of the TCEQ proposal, are discussed below. A copy of the full letter report from Source Environmental Sciences (dated September 8, 2010) is attached. This letter report and the accompanying spreadsheets will also be submitted electronically for TCEQ's use and are hereby incorporated into these comments.

Based on several deficiencies identified in the review by Source Environmental Sciences, described in more detail below, we urge TCEQ to make appropriate clarifications and/or improvements prior to the promulgation of the proposed OGS PBR and standard permit to maximize the protectiveness of these authorizations.

- Model Selection

The TCEQ used the ISCST3 model, and claimed that the predicted ground-level concentrations were conservative especially for short distances and low-level emissions. By running the AERMOD model instead of the ISCST3, we find that AERMOD predicts higher downwind concentrations – for all at least one source type configuration in each of TCEQ's proposed tables except flares. This was particularly true for low-level fugitives at longer distances, and other sources at shorter distances. These results are summarized in the table below. (For full results, please see accompanying spreadsheet – tables comparing AERMOD vs ISCST3 using TCEQ

44 East Avenue
Austin, TX 78701
T 512 478 5161
F 512 478 8140
www.edf.org
New York, NY / Austin, TX / Bentonville, AR / Boston, MA / Boulder, CO / Raleigh, NC
Sacramento, CA / San Francisco, CA / Washington, DC / Beijing, China

inputs, including Travis County met data). Based on this analysis, it is evident that the worst-case emissions from one source may be underestimated depending on the model used.

Table 1. Comparison of AERMOD and ISCST3

Source type	Max under-prediction of ISCST3	Distance of max under-prediction (ft)
Fugitive – 3 ft	635%	2000
Small engine – 8 ft	244%	100
Large engines – 8 ft	452%	100
Purging – 3ft	424%	50

We also note that the EPA Guideline on Air Quality Models published in 40 CFR 51, Appendix W does not list ISCST3 as a preferred air quality model for use in regulatory applications. Furthermore the EPA's SCRAM website states the following:[1]

> "As of December 9, 2006, AERMOD is fully promulgated as a replacement to ISC3, in accordance with Appendix W."

Recommendation: To ensure that values in the tables result in protective emissions limits, the TCEQ should run both ISCST3 and AERMOD and choose the highest prediction for each source type configuration-distance combination.

Recommendation: Because ISCST3 is not a recognized model by EPA, ISCST3 should not be used to evaluate impacts from sources subject to federal review. If the modeling conducted for the proposed OGS PBR and standard permit is performed using ISCST3, the resulting PBR and standard permit should not be used to authorize facilities at sites that are a major source of air pollutants or any other source subject to federal review.

- Representativeness of Meteorological Inputs to Dispersion Model

TCEQ ran dispersion modeling using surface met data from Austin and surface air data from Victoria, and claimed that the "five-year data set would include worst-case meteorological conditions that could occur anywhere in the state." (Proposed Air Quality Standard Permit for Oil and Gas Sites, p. 61). To test this claim, Source Environmental Sciences ran AERMOD with met data from both Travis County and Tarrant counties. As shown in the table below and in more detail in the accompanying spreadsheet "O&G Tables Comparison.xls", Tarrant County meteorological data resulted in higher offsite concentrations for certain combinations of sources and distances.

Table 2. Comparison of AERMOD results using Tarrant County vs. Travis County Met Data

Source type	Max error
Table 2	35%
Table 3	2%
Table 4	4%
Table 5	2%
Table 6	26%

[1] http://www.epa.gov/ttn/scram/dispersion_prefrec.htm

To further test whether the met data used by TCEQ truly represented worst-case conditions, we ran ISCST3 using a meteorological data set that simulates conditions that generate theoretical maximum offsite ground-level concentrations. The specific meteorological data set that we used was generated using a computer program called "ISCST Screening Met Program" that creates a data file that instructs ISCST3 to cycle through predefined wind directions and all possible meteorological stability classes when running the model. This program was designed by Mr. Pat Hanrahan of the Oregon Department of Environmental Quality (retired). The resulting impacts generated using this meteorological data set should theoretically be the "worst-case" impacts that could occur anywhere in the State of Texas (not just in Travis County in the years that the TCEQ evaluated). The results of this analysis are shown in Table 3 and attached excel spreadsheet file titled "O&G Modeling Comparison – Star Met Data.xls". As shown in this file, the unit impacts modeled by the TCEQ for fugitives, process vents, and blowdown/purging stacks are almost all lower than the worst-case unit impacts that we obtained (excluding 50 foot tall process vents). Therefore, we believe that the unit impacts modeling tables in the proposed OGS PBR and standard permit do not represent the "worst-case" scenario for all of these types of sources.

Table 3. Comparison of ISCST3 results using Worst-Case vs. Travis County Met Data

Source type	Max difference
Table 2	73%
Table 3	1%
Table 4	15%
Table 5	2%
Table 6	54%

Recommendation: To ensure that the truly "worst-case" scenario for all sources has been considered, at least for Table 2 and Table 6 sources, the TCEQ should run both ISCST3 and AERMOD with met data from multiple locations in the state (perhaps one county in each TCEQ region). For a given source category, the TCEQ should choose the highest prediction from all modeling runs for the values in Tables 2-6.

- Simulation of Engine Emissions

Our consultant, Source Environmental Sciences reviewed the TCEQ's source input data for both large and small engines. They compared the input parameters used in the modeling to manufacturer data to confirm that they were reasonable. Their evaluation focused on the exhaust flow rate and temperature used in the model for engines. Based on 1996 engine performance information for G3400 and G3500 series Caterpillar gas engines (see the table titled "Engine Exhaust Parameters" in the attached report from Source Environmental Sciences), the exhaust flow rates for both small and large class engines are significantly smaller than the values used by the TCEQ (3,000 vs 4,800 cfm for small engines [<1,000 hp]; and 4,500 vs. 9,500 cfm for large engines [>1,000 hp]). On the other hand, the exhaust temperatures were in reasonable agreement. Since the exhaust flow rates for both engine types are lower than the flow rates that the TCEQ used in their modeling, the stack exit velocities may also be lower for these engines (assuming that the stack exit diameter is the same for all engines). Consequently, we are unsure whether the TCEQ's dispersion modeling for engine emission is an accurate representation of actual emissions.

Recommendation: The TCEQ should provide data to support its assumptions about the flow rate and stack velocities used in the dispersion modeling, and make appropriate adjustments if necessary to reflect real world conditions. The TCEQ should rerun the dispersion model for engines with the adjusted assumptions and revise the unit values in Tables 3 and 4. In addition, to ensure real world operating conditions match the assumptions used in the protectiveness review, the TCEQ should add a condition to the draft OGS standard permit and PBR rules that limits engine and turbine exhaust exit velocities to a minimum of 159 ft/sec for small engines and 315 ft/sec for large engines (these are the exit velocities used in the TCEQ's modeling; or alternative values if TCEQ reruns the dispersion model with new exit velocities based on our comment), and requires periodic sampling and demonstration of compliance that such a limit is being met.

- Stack-Tip Downwash for Certain Sources

The TCEQ's modeling for compressor blowdowns and pipeline purging stacks does not consider stack-tip downwash, which is a non-regulatory default option in AERMOD and ISCST3. The TCEQ included stack-tip downwash for all other modeled point sources. Excluding stack-tip downwash from the modeling study ignores the effects of turbulent eddies that form immediately downwind from a stack. The AERMOD Implementation Guide (revised March 19, 2009) states that stack-tip downwash should be turned off for capped or horizontal stacks that are not subject to building downwash. However, the compressor blowdown and pipeline purging stacks were not represented as horizontal or capped stacks. If stack-tip downwash were included in the model, the Table 6 predicted concentrations from pipeline purging would increase dramatically (blowdowns were unaffected). Our consultant, Source Environmental Sciences quantified the increase in predicted concentrations due to the inclusion of stack tip downwash. For example, using AERMOD with Travis County met data, the unit concentrations at a receptor 50 feet away from the purging of gas pipeline at a height of 10 feet increase from 1,285 without stack-tip downwash to 43,819 with stack-tip downwash, a factor of 33 higher. The full results of this analysis are included in the tab "Table 6.1" in the spreadsheet entitled "O&G Tables Comparison.xls".

