BWON and QQQ: EPA's Enforcement Initiative and What Industry Should be Doing

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BWON History

- Rule finalized in 1990.
- Proposed revisions in 2002.
  - Partially withdrawn and finalized in 2003.
  - Clarified the applicability of the standards with respect to fuel gas recovery systems and added new compliance options for tanks and containers based on the requirements in other similar U.S. EPA rules for hazardous waste treatment, storage, and disposal facilities.

BWON

National Emission Standard for Benzene Waste Operations

- Chemical Manufacturing Plants
- Petroleum Refineries
- Coke By-product Recovery Plants
- Hazardous Waste TSDFs that treat, store, or dispose of hazardous waste from any of the above listed industries

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What Equipment Does BWON Cover?

- Tanks
- Surface Impoundments
- Containers
- Individual Drain Systems
- Oil Water Separators
- Treatment processes
- Closed vent systems and control devices

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BWON – Total Annual Benzene (TAB)

- The total annual benzene quantity from facility waste is the sum of the annual benzene quantity for each waste stream at the facility that has a flow-weighted annual average water content greater than 10 percent or that is mixed with water, or other wastes, at any time and the mixture has an annual average water content greater than 10 percent. The benzene quantity in a waste stream is to be counted only once without multiple counting if other waste streams are mixed with or generated from the original waste stream.
  - Note: certain waste streams that are otherwise exempted must be included in the TAB calculation.
  - TAB is calculated based on benzene in the waste before treatment.

BWON - TAB

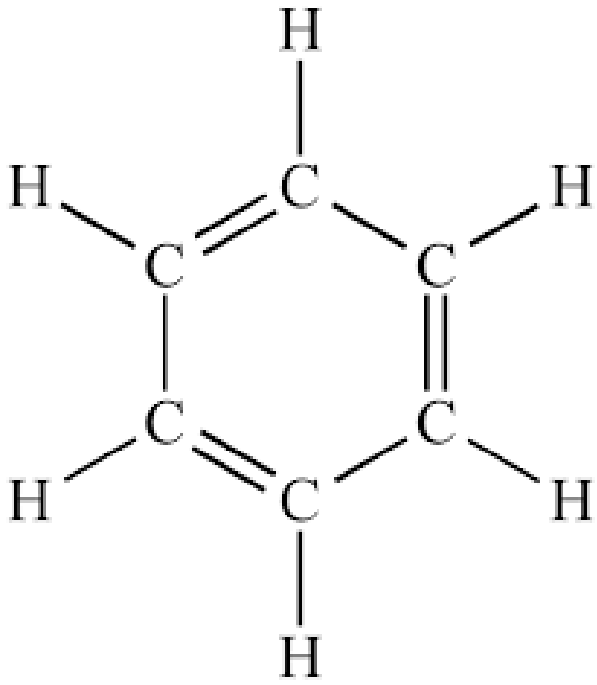
- BWON “Categories”
  - < 1 Megagram/year (Mg/yr)
    - Exempt from the waste management unit design and operation requirements.
    - Comply with recordkeeping requirements for each waste stream.
    - Recalculate TAB whenever there is a change in the process generating the waste that could cause the total annual benzene quantity from facility waste to increase.

BWON - TAB

- BWON “Categories”
  - > 1 Mg/yr and< 10 Mg/yr
    - Submit an annual report and whenever there is a change in the process generating the waste stream that could cause the total annual benzene quantity from facility waste to increase.
    - Comply with recordkeeping requirements for each waste stream.

BWON - TAB

- BWON “Categories”
  - ≥10 Mg/yr
    - It all applies!
  - Three compliance options:
    - 2Mg
    - 6 BQ
    - Treat to 1 Mg



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NSPS QQQ

Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems

- Petroleum refineries for which construction, modification, or reconstruction is commenced after May 4, 1987.
- First promulgated in 1988 and updated in 1995.

What Does QQQ Cover?

- Individual Drain Systems
- Oil/Water Separators
- Closed vent systems and control devices

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U.S. EPA Enforcement Alert

- Issued February 24, 2024
  - https://www.epa.gov/system/files/documents/2024-02/bwonenfalert0224.pdf
- *"EPA investigations of petroleum refineries have identified BWON and NSPS QQQ requirements as areas of common noncompliance."*
- *"EPA investigations of ethylene plants are also identifying noncompliance with BWON requirements."*

EPA's BWON Concerns

- Failure to perform any quarterly visual inspections and no detectable emissions (NDE) testing.
- Proper calculation of total annual benzene (TAB).
- Failure to identify all applicable streams.
- Failure to create and/or maintain engineering design documentation for control equipment.
- Inground API oil-water separators with floating roofs that frequently have detectable emissions (also a QQQ issue).
- Concrete waste management units are porous, prone to cracking, and if not maintained, result in uncontrolled emissions.
- Proper monitoring and testing of equipment.

