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Environmental Protection Agency
Region 6
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submitted via regulations.gov

ATT: Ms. Kilty Baskin, NPDES/Wetland Review Section (R6 WD-PN), baskin.kilty@epa.gov

RE: Comments on State of Texas' Application for National Pollutant Discharge Elimination System (NPDES) Oil and Gas Authorization; Docket No. EPA-R06-OW-2020-0608

To Whom It May Concern:

The Environmental Defense Fund (EDF) appreciates the opportunity to submit comments regarding the State of Texas's application for partial delegation to administer the Clean Water Act National Pollutant Discharge Elimination System (NPDES) program for oil and gas discharges to surface waters of the state. EDF is an international organization with an office in Austin and over 200,000 members and activists in Texas, many of whom care deeply about the potential health, water and environmental impacts of oil and gas development.

Delegation or not, EDF does not believe Texas water quality standards or Federal water quality criteria and effluent guidelines, as written, are currently adequate alone to protect public health and the environment from produced water discharges. However, EDF recognizes that the State of Texas and the Texas Commission on Environmental Quality (TCEQ) has likely met the minimum legal submission requirements for this partial delegation, as set out in §402(b) of the Clean Water Act and the implementing regulations in 40 C.F.R. part 123.

Nevertheless, EDF remains concerned that the adoption of federal guidelines alone will not be adequate to ensure future potential produced water discharges do not pollute waterways or harm public health. EDF's comments, therefore, are focused on ensuring that as TCEQ begins to consider and eventually issue novel permits for produced water discharges, EPA retains sufficient oversight over permit review and issuance to guarantee that the intent and objectives of the Clean Water Act are met. We believe that in this manner, EPA can better assess and ensure TCEQ's ability to issue permits that "[e]nsure compliance with" (*see* §402(b)) CWA

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provisions relevant to the discharge of oil and gas wastewater, or produced water as required for delegation of programs. Furthermore, EDF is concerned that meeting this objective will prove challenging without additional research and characterization of Texas produced waters, followed by subsequent standard or criteria development necessary to prevent the discharge of produced water pollutants of concern at harmful levels. As such, EDF also recommends that EPA strongly encourage Texas to commit to undertake necessary research and regulatory efforts to address known limitations of federal and state programs and more comprehensively reduce risk to public health and the environment from future discharge practices.

I. Need for a Greater Extent of EPA Draft Permit Review for Produced Water Discharges

Given the novelty of potential permits for the discharge of produced waters (for facilities other than stripper wells) in the state, EDF strongly recommends that for an extended period of time EPA retain explicit review authority over draft TPDES permits for the discharge of produced water from oil and gas well sites under 40 C.F.R. part 435 and via centralized waste treatment facilities under 40 C.F.R. part 437. Currently, the undated EPA/TPDES MOA Addendum that appears in the docket (ADDENDUM TO THE MEMORANDUM OF AGREEMENT BETWEEN THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6 CONCERNING THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM) specifies that EPA will only review the first two TPDES draft permits for each of the following SIC Codes that are developed on or after the date of program authorization: 1311, 1321, 1381, 1382, 1389, 4922, and 4925. After meeting that requirement, EPA will end their routine review of draft permits beyond those categories listed in section VI(C)(1) of the MOA (which may or may not include ongoing review of produced water TPDES permits). Given the unique variability of produced water and its potential individual discharge scenarios, as well as the known nature of the oil and gas industry to rapidly change technologies and practices, EDF does not believe that the currently proposed review parameters are sufficient to assess long-term implementation of a broader program for oil and gas discharges. EDF is aware that in most cases when a state takes on delegation of a new part of the NPDES program, there is a training period of several years under which EPA retains authority to review each draft permit, and only ends this training period when they are certain that the state is meeting all requirements of the CWA for that type of NPDES permit. Given the novel nature of produced water discharge permits in Texas, such retention of review authority is both appropriate and prudent.