Recommendation: The TCEQ should either include stack-tip downwash in its dispersion modeling of pipeline purging stacks, or provide an adequate justification for why it was not included.

II. Level of overall health protectiveness

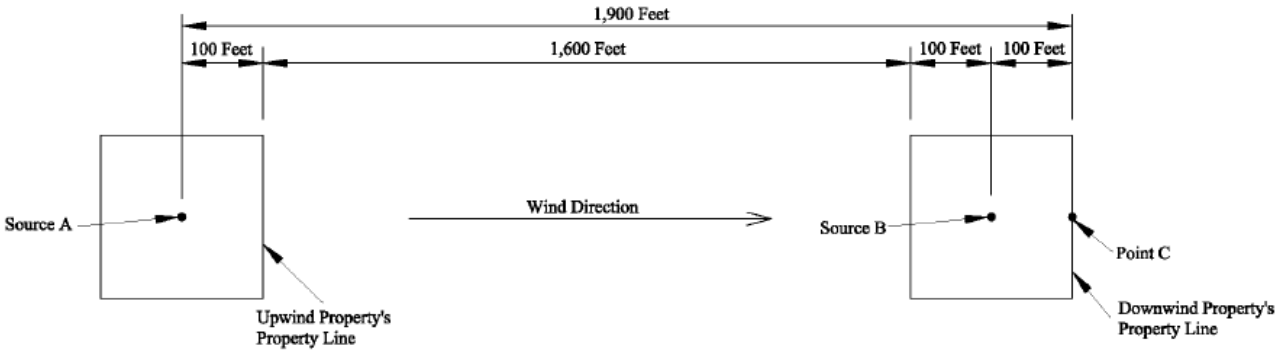
- Adequacy of ¼ mile limit for aggregation of emissions

The TCEQ has proposed to define a *de facto* contributing zone of emissions that affect a receptor, which would include all adjacent sources of emissions under common control within a distance of ¼ mile. Stated differently, the TCEQ's protectiveness review assumes that every ¼ mile grouping of oil and gas sources exists in isolation of all other oil and gas sites, or of any other sources of common emissions. Specifically, TCEQ does not consider the effect of emissions from, for example: 1) an OGS under the control of another party that could be less than ¼ mile from the OGS being authorized; 2) sources at another OGS under control of applicant but more than ¼ mile away; or 3) emissions from other sources that elevate background levels of air pollutants in the area of an OGS. Allowable emissions increases under

§106.352 (c)(1)(B) that don't trigger a new registration are also excluded. While these conventions may prove convenient and reduce opposition from industry, the TCEQ fails to demonstrate that emissions from sources excluded from the protectiveness review, when combined with emissions from an authorized OGS, would not contribute to ambient air pollutant concentrations that pose a risk to human health and welfare.

At a minimum, the effect of limiting the emissions that are considered in a protectiveness review to those from adjacent OGS sites that are operationally related will be to remove a portion of any claimed conservatism built into the dispersion modeling analysis for many OGS in areas of dense oil and gas activity or in areas with elevated ambient levels of relevant pollutants. Of greater concern would be the possibility that emissions from authorized OGS, in combination with other sources, will cause unsafe levels of air pollution at some locations.

To illustrate this point, our consultant Source Environmental Sciences, constructed the following scenario showing that the combined contribution of an OGS source more than ¼ mile away from a second OGS can cause an exceedance of an ESL downwind of the second OGS.



Example: A company owns two OGS facilities on properties that are located 1,600 feet from each other (which is greater than ¼ mile). The upwind property contains a 30-foot tall process vent located 100 feet from its downwind property line with a benzene emission rate of 1.89 lb/hr. This process vent is denoted as Source A in the figure above. The downwind property also contains a 30-foot tall process vent located 100 feet from its downwind property line with a benzene emission rate of 1.89 lb/hr. This process vent is denoted as Source B in the figure above. The distance from the downwind property's downwind property line (Point C) to Source A is 1,900 feet. Calculating the benzene impacts at Point C using the unit impacts for process vents in Table 2 of the proposed OGS PBR and standard permit yields a concentration of 170 µg/m3 from Source B and a concentration of 87 µg/m3 from Source A, which totals 257 µg/m3. (Please note that benzene emission rate of 1.89 lb/hr was calculated using the maximum hourly emission rate calculation methodology shown in Table 1 of the proposed OGS PBR and standard permit.)

If we consider the impacts from both sites combined, it is clear that the benzene ESL (170 µg/m3) will be exceeded at the downwind property's downwind property line. This would violate the impact evaluation requirement in paragraph (k)(3)(B) of the proposed standard permit and

PBR. However, since the applicant would not have to consider emissions of Source A, Source B in the scenario described above could be authorized under the new standard permit. This scenario shows that the ¼-mile limit for source aggregation allowed by the proposed OGS PBR and standard permit can result in property line impacts that could not be authorized under a single authorization, and that are not protective of human health and welfare.

Recommendation: The TCEQ should expand the radius for aggregation of emissions for the protectiveness review beyond the proposed ¼ mile distance. This radius should be sufficiently large so that the contribution of an upwind source becomes *de minimis* to a particular receptor when considered in combination with emissions from a downwind OGS.

Recommendation: In addition to adopting the recommendation above, the TCEQ should develop a more comprehensive system for ensuring that emissions from proposed oil and gas sites, when combined with emissions from sources already in operation near a proposed oil and gas site, do not cause or contribute to exceedances of NAAQS or ESLs.[2] As an initial step towards such a system, the TCEQ should modify the equations in Table 1 to account for existing ambient concentrations of relevant pollutants in the vicinity of a proposed site. Specifically, the TCEQ should substitute P and ESL in the equations with a variable to represent the difference between a NAAQS (or ESL) and recent monitored levels of the relevant pollutant in the area. Where no such monitoring data is available, TCEQ could provide default values.

An alternative approach to account for emissions that aren't captured in the protectiveness review as currently proposed would be to apply a discount to values calculated under §106.352 (k)(4)(A), where the discount would be progressively larger based on the density of other oil and gas activity, as well as other contributing emissions sources, around a proposed OGS. The TCEQ could consider applying this discount factor only in densely populated counties (e.g., population density of 150 per square mile)[3] where the likelihood of human exposures is highest. As an example, a proposed OGS in Denton County would apply a [50%] discount to the values calculated under §106.352 (k)(4)(A) if there were [one or more] other OGS within a [half mile] of a proposed site.

- Appropriate comparison value for benzene

The protectiveness review under the proposed PBR and SP for OGS considers only the established 1-hour and annual ESLs for benzene. These values do not account for the varied duration of real world exposures that occur in areas downwind of OGS. The Agency for Toxic Substances and Disease Registry (ATSDR) has published a Minimal Risk Level (MRL) of 9 ppb for benzene inhalation over a 1 to 14 day period, which is intermediate to the 1-hour and annual ESLs used by TCEQ. Below, we provide an analysis to show that the ATSDR acute MRL of 9 ppb for benzene would result in more stringent emissions limits than TCEQ's 1-hour ESL, and request that the TCEQ require the more protective emissions limits.

[2] As discussed above, two other types of contributions would be ignored in the protectiveness review: OGS under the control of another party that could be less than ¼ mile from the OGS being authorized; and emissions from other sources that elevate background levels of air pollutants in the area of an OGS.
[3] For comparison, Johnson County and Denton County have 215 and 741 persons per square mile, respectively (2009 census data)

ATSDR maintains a list of MRL for many chemicals of concern.[4] An MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse noncancer health effects over a specified duration of exposure. These substance specific estimates, which are intended to serve as screening levels, are used by ATSDR health assessors and other responders to identify contaminants and potential health effects that may be of concern at hazardous waste sites. Proposed MRLs undergo a rigorous review process. They are reviewed by the Health Effects/MRL Workgroup within the Division of Toxicology and Environmental Medicine, an expert panel of external peer reviewers, and the agency wide MRL Workgroup with participation from other federal agencies including EPA, and are submitted for public comment through the toxicological profile public comment period.