EPA's QQQ Concerns

- Maintaining proper equipment (e.g., water seal controls on each drain).
- Conducting monthly visual inspections.
- Making necessary and timely repairs.
- Maintaining junction boxes with a cover and vapor-tight seal.
- Maintaining sewer lines without visual cracks in the joints, seals, or other emissions interfaces.

Common BWON/QQQ Gray Areas

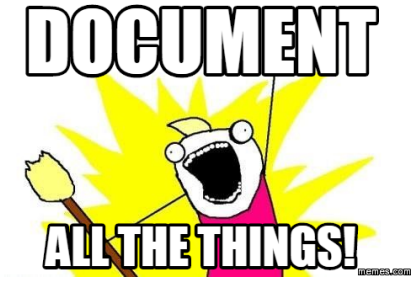
- Can an above ground drain flow into a water seal be open to the atmosphere or is it required to drain below the water surface?
- Is a water seal still a water seal if it contains a hydrocarbon layer or a sheen?
- What does “integral to process” mean (POG identification)?
- What does “immediately” mean (carbon canisters)?
- How do we classify sour water systems?
- QQQ - modification definition (netting provision)

Common BWON/QQQ Struggles

- Do you have accurate data for the benzene concentration in the TAB?
- Do you review MOCs for BWON/QQQ (POGs, new equipment)?
- Are all your applicable sewers and drains inspected?
- Can the inspectors see a water level in the vertical leg of the p-trap? Do you have running traps or controls at manholes?
- How do you account for vacuum truck movements? Are your vac trucks and other containers properly inspected?

Common BWON/QQQ Struggles

- Are you finding repeat leaks in your sewer system or wastewater treatment equipment? Do you have layer upon layer of SikaFlex or silicone on your equipment?
- Do you have documentation that your control devices are compliant (combustion device, carbon canister, flare, or other)?



Enhancements You Might Consider

- Conduct regular OGI monitoring of tanks, wastewater treatment plant equipment, and sewer/drains.
- Revalidate your TAB.
- Revalidate your inspection lists to capture all BWON/QQQ equipment.
- Verify that all drains have compliant controls.

What Else Should You Be Doing?

- Is proper maintenance happening and are corrective actions being documented?
- Are there “good” drawings showing individual drain systems?
- Are new (post 1987) drain systems identified and have modifications been documented?
- U.S. EPA recommends consideration of a third-party audit.