On August 24, 2012, EPA's Office of Enforcement and Compliance Assurance and Office of Water distributed Final Documents for Review of Existing State/EPA Memoranda of Agreement. Included was a model NPDES MOA that indicates that NPDES program "MOAs will be reviewed by each state and EPA regional office at least once every four years in accordance with the four year cycle for integrated oversight activities envisioned under the CWA Action Plan."[1] Accordingly, EDF believes a minimum four year period of retained review would be an

[1] Model National Pollutant Discharge Elimination System (NPDES) Memorandum of Agreement (August 2012) at p.5, *available at* https://www.epa.gov/sites/production/files/2013-08/documents/finalepastatemoa-attach2.pdf.

appropriate initial period, the continuance of which could be reconsidered in a future MOA review.

Therefore, we would propose the following amendments, which could be reconsidered in a subsequent MOA review in four years:

(1) Memorandum of Agreement, Section IV (C) (1), adding the following subsection:

1. EPA waives the review of draft wastewater, stormwater, or sewage sludge permits except for the following categories:

   n. Permits for the discharge of produced water issued under 40 C.F.R. part 435 or 40 C.F.R. part 437.

For clarity, we also recommend an associated amendment to the MOA addendum, as follows:

(2) Amending the Memorandum of Agreement addendum, Section VI. Permit Processing, Review and Issuance as follows:

SECTION IV. PERMIT PROCESSING, REVIEW AND ISSUANCE
Section IV.C. is revised by adding the following provision and renumbering subsequent provisions: 3. Regardless of Section IV.C.1, EPA will review the first two TPDES draft permits for each of the following SIC Codes that are developed on or after the date of program authorization: 1311, 1321, 1381, 1382, 1389, 4922, and 4925. EPA review of all subsequent TPDES draft permits for these SIC codes will comply with Section IV.C.1. In accordance with Section IV.C.1(n), this limitation of EPA review to two initial permits does not apply to ongoing EPA review of permits for the discharge of produced water issued under 40 C.F.R. part 435 or 40 C.F.R. part 437, regardless of SIC code.

II. Addressing the Complexities of Produced Water and Implications for TPDES Permits

The importance of a greater extent of EPA draft permit review is further underscored by the complexities of produced water and associated implications for future TPDES permits, including but not limited to:

1. The need to address known limitations of existing federal criteria and state standards applicable to produced water;
2. The potential strain on regulatory capacity posed by a growth in novel permit applications; and
3. The necessity of ongoing research and standard development to ensure appropriately comprehensive coverage of produced water pollutants in permitting programs.

A. Addressing Known Limitations of Existing Standards

TCEQ has adopted applicable effluent limitation guidelines in 40 C.F.R. parts 435 and 437 as necessary to meet the minimum requirements for partial program delegation. However, EDF remains concerned that these minimum guidelines, even as implemented in concert with state water quality-based limitations, are not adequate to prevent the discharge of potentially harmful pollutants into Texas waterways.

EDF strongly encourages TCEQ, in collaboration where appropriate with EPA, to utilize all available options to reduce potential environmental and health impacts associated with these limitations.

As such, EDF requests that EPA and TCEQ clarify in detail how the agencies plan to ensure compliance with objectives of the Clean Water Act, including the foundational Congressional policy that there be no discharge of toxic pollutants in toxic amounts. (see 33 U.S.C. §1231(a)(3)) in light of known limitations of existing standards as discussed below.

1. *Limitations of Effluent Limitation Guidelines*

In response to similarly stated concerns, TCEQ representatives have on multiple occasions in public meetings and hearings relayed their position, in summary, that the applicable ELGs have worked as-is for EPA's purposes for Texas permits, and will therefore work for TCEQ's purposes as well. In other words, that TCEQ will implement the program 'just like EPA has been doing.'[2] While this may be accurate and acceptable for discharges of hydrostatic test water and gas plant effluent, EDF does not believe this explanation addresses specific challenges TCEQ is expected to face in establishing protective permit conditions for produced water discharges. EDF is unaware of any active onshore, non-stripper well permits for discharges under 40 C.F.R. part 435 or any 40 C.F.R. part 437 permits for the discharge of produced water in Texas. Thus, it is not currently clear how EPA would, in fact, permit these facilities.