Our consultant, Source Environmental Sciences evaluated whether the conclusions of the OGS protectiveness review would change if the ATSDR Minimal Risk Level for benzene for acute exposures (1-14 days) of 9 ppb were used. They concluded that the ATSDR MRL for benzene would result in lower emissions than allowed by using the TCEQ ESL. A summary of the analysis is presented below.

To answer this question, they first converted the 9 ppb standard for benzene acute exposures into μg/m3 using atmospheric conditions at Standard Temperature and Pressure (STP; T=293 Kelvin and P=101,325 Pascals). At STP, the ATSDR Minimal Risk Level converts to 29 μg/m3. Running the ISCST3 model for "process vents" at the various specified heights in the proposed standard permit and retaining the 24-hour average concentrations yields a maximum 24-hour unit impact of 174 [μg/m3 / lb/hr], which occurs 150 feet downwind from a 10 ft tall process vent. Using the equations in Table 1 of the proposed OGS PBR and standard permit, we can calculate a maximum allowable benzene emission rate of 0.17 lb/hr based on maximum allowable impacts occurring 150 feet from a 10 ft tall process vent (0.17 lb/hr = 29 μg/m3 / 174 [μg/m3 / lb/hr]). Performing the same calculations using the short-term Effects Screening Level, as proposed in the new OGS PBR and standard permit, yields a maximum allowable emission rate of 0.36 lb/hr (0.36 lb/hr = 170 μg/m3 / 469 [μg/m3 / lb/hr]). This is slightly more than twice the emissions that would be consistent with the ATSDR MRL.

Therefore, if a 10 foot tall process vent located 150 feet from a property line is emitting between 0.17 and 0.36 lb/hr of benzene, the proposed PBR and standard permit modeling would suggest that the impacts would be protective of public health and welfare. However, comparing the impacts to the ATSDR Minimal Risk Level for a 24-hour average concentration shows that the operation would actually not be protective of public health and welfare.

Recommendation: Unless the TCEQ can demonstrate that the acute exposures underlying the ATSDR's MRL of 9 ppb for benzene would otherwise be prevented by the TCEQ's 1-hour benzene ESL, then the OGS PBR and SP should require the more protective emissions limits for benzene emissions that would result from use of the ATSDR MRL. In practice, this could be accomplished by adding a set of tables for 24-hour unitized concentrations (as a supplement to Tables 2-6) and modify Table 1 to require applicants to use the ATSDR 9 ppb acute MRL for benzene (in lieu of the 1-hour ESL). A more general formulation to recognize the possibility that the ESL or MRL values may change over time, would be to require applicants to conduct a

[4] http://www.atsdr.cdc.gov/mrls/index.asp

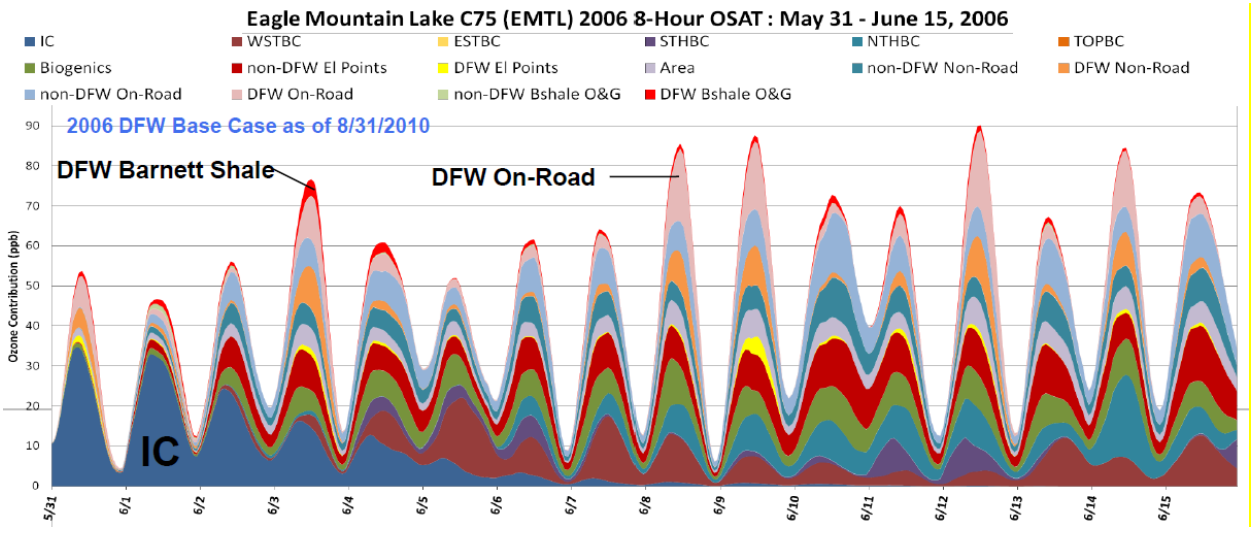
protectiveness review using both values, and then be subject to the more stringent of the two resulting emissions limits.

III. General Comments

- Ozone NAAQS impacts

The federal Clean Air Act requires that SIPs regulate the construction and modification of sources to achieve and maintain compliance with the NAAQS and PSD increments and that SIPs include provisions prohibiting any source or type of emissions activity that will emit pollutants that will contribute significantly to nonattainment or interfere with maintenance of the NAAQS. 42 USC § 7410(a)(2). Because the proposed PBR and SP could be used to authorize thousands of sources, many of which are in, near and/or upwind of ozone nonattainment areas, TCEQ must provide a demonstration that the cumulative use of PBRs and SPs will not authorize sources that in the aggregate will cause or contribute to nonattainment or violations of the PSD increments. When TCEQ proposed its MSS PBR in 2007, EPA raised this issue in their comments, specifically requesting modeling making such a demonstration and an estimate of the number of sources or potential emissions expected from sources. (See Attachment 1, Nov. 16, 2007 letter from EPA to Richard Hyde at p.2 – points 1 and 3).

TCEQ is conducting photochemical modeling in support of the new ozone SIP being developed for the DFW nonattainment area. As part of that modeling the TCEQ singled out for analysis the ozone formed from Barnett Shale emissions with a tool called Ozone Source Apportionment Tool.[5] The influence on the monitor at Eagle Mountain Lake is evident in the chart below, which shows an ozone contribution of 3-5 ppb (the red segments on top of the hourly ozone plots). The model also predicted peak ozone increments of that magnitude at the monitors in Decatur and Weatherford.



Source: Doug Boyer, TCEQ

[5] See http://www.tceq.state.tx.us/assets/public/implementation/air/am/committees/pmt_dfw/20100831/20100831_PMTC_Modeling_EIs.pdf, p. 21 of 27

Recommendation: TCEQ should analyze the cumulative effects of OGS PBRs/SPs on NAAQS and PSD increments in Texas. The TCEQ must affirmatively demonstrate that the cumulative use of PBRs and SPs will not authorize sources whose emissions, in the aggregate, may cause or contribute to nonattainment or violations of the PSD increments. This issue is particularly important because once the PBR is adopted into rule there is no opportunity for public participation in the actual approval of individual PBRs. Morevoer, since the TCEQ may not receive a notification for a PBR claim until 180 days after the start of operation, it becomes impractical to "un-ring the bell" if the TCEQ subsequently determines that impacts on NAAQS or PSD increment become unacceptable – especially in light of the rapid pace of development in concentrated areas like the Barnett Shale, where roughly 3,000 wells were drilled annually in 2008 and 2009.

- No grandfathering.

Recommendation: The TCEQ should phase in a requirement that existing facilities statewide, or at least in the East Texas Region, must obtain a new OGS authorization within 3 years of rule adoption, or 18 months in nonattainment areas or affected counties. Such a requirement would ensure that emissions from thousands of individual OGS sites in the Region are protective of public health. For the rest of the state, the TCEQ should require any facility filing only for an MSS permit under 106.352(b)(7) to provide certified estimates of emissions from their site demonstrating current compliance with their previous claim of authorization under this section.