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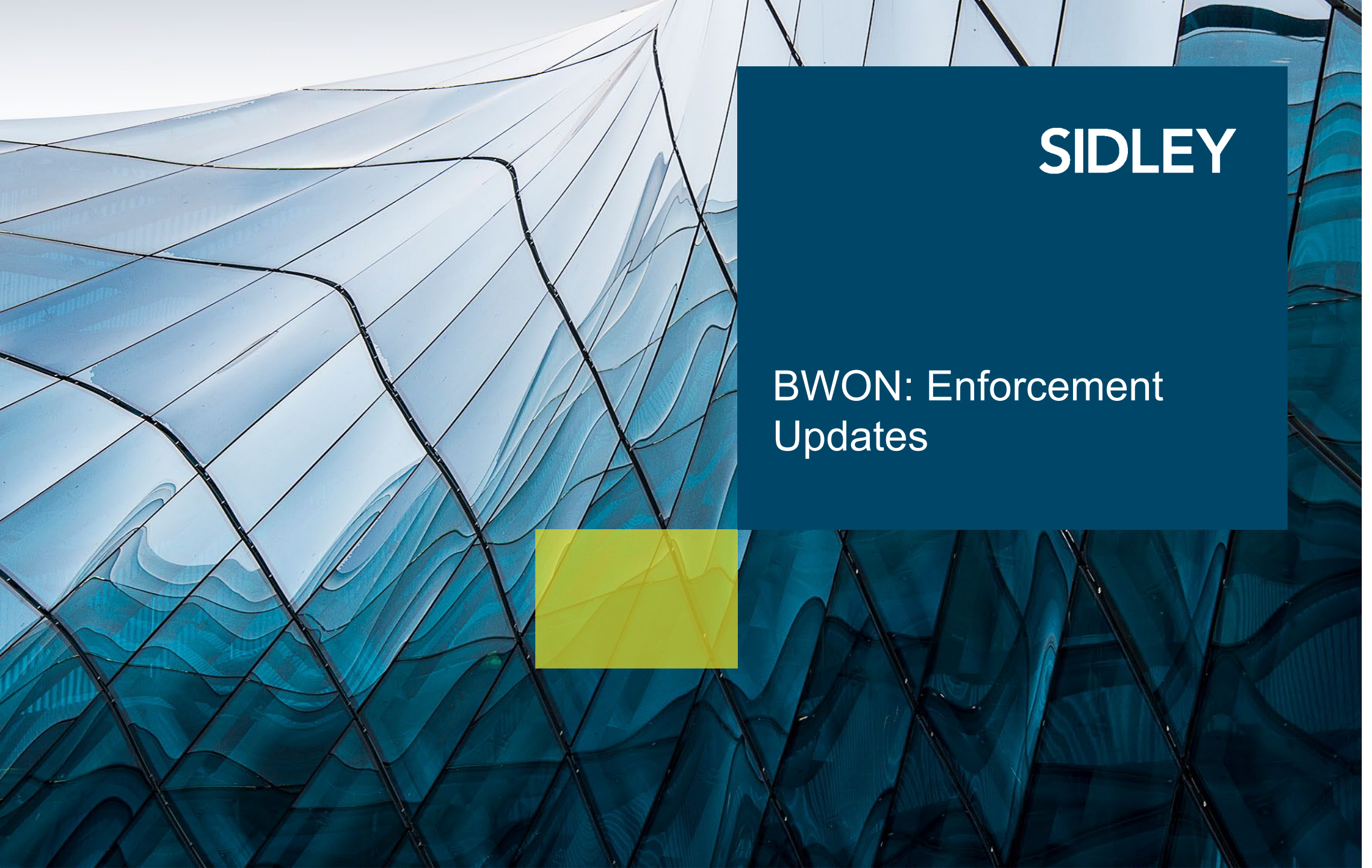
What to Expect if You Get an Inspection

- 2-6 U.S. EPA inspectors, possibly NEIC, state and local inspectors.
- Visits to the wastewater treatment plant, tank inspections, sewer and collection system inspections.
- 1-4 days of inspections.
- Requests for records including design information for control equipment, inspection records, sampling records, training, and sampling plans/SOPs.
- Use of OGI it identify leaks and Method 21 to verify leaks.
- Summa canister sampling to quantify benzene concentrations.



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BWON: Enforcement Updates

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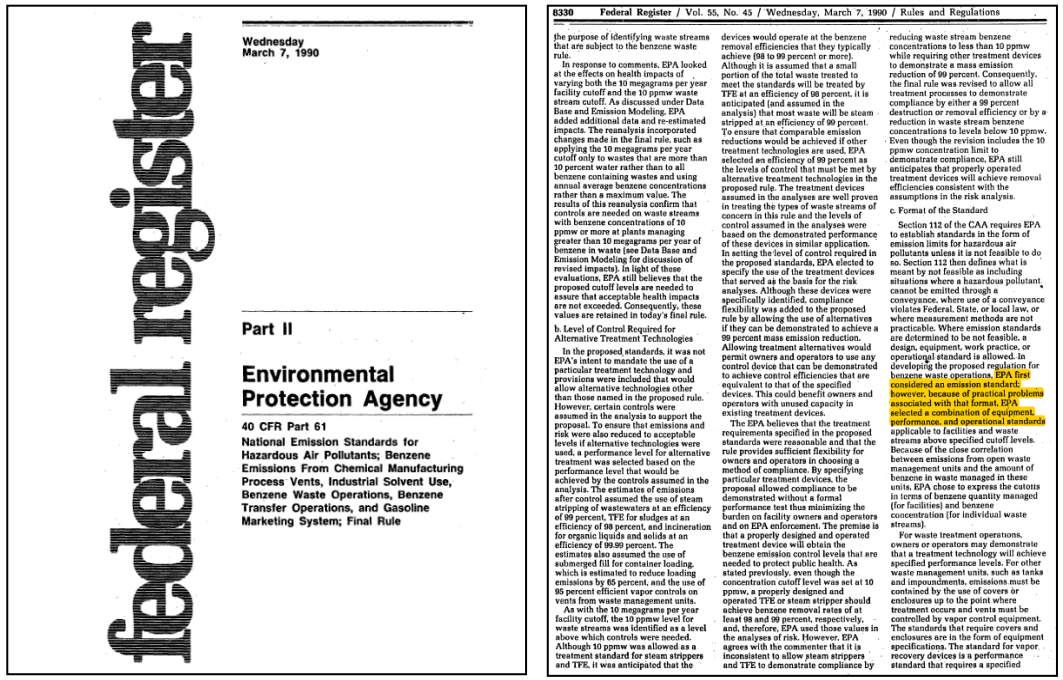
RECAP / BACKGROUND