In fact, EPA's own 2018 study[3] of 40 C.F.R. part 437 as applied to the oil and gas industry concluded in part that the current ELG does not contain limits for many of the pollutants commonly found in produced water waste streams, that analytical challenges significantly affect the ability to detect and quantify the level of some analytes, that treatment of produced water may create solid waste management issues (including radium), and that documented and potential impacts to both aquatic life and human health as well as downstream drinking water intakes from CWT discharges exist due to prevalence of some pollutants, among other concerning conclusions.

How will TCEQ address these EPA-identified challenges in its part 437 permitting program?

Furthermore, in issuing any permits under 40 C.F.R. part 435, particularly for permits west of the 98th Meridian under subpart E's Agricultural and Wildlife Water Use Subcategory, TCEQ will be charged with establishing that discharged produced water "is of good enough quality to be used for wildlife or livestock watering or other agricultural uses and that the produced water

[2] *E.g.,* Comments of L'Oreal Stephney and Commissioner Lindley at December 10th stakeholder meeting.
[3] Detailed Study of the Centralized Waste Treatment Point Source Category for Facilities Managing Oil and Gas Extraction Wastes (May 2018), EPA-821-R-18-004.

is actually put to such use during periods of discharge" (40 C.F.R. §435.51(c)). Again, we are not aware of any EPA-issued permits that exist under this provision in Texas to serve as guidance to TCEQ regarding the suite of appropriate analyte limits and monitoring requirements necessary to ensure that discharged produced water is of "good enough quality" for Texas receiving waters, wildlife, livestock or other agricultural purposes nor are we aware of state or academic studies that have assessed this question.

How will TCEQ establish that any discharges permitted under part 435 meet the narrative requirements of the subpart E exception to the no discharge of pollutants standard?

Both of these issues raise novel questions for the permitting of produced water discharges in Texas and, to EDF's knowledge, do not have existing EPA permits for TCEQ to look to as guidance. This underscores the importance of ongoing EPA review as discussed in Part I, above.

2. *Supplementing ELGs with State Specific Standards or Individual Permit Conditions*

EDF has committed years of research to understanding the chemical and toxicological composition of produced water and implications of that knowledge – or lack thereof – on regulatory programs that might permit its reuse or discharge. Our recent efforts have included a relevant analysis of the status of Texas state water quality standards as they relate to chemicals identified in produced waters on a national level (as studies specific to Texas produced waters are extremely limited). An understanding of the potential application of existing Texas surface water criteria to chemicals of concern in produced water helps to assess the extent to which federal and state water quality based effluent limitations are available to supplement federal technology based effluent limitations of parts 435 and 437 in future TPDES permits toward the objective of ensuring that permits meet CWA requirements, including that no produced water toxics are discharged in toxic amounts.

In an effort to better elucidate what is known about produced water chemicals, EDF partnered with Texas A&M University and the Endocrine Disruption Exchange (TEDX) to perform a comprehensive literature review of the subject, and to develop a framework to prioritize chemicals identified in produced water for monitoring or further research based on toxicity hazard data.[4] Of the chemicals identified in that effort, more than half of those have not been the subject of a published safety evaluation or mechanistic toxicology study, and 86% were lacking the type of substantive toxicological data or values that would be necessary to conduct a risk assessment. More recently, EDF and University of Colorado, Boulder, partnered to expand and update the database and have found a total 181 citations, resulting in the identification of over 1350 chemicals associated with produced water. Twenty-six of these citations included Texas produced waters.