- Scope of rule should include natural gas well emissions

We commend TCEQ on its efforts to identify oil and gas sources that significantly contribute to air pollution and to craft rules that are protective of public health. It is imperative that both the permit by rule ("PBR") and standard permit safeguard the public from exposure to the numerous air pollutants emitted from oil and gas facilities including air toxics and other compounds that lead to ozone, particulate matter, climate-disrupting pollution, and haze. The scope of the rule in applying to a large number of oil and gas facilities generally meets this standard. However, we are concerned that the rule does not appear to apply to natural gas well emissions. Wells are not listed among the facilities evaluated by the Commission in its review of the PBR and therefore may not be listed in a PBR registration. *See* Section 106.352(d)(1); *see also* Background and Summary of the Factual Basis for the Proposed Rules ("Background and Summary"), 35 TexReg 6937, 6938-6939 (August 13, 2010). There are a number of activities that contribute to natural gas well emissions, including well completions, re-completions, workovers, and unloading. All of these have the potential to emit a number of air pollutants, including air toxics such as benzene and volatile organic compounds which contribute to ground-level ozone pollution. The TCEQ cites a statutory exemption for crude oil wells, as well as test wells lasting less than 72 hours. However, there is no indication that such an exemption exists for natural gas wells, nor are natural gas wells specifically included in 106.352(d)(1) or specifically exempted under section 106.352(d)(2) or from the definition of facility in the PBR in section 106.352(b)(1).

Recommendation: The final rule should incorporate emissions from natural gas well activities into authorizations in order to adequately protect human health. Otherwise, the TCEQ should identify any statutory or jurisdictional basis for the TCEQ to exempt natural gas wells from coverage under the PBR or SP. Given the discrete yet predictable nature of emissions from

natural gas well activities like completions, re-completions, workovers, and unloading, one approach to incorporating the resultant emissions would be to treat them as planned MSS emissions.

- Definition of "project" is needed

The rule should define what is meant by the word "project". Numerous provisions refer to "projects" yet neither Chapter 106, Subchapter O nor Subchapter A "General Requirements", defines the term. For example, sections 106.352(b)(5)(C) and (b)(6)(A) use the phrase "a project requiring registration" to define the geographic scope of a PBR registration as well as which emissions must be included in a protectiveness determination. Similarly, the phrase "project under this section" appears in section 106.352(b)(6)(B) ("Compliance with ambient air standards shall be demonstrated for any property-line within 2,700 feet of a project under this section for the following air contaminants…"). "Projects" are also referred to throughout sections 106.352(h)(3)(A)-(D) concerning certification requirements to establish enforceable emissions limits. Absent a clear definition of what constitutes a "project", it is difficult to ascertain which facilities at an oil and gas site must be included in a PBR registration or protectiveness evaluation under section 106.352(b) or certification under section 106.352(h)(3).

Recommendation: The rule should define what is meant by the word "project". For the same reasons discussed in the section above entitled "Level of overall health protectiveness", the definition of project should at a minimum include all emissions at an oil and gas site. This change is needed to ensure protectiveness of health. If such a change is not made, the requirement of 106.352(a)(1) that only one PBR for an oil and gas site (OGS) may be claimed or registered would seem to be rendered meaningless.

- Definition of "fugitive emissions"

As we indicated in our comments on the draft proposal, we support the inclusion of sources of fugitive emissions. However, we think there is the potential for confusion regarding the meaning of the phrase "fugitive components", in places such as 106.352(d)(1)(A).

Recommendation: To avoid any future disputes, we suggest including a definition of "fugitive components" or "fugitive emissions". One potential definition of fugitives could be drawn from EPA's Mandatory Reporting Rule for Greenhouse Gases: "Fugitive emissions means those emissions which are unintentional and could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening." 40 C.F.R. Part 98.6, EPA Mandatory Reporting of Greenhouse Gases: Petroleum and Natural Gas Systems; Proposed Rule, 75 Fed. Reg. 18608, 18634 (April 12, 2010).

- Tank truck loading

Recommendation: Splash loading of trucks should be prohibited and submerged loading required. If splash or uncontrolled vacuum truck loading is allowed, then applicants must certify the loading method to be used and the emissions expected to occur.

IV. Comments on Specific Provisions in the Draft Permit by Rule and Standard Permit

The following comments refer to the draft permit by rule, but they also apply to the draft standard permit since it closely mirrors the PBR. We therefore request the TCEQ consider our comments to apply to both proposals.

Note: Where applicable, we suggest revision to include additions in **bold** and deletions in [brackets].

§106.352 (a)
We support the specification of geologic formations to ensure that landfill gas facilities would not be authorized under this section. Since impurities in landfill gas may be expected to differ in composition from gases associated with traditional (geologic) oil and gas production facilities, the former should be authorized under a separate mechanism.

§106.352 (a)(1)
We support the limitation that only one PBR may be claimed by each oil and gas site because it enhances the protectiveness of the PBR by preventing the unlimited stacking of multiple PBRs, a practice which can undermine the fundamental presumption and underlying analytic underpinning that use of a PBR is protective of public health.

We also support the prohibition that this section may not be used if operationally-related facilities are authorized by another mechanism because it prevents major and other facilities from using a PBR to authorize emissions outside of an existing permit. However, the prohibition should be extended to any major source of emissions, not just an operationally related one. The Texas SIP and the Texas Health and Safety Code prohibit the authorization of MSS emissions from major facilities through PBRs. EPA's SIP approval of Texas general PBR provisions clarifies that EPA approved the use of PBRs only for non-major facilities. EPA stated:

> A PBR is available only to a facility that is authorized to emit no more than 250 tons per year (tpy) of carbon monoxide (CO) or nitrogen oxides (NO_X); or 25 tpy of volatile organic compounds (VOC), sulfur dioxide (SO_2), or inhalable particulate matter (PM_{10}); or 25 tpy of any other air contaminant, except carbon dioxide, water, nitrogen, methane, ethane, hydrogen, and oxygen (section 106.4(a)(1)). A PBR is not available to a facility or group of facilities which undergo a change which constitutes a new major source or major modification under Title I of the Act, part C (Prevention of Significant Deterioration of Air Quality) or part D (Nonattainment Review) (section 106.(a)(2)-(3)). Such major source or major modification must comply with the applicable permitting requirements under Chapter 116, Subchapter B, which meet the new source review requirements of Title I, part C or part D of the Act."

68 Fed.Reg. 64543, 64544 (Nov. 14, 2003); *See id.* at 64546 (similar language regarding standard permits). *See also*, Attachment 1 (U.S. EPA comments on a prior Texas PBR rulemaking proposal). EPA guidance provides that facilities with emissions even approaching the major source threshold must authorize emissions through a case-by-case review of an individual permit. *Potential to Emit Guidance for Specific Source Categories* (April 14, 1998) p.

2. (Case-by-case reviews are "essential for complex sources warranting close scrutiny . . . and sources that limit their emissions to near-major amounts.")

Likewise, the Texas Health and Safety Code limits the use of PBRs to "types of facilities that will not significantly contribute air contaminants to the atmosphere." Tex. Health & Safety Code §382.051(a)(4). It explicitly states:

> The commission may not adopt a permit by rule authorizing any facility defined as "major" under any applicable preconstruction permitting requirements of the federal Clean Air Act (42 U.S.C. Section 7401 et seq.) or regulations adopted under that Act.

Tex. Health & Safety Code §382.05196(a) (emphasis added). Both the Texas SIP and statutes, therefore, prohibit the authorization of emissions from major sources through PBRs. Such sources must seek authorization for any emissions not already in their permit through individual case-by-case permits.

§106.352 (a)(2)
We support this provision, including the statement that this section does not relieve an obligation to comply with any additional local regulations.

