EPA Oil and Gas Extraction Study
Effluent Guidelines Program

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Overview

- Background on the NPDES program and effluent guidelines
- Reasons for, goals and scope of EPA's produced water study
- Stakeholder engagement activities
- Summary of feedback received from stakeholders
- Status and next steps

NPDES Program Background

- The National Pollutant Discharge Elimination System (NPDES) was created in 1972 by the Clean Water Act (CWA)
- Addresses water pollution by regulating point source discharges of pollutants to waters of the United States
  - Direct discharge – to surface waters
  - Indirect discharge – to publicly-owned treatment works (POTWs)
- The goal of the CWA is zero discharge of pollutants

NPDES Permits

- Any discharge of pollutants to surface waters must obtain authorization to discharge (i.e., a permit)
- NPDES permits contain both technology-based effluent limitations as well as water quality-based effluent limitations
  - Technology-based limitations are based on the performance of best available treatment technologies, while considering factors such as economic achievability to the industry
  - Water quality-based effluent imitations are protective of the water quality of the receiving water; water quality goals for water bodies are defined by state water quality standards

Technology-Based Limits

- - What are their objective?

- Intended to define the level of pollution control for industrial wastewater achievable for the industry category
  - Determined by assessing the pollution reduction capability of technologies
  - Considers economic achievability
- Provide equity among dischargers within an industry sector
  - Industry-specific (e.g., paper mills, oil & gas extraction activities and refinement, steel mills)
  - Apply to all facilities throughout the country within the industry sector
- *Not* based on the water quality of individual receiving waters

Effluent Guidelines Affecting Oil and Gas Extraction

- EPA has two nationally applicable, technology-based regulations that affect discharge of oil and gas extraction wastewaters:
  - Oil and gas extraction effluent guidelines
    - 40 CFR part 435
      - Subpart C is onshore oil and gas extraction
  - Centralized waste treatment effluent guidelines
    - 40 CFR part 437

Oil and Gas Extraction Guidelines

- For onshore facilities, the oil and gas extraction guidelines generally prohibit discharge of pollutants in wastewaters from both conventional and unconventional wells directly to surface waters (zero discharge)
- Exceptions are:
  - Discharge for beneficial reuse west of the 98th meridian (Subpart E)
  - Stripper wells (Subpart F- Reserved)
  - Coal bed methane (CBM) (Subpart H - Reserved)
- Also, discharge of pollutants from unconventional extraction activities (shale or tight formations) to POTWs is prohibited

Discharge for Beneficial Reuse West of 98th Meridian

Centralized Waste Treatment (CWT) Guidelines

- CWT facilities accept wastewater from off-site for treatment or reuse
- CWT facilities can accept oil and gas extraction wastewater and can discharge both directly to surface waters and indirectly to POTWs
- CWT rules were not developed specifically for wastes from oil and gas extraction, so the technology basis and the effluent limitations may not adequately control those wastewaters (see May, 2018 CWT study)

Practices Not Subject to CWA

- Practices to manage produced water that do not involve discharge to surface waters
  - Reuse within the oilfield
  - Use of disposal wells (SDWA)
  - Discharges of produced water to land
  - Application to roads for deicing or dust suppression
  - Evaporation/seepage ponds
  - Use for irrigation of crops where the water is not first discharged to a surface water

Why EPA Began Oil and Gas Study

- Large volumes of wastewater – or produced water - are generated in the oil and gas industry, and projections show these volumes will increase
- Produced water that cannot be reused is primarily managed by disposing of it using a practice known as underground injection via Class II Underground Injection Control (UIC) disposal wells – includes enhanced recovery
- New approaches to managing produced water are emerging
- Some states and stakeholders, particularly in water scarce areas of the country, are asking what steps would be necessary to treat and renew this water for other purposes

Oil and Gas Study – Goals and Scope

- Thrust of study was to solicit information from around the country on topics surrounding produced water management
- Goal was to look at how EPA, states, tribes and stakeholders regulate and manage wastewater from the oil and gas industry
- To understand if support exists for potential regulations that may allow for broader discharge of oil and gas extraction wastewater to surface waters under NPDES
- Scope is on-shore activities, both conventional and unconventional (but not CBM)

Engagement Activities

- In-person meetings with stakeholders
  - Washington DC, New Mexico, Colorado, Wyoming, Texas, California, Oklahoma, and Pennsylvania
- Conference calls
- Engaged with
  - Academia
  - Industry
  - NGOs
  - Public
  - States and state-affiliated organizations
  - Tribes
  - Treatment technology vendors
- Over 80 stakeholder engagement activities in 2018 and 2019

Discussion Topics

- Produced water management - pros/cons with the status quo
- Produced water management alternative options - technologies, availability, drivers, etc.
- Current or future produced water management barriers to alternatives
- Concerns related to federal regulations that allow for the discharge of treated produced water to surface waters and/or to POTWs. Challenges to permitting facilities that treat and discharge produced waters
- Appropriate level of treatment required for produced waters that will be discharged to surface waters or to POTWs
- Existing state regulations/requirements that conflict with different federal approaches to produced water management (e.g., water rights)

Major Themes of Feedback

- Some are supportive of additional discharge options for treated produced water
  - Adds water to hydrologic cycle
  - Can reduce demand for freshwater for exploration and production activities
  - Could reduce produced water trucking costs resulting in a range of benefits
  - Could help alleviate concerns about disposal well capacity issues
  - Other industry can discharge, so the oil and gas industry should have that option as well
  - Treatment technology has improved and the cost of treating produced water for discharge can be cost-competitive with other management options

Major Themes of Feedback

- Some are not supportive of additional discharge options for treated produced water
  - See existing management options as being sufficient
    - Better data on produced water generation, reuse and injection well utilization could help manage disposal well capacity concerns
  - Concern that there is insufficient data available on the composition of produced water and treatment technology performance
  - See potential problems with discharge such as impacts to water quality and residuals management – little data on potential toxicity of produced water constituents
  - Some states lack technical expertise in permitting discharges
  - Water quality criteria do not exist for many pollutants in produced water (e.g., chlorides, radium, bromide)

Report and Next Steps

- EPA published a draft report in May, 2019
- Public input period through July 1, 2019
  - We received about 80 letters with input
- Plan to publish a final report later this fall
- Announce any potential next steps later this year

For More Information

https://www.epa.gov/eg/study-oil-and-gas-extraction-wastewater-management