EPA Compliance Issue: NDE Equipment

- Equipment “designed to operate with NDE”
  - Regulations generally require this to be determined initially, and then annually, through Method 21, not by reference to engineering specifications or design documents
  - When a leak is found, the regulations impose repair timelines (e.g., first attempt at repair), implying the regulations anticipated some leaks
- EPA’s interpretations appears to differ from regulatory text and longstanding industry interpretation
  - EPA interprets NDE as an emissions standard
  - EPA has alleged leaking WMUs as no longer NDE
  - EPA is recently requiring “design” to be shown through engineering specifications/design documents

NDE Equipment (cont'd)

EPA expressly chose ***not*** to apply an emissions standard in the BWON rules:



federal register

Wednesday
March 7, 1990

Part II

Environmental Protection Agency

40 CFR Part 61
National Emission Standards for Hazardous Air Pollutants; Benzene Emissions From Chemical Manufacturing Process Vents, Industrial Solvent Use, Benzene Waste Operations, Benzene Transfer Operations, and Gasoline Marketing System; Final Rule

8330 Federal Register / Vol. 55, No. 45 / Wednesday, March 7, 1990 / Rules and Regulations

the purpose of identifying waste streams that are subject to the benzene waste rule.

In response to comments, EPA looked at the effects on health impacts of varying both the 10 megagrams per year facility cutoff and the 10 ppmw waste stream cutoff. As discussed under Data Base and Emission Modeling, EPA added additional data and re-estimated impacts. The reanalysis incorporated changes made in the final rule, such as applying the 10 megagrams per year cutoff only to wastes that are more than 10 percent water rather than to all benzene containing wastes and using annual average benzene concentrations rather than a maximum value. The results of this reanalysis confirm that controls are needed on waste streams with benzene concentrations of 10 ppmw or more at plants managing greater than 10 megagrams per year of benzene in waste (see Data Base and Emission Modeling for discussion of revised impacts). In light of these evaluations, EPA still believes that the proposed cutoff levels are needed to assure that acceptable health impacts are not exceeded. Consequently, these values are retained in today's final rule.

b. Level of Control Required for Alternative Treatment Technologies

In the proposed standards, it was not EPA's intent to mandate the use of a particular treatment technology and provisions were included that would allow alternative technologies other than those named in the proposed rule. However, certain controls were assumed in the analysis to support the proposal. To ensure that emissions and risk were also reduced to acceptable levels if alternative technologies were used, a performance level for alternative treatment was selected based on the performance level that would be achieved by the controls assumed in the analysis. The estimates of emissions after control assumed the use of steam stripping of wastewaters at an efficiency of 99 percent, TFE for sludges at an efficiency of 98 percent, and incineration for organic liquids and solids at an efficiency of 99.90 percent. The estimates also assumed the use of submerged fill for container loading, which is estimated to reduce loading emissions by 65 percent, and the use of 95 percent efficient vapor controls on vents from waste management units.

As with the 10 megagrams per year facility cutoff, the 10 ppmw level for waste streams was identified as a level above which controls were needed. Although 10 ppmw was allowed as a treatment standard for steam strippers and TFE, it was anticipated that the devices would operate at the benzene removal efficiencies that they typically achieve (98 to 99 percent or more). Although it is assumed that a small portion of the total waste treated to meet the standards will be treated by TFE at an efficiency of 98 percent, it is anticipated (and assumed in the analysis) that most waste will be steam stripped at an efficiency of 99 percent. To ensure that comparable emission reductions would be achieved if other treatment technologies are used, EPA selected an efficiency of 99 percent as the levels of control that must be met by alternative treatment technologies in the proposed rule. The treatment devices assumed in the analyses are well proven in treating the types of waste streams of concern in this rule and the levels of control assumed in the analyses were based on the demonstrated performance of these devices in similar application. In setting the level of control required in the proposed standards, EPA elected to specify the use of the treatment devices that served as the basis for the risk analyses. Although these devices were specifically identified, compliance flexibility was added to the proposed rule by allowing the use of alternatives if they can be demonstrated to achieve a 99 percent mass emission reduction. Allowing treatment alternatives would permit owners and operators to use any control device that can be demonstrated to achieve control efficiencies that are equivalent to that of the specified devices. This could benefit owners and operators with unused capacity in existing treatment devices.