§106.352 (b)(2)
The proposed definition of receptor leaves out a number of places where people spend significant amounts of time and thus could be exposed to harmful pollution for extended periods of time. The definition of receptor should be modified to include all such places in order to ensure the maximum degree of public health protection. Specific places that should be included in the definition of receptor include medical facilities (hospitals, health care facilities, etc.); nursing homes; places of business (offices, stores and other workplaces and commercial establishments); hotels/motels; and parks; among others.

The current version of the PBR requires a ¼ mile separation between sour gas facilities and "any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facility or the owner of the property upon which the facility is located." This is a much more encompassing definition than the one proposed here.

The TCEQ's response to comments received on the pre-proposal draft of the revised PBR and SP argued that the proposed definition of receptor is consistent with the definition used in the standard permit for rock and concrete crushers and stems from 2001 legislation that addressed concrete crushers only. This is a flawed basis for the definition of receptor in the context of oil and gas sites. The referenced legislation, by the TCEQ's own admission, addressed concrete crushers only. Moreover, based on a quick review of how this issue was handled in other PBRs, we find that the TCEQ has used a more expansive definition for receptors (or setbacks) for various types of sources in rules adopted both before and after the enactment of the 2001 legislation on concrete crushers. These include (with emphasis added):

- §106.150. Asphalt silos: "located at least 300 feet from any recreational area, school, residence, or other structure not occupied or used solely by the owner of the property upon which the silo(s) is located;" (adopted August 2000).

- §106.149. Sand and Gravel Processing: " located at least 1/4 mile from any recreational area or residence or other structure not occupied or used solely by the owner of the facility or the owner of the property upon which the facility is located;" (adopted August 2000).

- §106.261. Facilities (Emission Limitations): "located at least 100 feet from any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facilities or the owner of the property upon which the facilities are located;" (adopted October 2003).

- §106.262. Facilities (Emission and Distance Limitations): "located at least 100 feet from any off-plant receptor. Off-plant receptor means any recreational area or residence or other structure not occupied or used solely by the owner or operator of the facilities or the owner of the property upon which the facilities are located;" (adopted October 2003).

- §106.533. Remediation. "Off-site receptor - Any recreational area, residence, commercial/industrial facility, or other normally occupied structures not used solely by the owner or operator of the facilities or the owner of the site upon which the facilities are located;" (adopted June 2004).

In sum, to ensure the PBR and SP are protective, TCEQ should expand the definition of receptor to include recreational areas and other structures, including the ones suggested above.

§106.352 (b)(5)(A)
We are concerned that the condition about changes to existing facilities which increase emissions to "amounts greater than previously certified" may be meaningless for sweet gas facilities that may never have registered with the commission. The TCEQ should add clarifying language that the requirements of (c)(1)(B) apply whether or not registration or certification ever occurred. Where no prior certification of emissions exist, the TCEQ should require re-registration if actual emissions ever exceed those in the highest year out of the last five years.

§106.352 (b)(5)(C)
We have three comments on this section:

As we show in the comments above in the section entitled "Level of overall health protectiveness", facilities more than ¼ mile away can contribute to air quality impacts at a single receptor. We therefore support the inclusion of emissions from adjacent facilities located within ¼ mile, *or more*, of a site claiming the PBR. Our comments above in the section entitled "Level of overall health protectiveness" describe how the TCEQ should determine the exact distance limit within which operationally related facilities should be considered.

It is not clear how one should measure the ¼ mile separation between operationally related facilities. The TCEQ should more explicitly state this to avert any confusion as to how to measure the boundaries of an oil and gas site. Specifically, we recommend the TCEQ should require the ¼ mile measurement to be made from the farthest emissions points on the boundary of an OGS. The comments we provide in the section entitled "Level of overall health

protectiveness" demonstrate with the TCEQ's own methodology that sources more than ¼ mile apart contribute to the pollution burden at the same receptor. For purposes of ensuring protectiveness of public health, the circumference for the protectiveness analysis should be drawn as broadly as possible.

There is some ambiguity about whether and how connecting piping or fugitive components referenced in this section are assigned to an OGS. The provision states that components "will not be considered when determining the ¼ mile separation for registration". This statement should be clarified to ensure that such connecting components are included in the authorization for at least the closest OGS site.

§106.352 (b)(6)
We strongly support the inclusion of a protectiveness review. We have provided extensive technical comments on the conduct of this review in earlier sections.

As noted earlier (in the discussions of the proposed ¼ mile radius for the protectiveness review and of the need for a demonstration that use of PBR authorizations would not cumulatively contribute to violation of the ozone NAAQS) we do not find that the protectiveness review, as proposed, ensures off site pollution levels that are protective of public health. Consequently, we also disagree with TCEQ's assertion in the preamble that the proposed "site-wide perspective" satisfies EPA requirements and agreements to assess cumulative air quality effects from related, similar sources. 35 TexReg 6943. The TCEQ should clarify what cumulative air quality effects were assessed and on what basis they were deemed to be acceptable.

§106.352 (b)(6)(A)
The final regulation should clarify that the evaluation be performed "for each OGS authorized under this section" instead of "[a]t and OGS." This language would ensure that the protectiveness review considers all relevant emissions within the circumference of the protectiveness review. At a minimum these should include emissions from all facilities under common ownership and account for background levels due to emissions from other sources.

We do not support the provision that the analysis need only evaluate planned MSS if a claim under this section is only for planned MSS. The TCEQ should require that the demonstration of compliance (within the circumference of the protectiveness review) be made for MSS emissions aggregated with routine emissions from the site, plus emissions from any operationally related facilities, and background ambient levels from other sources. Otherwise, the authorized MSS emissions may not be protective of public health and welfare. See generally Attachment 2, where previous EPA comments support this position. May 21, 2008 letter from Jeff Robinson to Richard Hyde, enclosure at p. 3.

§106.352 (b)(6)(B)
The pollutants covered under this section should also include CO, PM10, PM2.5 and formaldehyde.

§106.352 (b)(7)(B)
The TCEQ should require any facility filing only for an MSS permit under §106.352(b)(7) to provide a certification that: 1) current emissions from their site comply with their previous claim of authorization under this section; and 2) no unauthorized changes have been made to facilities

at the site since the previous authorization. These certifications will ensure OGS operators conduct the due diligence necessary to ensure their emissions are properly authorized and that facilities with authorizations that may date back to the 1970s have not been inadvertently or otherwise modified.

Separately, the TCEQ should require the same information be provided for existing OGS notification as for the Level 1 notification proposed in §106.352 (g)(4)(B). Further, we see no reason why information under this paragraph should not be provided sooner than January 2013. We suggest this date be changed to one year from the effective date of the rule so that the agency has the necessary information needed to formulate sound public policy in the future.

§106.352 (c)(1)
See comments made above for §106.352 (b)(5)(A)

§106.352 (c)(1)(A)
Since previously authorized OGS in sweet gas service did not have certified representations of emissions, language should be added to require registration of such OGS if historical emissions are exceeded, for example the highest year out of the most recent rolling 5-year period. Note: this same comment is intended to apply throughout subsection (c), wherever reference is made to certified emissions or representations.

§106.352 (c)(1)(B)
The allowance for a 100 hp engine should be removed, and such an addition should count toward the total emissions increase permitted in this subsection.

§106.352 (c)(1)(B)(i)
The total allowed increases for NOx and VOC are too high. Basing these values at the federal NSR applicability trigger (even at the most stringent such threshold) is not adequate for OGS sources whose emissions are supposed to be insignificant. Instead, the TCEQ should limit the total increases to the annual values proposed in §106.352 (c)(1)(B), and those values should be reduced accordingly. If the TCEQ does not reduce the allowed amount of emissions increases, then it should provide a quantitative demonstration that such emissions increases would not materially affect the results of a prior protectiveness review.

§106.352 (c)(3)
We <u>support</u> the ability of the executive director to deny an application for good cause. There are many scenarios foreseeable where some discretion would be warranted to avoid having to issue an automatic approval. These include site-specific considerations such as adjacent land uses, an applicant's compliance record, complaints, and the legal burden that would be placed on the agency to pull a permit after the fact.