EDF has since conducted a crosswalk effort and developed a framework to identify, at the federal level and on a state-by-state basis, the relationship between known produced water chemicals and available toxicity data for those chemicals, EPA-approved analytical methods

[4] Danforth C, Chiu WA, Rusyn I, Schultz K, Bolden A, Kwiatkowski C, Craft E. 2020. An integrative method for identification and prioritization of constituents of concern in produced water from onshore oil and gas extraction. Environment International. 134:105280. doi:10.1016/j.envint.2019.105280.

(such as those in 40 C.F.R. part 136)[5], and existing numeric criteria applicable to surface discharges. The purpose of this effort is to identify (1) constituents that have an approved analytical method and are addressed by existing standards and could therefore be incorporated into near-term permits, (2) constituents that have an approved analytical method, are not addressed by existing standards, but do have sufficient human health and/or ecotoxicity data necessary to conduct a risk assessment toward development of new standards in the near-term, and (3) identify additional research and regulatory gaps.

EDF has previously presented the results of our work to TCEQ and relays a summary of our relevant conclusions for the State of Texas here:

- Of the 1358 chemicals identified nationally in produced waters, 76% have no EPA-approved standard analytical method
- With respect to federal standards - of the 321 produced water chemicals with EPA-approved standard analytical methods:
    - None are covered by numeric limitations in 40 C.F.R. part 435 (which limits only oil and grease)
    - "Meets NPDES requirements for CWT discharge" covers only 27 known produced water chemicals
    - "Meets federal drinking water standards" covers only 48 known produced water chemicals
    - "Meets federal surface water quality standards" covers only 109 known produced water chemicals (including a total of 85 on the Priority Pollutant List)

- With respect to existing Texas state surface water quality standards – of the 321 produced water chemicals with EPA-approved standard analytical methods:
    - A total of 67 have existing numeric surface water standards for human health and aquatic life protection, as defined in 30 TAC § 307.
    - A total of **207** known produced water chemicals:
        - Have an EPA-approved standard analytical method
        - Are not currently covered by numeric Texas surface water quality standards
        - *But do have toxicity values that may enable risk assessment and near-term regulation.*[6]

- While there are some limitations to this study (e.g., our analysis is limited to chemicals that have chemical abstract service (CAS) numbers) it brings to light a few important conclusions:

[5] EPA-approved analytical methods are those methods or test procedures that are used by industries and municipalities to analyze the chemical, physical and biological components of wastewater and other environmental samples that are required by the Clean Water Act (*see,* https://www.epa.gov/cwa-methods). Generally speaking, a pollutant must have an approved method in order for a permitting agency enforce limits or monitoring requirements for that constituent.
[6] EDF references for toxicity values include EPA's TOXVAL (https://comptox.epa.gov/dashboard/chemical_lists/TOXVAL_V5) and ECOTOX databases (https://cfpub.epa.gov/ecotox/).

- Utilizing federal criteria alone to define success of treatment outcomes or establish permit limitations clearly falls short of comprehensively assessing risk or safety as, for example, "meets federal surface water quality standards" only covers about 8% of chemicals identified in produced waters;
- There are over 200 constituents that are potential 'low-hanging' fruit for near-term research and regulatory action to expand the scope of water quality standards in relation to produced water in the State of Texas; but
- There are over 1,000 chemicals potentially present in produced waters that still *do not have approved analytical methods* to even be considered for use in a regulatory program, underscoring the vital importance of further research.

Overall, this work indicates that while Texas does have some tools available to supplement gaps in federal ELG's through water quality based limitations, more work is clearly needed to establish conclusively that permits allowing for the discharge of produced waters into Texas surface waters comprehensively address potential pollutants of concern. While EDF acknowledges that the utilization of Whole Effluent Toxicity testing of 30 TAC §307.6 is a necessary tool in assessing and reducing acute and chronic toxicity of discharges, given the significant limitations in numeric limit coverage specific to produced water constituents, relying on this tool alone is not a long-term comprehensive solution.