The EPA believes that the treatment requirements specified in the proposed standards were reasonable and that the rule provides sufficient flexibility for owners and operators in choosing a method of compliance. By specifying particular treatment devices, the proposal allowed compliance to be demonstrated without a formal performance test thus minimizing the burden on facility owners and operators and on EPA enforcement. The premise is that a properly designed and operated treatment device will obtain the benzene emission control levels that are needed to protect public health. As stated previously, even though the concentration cutoff level was set at 10 ppmw, a properly designed and operated TFE or steam stripper should achieve benzene removal rates of at least 98 and 99 percent, respectively, and, therefore, EPA used those values in the analyses of risk. However, EPA agrees with the commenter that it is inconsistent to allow steam strippers and TFE to demonstrate compliance by reducing waste stream benzene concentrations to less than 10 ppmw while requiring other treatment devices to demonstrate a mass emission reduction of 99 percent. Consequently, the final rule was revised to allow all treatment processes to demonstrate compliance by either a 99 percent destruction or removal efficiency or by a reduction in waste stream benzene concentrations to levels below 10 ppmw. Even though the revision includes the 10 ppmw concentration limit to demonstrate compliance, EPA still anticipates that properly operated treatment devices will achieve removal efficiencies consistent with the assumptions in the risk analysis.

c. Format of the Standard

Section 112 of the CAA requires EPA to establish standards in the form of emission limits for hazardous air pollutants unless it is not feasible to do so. Section 112 then defines what is meant by not feasible as including situations where a hazardous pollutant cannot be emitted through a conveyance, where use of a conveyance violates Federal, State, or local law, or where measurement methods are not practicable. Where emission standards are determined to be not feasible, a design, equipment, work practice, or operational standard is allowed. In developing the proposed regulation for benzene waste operations, EPA first considered an emission standard; however, because of practical problems associated with that format, EPA selected a combination of equipment, performance, and operational standards applicable to facilities and waste streams above specified cutoff levels. Because of the close correlation between emissions from open waste management units and the amount of benzene in waste managed in these units, EPA chose to express the cutoffs in terms of benzene quantity managed (for facilities) and benzene concentration (for individual waste streams).

For waste treatment operations, owners or operators may demonstrate that a treatment technology will achieve specified performance levels. For other waste management units, such as tanks and impoundments, emissions must be contained by the use of covers or enclosures up to the point where treatment occurs and vents must be controlled by vapor control equipment. The standards that require covers and enclosures are in the form of equipment specifications. The standard for vapor recovery devices is a performance standard that requires a specified

55 Fed. Reg. 8292, 8330

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EPA Compliance Issue: “Uncontrolled” and 6BQ

- Generally, WMUs are “controlled” if they comply with inspection and repair requirements within the equipment standards
  - Historically, a leak (NDE) or visual inspection failure has not triggered a facility to count the associated waste stream as “uncontrolled” where regulations are being followed (e.g., inspections, repairs, etc.)
- In contrast, EPA appears to be alleging this would qualify the waste stream as uncontrolled and it would need to be counted against the 6BQ compliance or inventory of uncontrolled waste
- Thus, EPA’s position would require a facility to calculate an emission rate from NDE leaks found in controlled streams and factor this into 6BQ accounting

“Uncontrolled” and 6BQ (cont’d)

From the preamble to the clarified rule:

- “[The BQ6] quantity is calculated by summing the mass of benzene in all waste streams managed in units that do not comply with §§ 61.343 through 61.348(a). The mass of benzene is determined at the point of generation for a waste stream if ***the first unit in which the waste is managed is not equipped with air emission controls as specified in the rule***. If the first unit after the point of generation is controlled, the mass of benzene in each waste stream is determined ***at a point before the waste enters the first unit that is not controlled for benzene air emissions in accordance with §§ 61.343 through 61.348(a)***.”
- 58 Fed. Reg. 3072, 3085 (January 7, 1993)