§106.352 (d)(1)
As discussed above in the general comments, the final rule should require incorporation of emissions from natural gas well activities into authorizations in order to adequately protect human health.

§106.352 (d)(2)
We generally support all of the proposed exclusions in this subsection as these specialized sources should be authorized using separate source-specific requirements given their unique nature and the hazards that they pose. However, the TCEQ should clarify that emissions from the facilities, changes and activities not authorized under this subsection still need to be considered under §106.352 (b)(1)(B)(ii) to ensure aggregate emissions at an OGS are protective of public health and welfare.

We specifically support the prohibition in (d)(2)(H) pertaining to emissions increases in Air Pollutant Watch List areas for applicable contaminants. This provision will help the state to more effectively manage air quality in these impaired areas.

§106.352 (e)
We support the addition of BMPs to the Oil and Gas Sites Permit by Rule and the proposed BMPs all seem reasonable, with the modifications suggested below. However, the proposed BMPs in (e)(3), (e)(5) and (e)(7), discussed below, are not protective enough and should be strengthened. We also suggest inclusion of additional BMPs in the following section.

§ 106.352 (e)(1)(A)
This provision should be revised to read: "**Compliance with** manufacturer's specifications and recommended programs applicable to equipment performance and effect on emissions".

§106.352(e)(1)(B)
This provision should be revised to read: "cleaning and **routine** inspection of all equipment; and"

§106.352 (e)(2)
This provision should be revised to read: "Planned downtime of any capture, recovery, or control device must be considered when evaluating emission limitations of this section, and [if needed] **to the maximum extent practicable**, gas streams shall be redirected to another control or recovery device during downtime."

§106.352 (e)(3)
New OGS facilities should be no closer than 100 feet from any property line or receptor, instead of the proposed 50 feet to account for potential uncertainties in dispersion modeling at short distances under calm wind conditions.

§106.352 (e)(5)
Open-topped tanks or ponds containing VOC should not be allowed since emissions from these sources could be significant and could be otherwise prevented. EPA led a study to measure the emissions from such sources (see table 3-12 of report available at www.epa.gov/nrmrl/pubs/600r09132/600r09132.pdf, showing, for example, benzene emissions from three sample sites ranging between 0.02 and 0.08 g/s). If TCEQ allows open-topped tanks or ponds, then appropriate monitoring methods must be developed and used to demonstrate that emissions do not exceed the 1 tpy VOC limit or the 0.1 tpy H2S limit.

§ 106.352(e)(6)(B)

This provision should be revised to read: "all seals and gaskets in VOC or H2S service shall be installed, **regularly** checked, and properly maintained to prevent leaking; and"

§ 106.352(e)(7)
As we noted in our comments on the draft proposal, we do not think that the leak detection and repair program to identify and fix leaky fugitive components adequately protects public health. While it may not always be feasible to require monthly or bi-annual monitoring, annual leak detection is grossly under-protective. Quarterly monitoring should be required as a reasonable compromise.

TCEQ should require all potential sources of leaks to be inspected. The TCEQ should explain why it proposes that not all equipment at a site should be subject to an LDAR program or to the provisions of this proposed BMP, and why the proposed threshold of 10 tpy VOC is protective. Additionally, the TCEQ should clarify:

- whether the proposed threshold for uncontrolled potential emissions is for a single component or a site-wide total (we support the threshold being applied to the site-wide total of fugitives)
- how the calculation of emissions from a leaking component in (e)(7)(D) would be performed if a leak is detected with an optical gas imaging instrument (which we understand is unable to produce quantitative estimates of emissions)

§ 106.352(e)(7)(C)
This provision should be revised to read: "Damaged or leaking valves, connectors, pumps, compressors, and agitator seals found to be emitting VOCs in excess of 10,000 ppmv as determined using a portable analyzer, found by AVO inspection to be leaking (e.g., dripping process fluids), or found leaking using the alternative work practice shall be tagged and replaced or repaired **according to the schedule for repair set forth in section (7)(D)**."

§106.352 (e)(7)(D)
The TCEQ should establish a firm time limit to repair a leaking component. Making "every reasonable effort" could be interpreted as authorizing a leaking component until the next planned shutdown because an actual deadline for repair is not provided. The time limit should be shorter than 30 days; we recommend 7 or 14 days for significant leaks (where the threshold for what constitutes a significant leak should be set at a level where aggregate emissions from all identified leaking components plus routine emissions from other facilities on the site do not exceed the hourly emissions rates determined in subsection (k)).

§106.352 (f)(1)
We <u>support</u> the requirement that tanks be pained white or other reflective color to reduce emissions, or that a VRU be used. The TCEQ should require existing tanks in the East Texas Region to meet the requirement within 1 year of the start of operation of a new source triggering an OGS PBR authorization at the site.

§106.352 (f)(1)(B)
The TCEQ should revise this section to allow for the possibility that an outreach and education campaign to municipalities, homeowners associations, and other parties could result in amendments to existing requirements affecting tank color. Specifically, should the law, ordinance, or contract requiring a color other than white be repealed or otherwise cancelled in the

future, then this exception should expire within 6 months of the effective date of such an action, and compliance with §106.352 (f)(1) should be required.

§106.352 (f)(2)
For claims of control efficiency above 80%, a written justification must be submitted to the TCEQ in addition to the proposed enhanced monitoring and testing.

§106.352 (f)(3)
We support the requirements of this subsection.

§106.352 (f)(4)
For claims of control efficiency above 80%, a written justification must be submitted to the TCEQ in addition to the proposed enhanced monitoring and testing.

§106.352 (f)(5)
In order to document the performance requirements of flare systems in (A) – (E), a new subsection (H) should be added that requires use of a recording system to document adequate combustion and the output of required devices such as the infrared monitor, thermocouples, etc. Otherwise we support this subsection as proposed.

§106.352 (g)
We support the inclusion of specific hourly and annual VOC limits, along with such limits on other specific pollutants identified in the proposal. In no case should the TCEQ increase any of the proposed Level 1 emission thresholds in the final rule. In some cases, the TCEQ should lower the allowable emissions: specifically at least in the case of sour gas facilities. The proposed emissions limits of 0.5 – 2 lb/hr (2.2 – 4.5 tpy H2S) appear to represent a weakening of existing PBR limits for sour gas facilities. The current PBR rule does not allow emissions greater than 0.27 lb/hr unless the vent height is greater than a minimum of 20 feet, depending on the emissions rate. No such restriction is included in the proposed revision to the PBR. Second, the existing rule does not allow sour gas facilities to be located less than ¼ mile from receptors, but the proposed revision would allow sour gas sources to be located as close as 50 feet from a receptor. Given the disaster potential and acute hazard posed by H2S (such as in the case of a large leak or a pipe break), the TCEQ should not weaken the existing PBR requirements for sour gas facilities. The TCEQ should require sour gas facilities to meet a minimum setback distance of ¼ mile and emissions limits for H2S that are no less stringent than those required by the current PBR.

Separately, due to the very rapid development observed in the Barnett Shale area and the well-established influence of emissions of ozone precursors in the East Texas Region on ozone levels within the Region, TCEQ should avoid long lag times between the start of operations and the notification requirement for new sources. Accordingly, Level 1 registrations in a nonattainment area or in the East Texas region should be registered within 45 days of well completion.

§106.352 (g)(4)(B)
Since truck loading emissions can be significant, the TCEQ should require a certification that only submerged loading will be utilized, or alternatively a certification of the truck loading method to be employed at the site and a justification for the resulting emissions.

§106.352 (h)
We support the inclusion of the 75 lb/hr VOC limit, along with other such limits on specific pollutants identified in the proposal. The TCEQ should not increase any of the proposed Level 2 emission thresholds in the final rule. We also reiterate our concern about H2S emissions stated above regarding §106.352 (g) and urge the TCEQ to require sour gas facilities to meet a minimum setback distance of ¼ mile and emissions limits for H2S that are no less stringent than those required by the current PBR.