Given this information, EPA should strongly encourage TCEQ to undertake an effort either within or separate from the next water quality standard triennial review process to properly consider updates that may be necessary to comprehensively address pollutants of concern in produced water and prevent their release to state waters. This effort should include both addressing constituents with existing analytical methods and toxicity information (such as the 200+ identified through EDF's crosswalk review) as well as further analysis and study of Texas produced water samples to identify other constituents of concern that should be prioritized and addressed.

EPA would be an appropriate partner to the state in such research efforts.

B. Carefully Assessing TCEQ's Current and Future Regulatory Capacity to Implement and Enforce a TPDES Program for Produced Water Discharges

A growing interest in produced water discharges in Texas following this delegation, alongside future legislative or regulatory actions that may incentivize or expand the scope of produced water discharge programs,[7] has the potential to exponentially increase permit applications – necessitating TCEQ capacity not only for efficient permit writing but also for inspection, monitoring and enforcement.

To present a snapshot of the potential scope of the program under existing laws, there are estimated to be over 45,000 producing wells in Texas that lie within a quarter mile of a waterbody, 27,000 of which are located west of the 98th Meridian. Over 56,000 wells found

[7] *See, e.g.,* Recommendations made in the Texas Senate Committee on Water and Rural Affairs interim report (Dec. 16, 2020).

west of the 98th Meridian are within a half a mile of a water body. These distances to water bodies could be inferred to be of close enough proximity to support surface discharge (one of *many* factors a permittee would consider in pursuing discharge authority). While highly unlikely that many of these wells would apply for permits in the near term, these numbers underscore the potential size of a permitting program for the 40 C.F.R. part 435 subpart (E) exception alone in Texas.

> *With this in mind, EDF strongly recommends that both EPA and TCEQ carefully and comprehensively assess the state agency's regulatory capacity to manage this program not only under current levels of utilization, but also taking into consideration potential capacity requirements if interest in discharge grows or regulations expand the scope of prospective permittees. If such an assessment raises any question regarding regulatory capacity, EPA should ensure adequate funding support, such as providing additional funding to TCEQ under section 106 of the Clean Water Act.*

3. Importance of Ongoing Research and Continuous Improvement

These comments underscore the necessity of ongoing research and standard development to ensure appropriately comprehensive coverage of produced water pollutants in discharge permitting. As emphasized by EDF research, reliance on existing standards alone presents serious questions regarding the ability of unimproved permitting programs to reduce risks to public health and the environment from the discharge of produced waters.

If TCEQ is granted delegation for these programs, it will be vital for the state – potentially in collaboration with EPA – to show a dedicated effort to better understanding the character of produced waters in Texas and comprehensively assessing coverage for pollutants of concern in numeric and narrative standards. As it is expected that knowledge will be gained over time as research advances, *EDF requests that TCEQ acknowledge these potential gaps in the existing permitting program and commit to a process of continuous improvement to ensure necessary analytical methods, criteria, guidelines, and other standards are updated and in place.*

III. Conclusion

EDF appreciates the opportunity to share comments on this important issue. While we do not challenge a finding that Texas has technically met the minimum requirements necessary for program delegation, we do have very serious concerns regarding the ability of existing applicable standards to prevent the discharge of produced water pollutants in harmful amounts to state waters in accordance with the Clean Water Act. For this reason, EDF believes it important – if not vital – for EPA to retain ongoing review of draft permits for produced water discharge for a minimum of four years given the novelty of this practice in Texas and the limitations and uncertainties described above. Further, EDF strongly seeks a commitment from Texas to a process of ongoing research and continuous improvement to address identified gaps in coverage of produced water pollutants of concern in existing applicable permitting criteria.

EDF is happy to further discuss any of the ideas, comments and work described here and would welcome the opportunity to discuss research priorities and objectives for the future.

Respectfully submitted,

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