§106.352 (h)(3)
We support the requirement to certify emissions limits in these circumstances.

§106.352 (h)(3)(A)
As discussed above, PBRs should not be allowed at major sites. The TCEQ should explain the need for this section in light of §106.352 (a)(1).

§106.352 (j)
We support the requirements in this section. However, we encourage the TCEQ to add a requirement to Table 7 for metering of storage tank emissions for wells above a certain production threshold (e.g., potential to emit > 5 tpy VOC) for a minimum representative period each quarter. In addition, the TCEQ should clarify in Table 8 that for storage tank loading, the maximum short-term emission rate should include a rigorous calculation of flash gas emissions.

§ 106.352(k)(3)(B)
This subsection requires that "a site-wide analysis including all on-property sources should be conducted" for determining compliance with ambient air standards or ESLs. It is not clear what is meant by "on- property source[s]". This provision should be clarified so that there is no doubt that all emissions within the circumference of the protectiveness review – not just operationally related emissions – must be evaluated in order to assure protectiveness of health and compliance with applicable standards.

The specific values in this subsection should be revised to reflect the result of any changes to the modeling that TCEQ undertakes in response to comments.

§106.352 (k)(4)(B) and (C)
The TCEQ should remove the proposed options for applicants to submit their own screening or dispersion modeling. Such modeling would not be subject to public review and create an unnecessary strain on agency resources. If TCEQ decides to allow such modeling demonstrations, then the rules must explicitly include the instructions that applicants must follow (after appropriate administrative rulemaking procedures -- otherwise the public would not be allowed the opportunity to review and comment). In addition, if TCEQ allows applicant modeling, then it must be prepared to ensure the modeling section will review all dispersion modeling submitted for an OGS PBR or standard permit, and increase application fees accordingly.

V. Additional controls and Best Management Practices for inclusion in §106.352 (e) or (f)

The Background and Summary document states that the "the proposed PBR has been developed considering current emission capture and control equipment." 35 TexReg 6937,6938. As we indicated in our comments on the pre-proposal, other states have implemented cost-effective pollution control measures that are protective of human health and welfare. TCEQ should require these controls in the PBR and standard permit, at least in areas with dense population or struggling to comply with the ozone NAAQS. If these controls or BMPs are not required, the TCEQ should provide a justification.

Until recently, Wyoming required control by at least 98% of all dehydration units with the potential to emit ≥ 15 tpy of VOCs and hydrocarbon liquid storage tanks and pressurized vessels with the potential to emit flash emissions ≥ 20 tpy of VOCs statewide. In the Jonah-Pinedale basin, operators must meet more stringent standards. Such operators must control by 98% all flash emissions and emissions from dehydration units, utilize green completions and control emissions from pneumatic pumps. [6]

Wyoming recently issued revised BACT guidance to ensure even greater reductions. The new draft guidance includes additional requirements for new and modified sources located in the Jonah-Pinedale basin, other concentrated development areas ("CDA"), as well as sources in the rest of the state. Now, in addition to the same requirements that apply to flash emissions, dehydration units, and well completions, operators in the Jonah-Pinedale basin must also utilize low or no-bleed pneumatic controllers, utilize best management practices during manual and automated blow down or venting from wells, gas lines and pipelines, and control pneumatic controller emissions by 98%. With the exception of requirements for the control of dehydration units, these same requirements apply to other CDAs. Wyoming also lowered the statewide threshold for controlling flash emissions from 20 to 10 tpy, and the statewide threshold for dehydration units from 15 to 8 tpy and extended the requirements applicable to blow downs, pneumatic pumps and controllers statewide.[7]

Colorado has also implemented measures to reduce oil and gas emissions. Operators must control actual, uncontrolled VOC emissions of 15 tpy or more from vents on glycol dehydrators (individual units or the aggregate emissions from all dehydrators at a site) located at all oil and gas exploration and production operations, natural gas compressor stations, drip stations or gas processing plants by 90%.[8] All new and existing pneumatic devices used in oil and gas operations in ozone nonattainment areas and in the Piceance basin must be low or no-bleed. [9] Owners or operators with condensate tanks located at exploration and production sites within the Denver nonattainment area must reduce cumulative actual uncontrolled VOC emissions from all tanks by 81% during the ozone season (May 1- Sept. 30) and 70% during the rest of the year using technology that achieves a 95% control efficiency.[10] Additional rules exist in the Piceance

[6] *Id.* at 11. 2007 BACT Guidance 34-39.

[7] Oil and Gas Permitting Guidance, Proposed Revisions (June 30, 2009). http://deq.state.wy.us/aqd/Oil%20and%20Gas/Proposed%20Oil%20%20Gas%20BACT%20Rev%20%206-30-2009.pdf.

[8] CO Regulation 7, XII.H.

[9] CO Regulation 7, XVIII; COGCC rule 805.

[10] CO Regulation 7, XII.D.1. See also CDPH&E Air Pollution Control Division, Oil and Gas Exploration & Production Regulation No. 7 Requirements, http://www.cdphe.state.co.us/ap/sbap/SBAPoilgastankguidance.pdf.

basin to control odors. Specifically, operators in these highly developed basins must utilize green completions unless technically and economically infeasible, control emissions of VOCs from glycol dehydrators with a potential to emit 5 tpy of VOCs and located within a 1/4 mile of a public place by 90%, control emissions of VOCs from condensate, crude oil and produced water tanks with a potential to emit 5 tpy of VOCs and located within a 1/4 mile of a public place by 95% and not locate pits with a potential to emit 5 tpy of VOCs within a 1/4 mile of a public place.[11]

Montana is expected to experience a boom in natural gas development, especially in coal-bed methane, over the next several years. All new minor sources must undergo a BACT analysis, requiring that VOC vapors greater than 500 British thermal units per cubic foot from wellhead equipment and oil and condensate storage tanks with the potential to emit 15 tpy or greater be routed to a capture or control device such as a pipeline or flare.[12]

Controls	**Denver-Julesburg Basin**	**Piceance Basin**	**WY JPAD[13]**	**WY CDA**
Condensate Tanks	New and modified condensate tanks with must reduce actual emissions from all tanks/tank batteries by 81% during the ozone season and 70% during the non-ozone season on a weekly basis.[14]	Condensate, crude oil and produced water tanks with the potential to emit ≥ 5 tpy VOCs within 0.25 miles of designated public places must control emissions by 95%.	Must be controlled by 98%. After one year, control may be removed provided total VOCs are less than 8 tpy.	Must be controlled by 98%. After one year, control may be removed provided total VOCs are less than 8 tpy.
Glycol Dehydrators	New and dehydrators that emit ≥ 15 tpy VOCs must reduce emissions by 90%.	Equipment with potential to emit ≥5 tpy VOCs located within 0.25 miles of designated public places must control emissions by 90%.	Emissions from process vents of all new and existing dehydration units must be controlled by 98%.	Must control all VOC and HAP emissions by 98% upon production and equip with still vent condenser. May remove control after one year if total VOCs are < 8 tpy but may not remove condenser.*
Pneumatic Devices	New devices must be low bleed, and existing devices must be retrofitted so that emissions are ≤ low-	Operators must use low- or no-bleed pneumatic devices for all new, repaired or replacement	All devices must be new or low-bleed.	All devices must be new or low-bleed.

[11] Final Rule, Colorado Oil and Gas Conservation Commission, § 805(b).
[12] For specific BACT requirements see MT Admin. Rules § 17.8.1603.
[13] WY's BACT guidance applies to new or modified equipment.
[14] Owners/operators must reduce overall tank emissions from all units. Individual tanks need not be controlled to the specified percent reduction.

Controls	Denver-Julesburg Basin	Piceance Basin	WY JPAD[13]	WY CDA
	bleed devices where technically feasible.	devices where technically feasible.		
Green Completions	None	Yes. Various specific practices to reduce emissions are required where technically and economically feasible. Best management practices to reduce emissions required if green completion is not feasible.	Yes. Operators must utilize green completions.	Yes. Operators must utilize green completions.
Pits	None	New pits with potential to emit ≥5 tpy VOCs cannot be located within .25 miles of designated public places.	None	None
Pneumatic Pumps	None	None	All pumps must control VOCs by 98% or route discharge streams to closed loop systems.	All pumps must control VOCs by 98% or route discharge streams to closed loop systems.
Blowdown/ Venting	None	None	Must use best management practices.	Must use best management practices.

*WY provides a second option to control emissions from glycol dehydrators. Operators may also equip each unit with a glycol flash separator and a still reboiler vent condenser. Operators must also control emissions by 98% if total VOC are equal to or greater than 8 TPY.

In addition to the suggestions above from other states, we recommend TCEQ consider the following best management practices ("BMPs"). These are proven BMPs that have been developed and tested by oil and gas companies, with the support of the U.S. EPA and proven to be highly cost-effective. Implementation of these BMPs results in greater industry revenues as well as cleaner air. Some of these have also been proposed as part of California's plan to reduce greenhouse gas emissions from its significant oil and gas industry. California's proposal for its production sector is estimated to reduce fugitive methane emissions by approximately 0.2 MMT CO2e per year, beginning in 2015 and result in net annualized savings of $3.7 million. Proposed

measures to reduce transmission fugitive emissions is anticipated to yield 0.9 MMT CO2e annually and save the oil and gas industry $17 million in annualized net savings.[15]

- Plunger Lifts and "Smart" Well Automation during Well Unloading

Operators often remove unwanted fluids from mature gas wells through "well unloading"-practices that lead to venting of methane, HAPs and VOCs. One way to remove unwanted fluids without venting while also improving well productivity is to install a plunger lift system and "smart" well automation system. Plunger lifts use gas pressure buildup in the well casing-tubing annulus to operate a steel plunger that pushes liquids to the surface.[16] Smart well automation maximizes the efficiency of plunger lifts by routinely varying plunger well cycles to match key reservoir performance indices. Natural Gas STAR partners have reported annual gas savings averaging 600 thousand cubic feet ("Mcf") per well and increased gas production of up to 18,250 Mcf per well, worth an estimated $127,750 through the implementation of plunger lifts. Installing smart well automation on plunger lift systems typically results in an average savings of 500,000 cubic feet of methane per well, per year.[17]

- Installation of BASO Valves on All Gas-fired Heaters

Crude oil heater-treaters, gas dehydrators and gas heaters located at exploration and development sites have pilot flames which can be extinguished by strong winds, causing the venting of natural gas. BASO valves automatically shut off the flow of natural gas upon the extinguishment of the pilot flame, thereby preventing unnecessary pollutant and methane losses. BASO valves are operated by a thermocouple that senses the pilot flame temperature and do not require electricity or manual operation. They are therefore ideal for remote locations. Capital costs are negligible, with each valve costing less than $100, and savings can be as great as 203 Mcf year for a 1,000 barrel per day heater-treater that experiences a flameout period of 10 days annually. Payback depends on how often the pilot flames go out and for what length of time. Typically payback occurs in less than 1 year.[18] A clean air standard based on the installation of BASO valves could result in significant product savings and emission reductions.

- Replacing Compressor Rod Packing From Reciprocating Compressors.

Reciprocating compressors are one of the largest sources of methane emissions at natural gas compressor stations. Methane emissions are produced by leaks in the piston rod packing systems used in the compressors—especially from older systems. Replacing compressor rod systems reduces methane emissions, increases savings, and results in greater operational efficiencies and equipment life-spans. Average gas savings equal $6,055 a year and far exceed

[15] *See* California's Climate Change Scoping Plan, available at http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf, ES-5, 3, 54-56, and V. 1 of Appendices, http://www.arb.ca.gov/cc/scopingplan/document/appendices_volume1.pdf, C153-154.
[16] U.S. EPA, Lessons Learned from Natural Gas STAR Partners, "Installing Plunger Lift Systems in Gas Wells", *available* at http://www.epa.gov/gasstar/documents/ll_plungerlift.pdf.
[17] U.S. EPA, "Opportunities for Methane Reductions from Natural Gas Production", *available* at http://www.epa.gov/gasstar/documents/gremillion.pdf
[18] U.S. EPA, Install BASO Valves, *available* at http://www.epa.gov/gasstar/documents/installbaso.pdf; *See also* Draft Oil and Gas Ozone Reduction Strategy – Presented at February 26, 2008 Colorado RAQC Meeting.

the $540 implementation cost and the payback is two months.[19] California has proposed installing compressor rod packing systems as one strategy for reducing emissions from the state's oil and natural gas transmission industry. This, along with other strategies such as improving operating practices when compressors are taken off-line and replacing old flanges and fittings along pipeline, are expected to yield 0.9 MMT CO2e annually and save the oil and gas industry $17 million in annualized net savings.[20]

- Replacement of Wet Seals with Dry Seals on Wet Seal Centrifugal Compressors

Centrifugal compressors are widely used throughout the natural gas production and transmission sectors. Seals on rotating shafts are used to prevent natural gas losses from compressor casing. Many of these seals use high-pressure oil as a barrier against escaping gas. These types of seals, referred to as "wet" seals, produce methane emissions when the circulating oil is stripped of the gas it absorbs. Dry seals use high-pressure natural gas instead of oil to prevent gas losses. They also have lower power requirements, improve compressor and pipeline operating efficiency and performance, enhance compressor reliability, and require significantly less maintenance. A dry seal can save about $315,000 per year and pay for itself in as little as 11 months. One Natural Gas STAR partner who installed a dry seal on an existing compressor reduced emissions by 97 percent, from 75 to 2 Mcf per day, saving almost $187,000 per year in gas alone.[21]

- Leak Detection and Repair at Compressor Stations in the Transmission and Storage Sectors.

Compressor stations occur throughout the natural gas transmission and storage sectors and act to compress the gas to varying pressure points to overcome pressure losses that occur along a long-distance pipeline. According to EPA, compressor stations in the transmission sector alone account for approximately 50.7 Bcf of methane emissions annually.[22] A leak detection and repair program, similar to that already required for equipment and compressors located at natural gas processing plants, *see* 40 C.F.R. Part 60, Subpart kkk, offers a cost-effective way to prevent and eliminate emissions from compressor stations. Baseline surveys done by EPA partners have revealed that the majority of leaks come from a small number of parts, mostly valves, and that once these parts are identified, cost-effective repairs can be streamlined to accomplish maximum emissions reductions and gas savings.

VI. Comments specifically relating to standard permit for oil and gas sites

The following comments refers specifically to draft standard permit (SP) and are offered in addition to the comments above that apply to both the PBR and SP.

[19] U.S. EPA, Lessons Learned from Natural Gas STAR Partners, "Reducing Methane Emissions from Compressor Rod Packing Systems", *available* at http://www.epa.gov/gasstar/documents/ll_rodpack.pdf
[20] California's Climate Change Scoping Plan, V. 1 of Appendices..
[21] U.S. EPA, Lessons Learned from Natural Gas STAR Partners, "Replacing Wet Seals with Dry Seals in Centrifugal Compressors", available at http://www.epa.gov/gasstar/documents/ll_wetseals.pdf.
[22] U.S. EPA, Lessons Learned from Natural Gas STAR Program, "Directed Inspection and Maintenance at Compressor Stations", *available* at http://www.epa.gov/gasstar/documents/ll_dimcompstat.pdf.

As a general matter, we oppose the repeal of the SP rule. The TCEQ should explain why the SP is not being adopted as an amendment to the existing rule, and whether this approach sacrifices the opportunity for public participation in any way or the protectiveness of the permit requirements. We are open to supporting a non-rule replacement if TCEQ provides assurances that there is no harm to public participation in any way or the protectiveness and enforcement of the permit requirements.

(c)(1)(D)
This subsection appears inconsistent with (a)(1) and should be removed. Instead, such a change should trigger a new SP. The TCEQ should prevent the stacking of multiple authorizations at a site, which make enforcement more complicated and makes it easier to circumvent the protectiveness requirements of the SP.