EPA Compliance Issues: Future Implications

- EPA does not appear to recognize repair allowance for NDE inspection requirements
- Any detected leak would appear to be a Title V deviation if EPA's interpretations were followed
- A key takeaway from recent EPA interpretations illustrate importance of robust compliance programs to maintain equipment, conduct timely and complete inspections, and perform timely repairs
- Although EPA's position may not be afforded judicial deference if litigated, recent enforcement history illustrates potential implications of EPA's positions

RECENT ENFORCEMENT: LESSONS LEARNED

BWON/QQQ & Multi-Media Inspections

- Potential Environmental Protection Agency (EPA) Players:
  - National Enforcement Investigations Center (NEIC)
  - Individual EPA Region
  - Headquarters
  - State Permitting Authority
- Summa cannister, OGI, Method 21, flare monitor, fenceline monitoring, community monitoring

BWON/QQQ & Multi-Media Inspections (cont'd)

- Authority from the Clean Air Act to conduct inspection and request records
- Purpose is to determine compliance with applicable
- In addition to BWON/QQQ, multi-media inspections may increase in frequency and simultaneously cover
  - Clean Water Act (CWA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Emergency Planning and Community Right-to-Know Act (EPCRA)
  - Individual permits, approval, etc.

Best Practices / Readiness

- Regardless of a potential inspection, regulated facilities should strive to comply
- EHS/compliance personnel should familiarize themselves with public enforcement actions (e.g., 2023 Consent Decree) to help identify potential weaknesses or vulnerabilities in program
  - Review TAB
  - Reinventory waste streams
  - Assess NDE documentation
  - Confirm systemwide understanding of BWON/QQQ applicability

Best Practices / Readiness (cont'd)

- Conduct internal review of procedures, processes, program/policies, and compliance tracking
  - Compliance program document? Accessible?
  - MOC?
  - Root cause analysis?
  - Regular auditing?
- Revamp training and/or increase frequency of training
  - Diverse training course?
  - Demonstrate pass/fail visual inspections?
  - Correct demonstration of M21?
  - Are all potentially responsible personnel subject to training?

OVERVIEW OF A CONSENT DECREE

Overview of CD Requirements

- Penalties
- Injunctive Relief (Compliance-Related Requirements / Mitigation)
- Stipulated Penalties
- Supplemental Environmental Projects (SEPs)
- Enhanced Environmental Justice (EJ) CD process

Injunctive Relief

- BWON/QQQ Compliance Program Plans (e.g., standard operating procedures, facility-wide compliance standards, etc.) capable of:
  - Legal requirements (monitoring, applicable standards, etc.)
  - Scope of program (e.g., equipment maps, applicability determinations, etc.)
  - Management of change (tracking equipment or program changes)
  - Roles and responsibilities, RACI matrix
  - Related training requirements, programming, and tracking
  - Procedures for updates, continuous evaluation of effectiveness, etc.
- Training Program
  - E.g., benzene sampling training program to be approved by EPA (*see United States v. Drummond Co.*, No. 2:19-cv-00240 (N.D. Ala. Jan. 25, 2021))
- Increased/Improved Reporting & Recordkeeping

Injunctive Relief(Cont'd)

- Waste Stream Inventory
  - Monitoring and record-keeping related to all waste streams (i.e., regardless of whether benzene content of stream counts toward TAB)
  - Continuous improvements/updates to inventory
- Increased Monitoring Requirements (i.e., beyond regulatory requirements)
  - Method 21, Optical Gas Imaging (OGI), walkthrough inspections, surface monitoring
  - Expanded scope
- Increased Monitoring
  - Carbon canisters
  - VOC connectors
  - Hazardous air pollutants
- Increased Sampling
  - E.g., increased frequency of end-of-line sampling

Injunctive Relief(Cont'd)

- NDE Assessment of All Covered Equipment (or similar investigation of particular equipment types)
  - Engineering design
  - Operational design
  - Preventative maintenance requirements
- Component Evaluations
  - Review and inventory certain equipment or components (e.g., drains, OWS, sewer system) and compliance programs related thereto
- Implementation of Updated Components
  - E.g., leak-free or lower-emission components
- Repair Requirements
  - Shorter repair turnaround
  - Lower thresholds triggering repair

Injunctive Relief (cont'd)

- Capital Improvements
  - Benzene Reduction (e.g., benzene gas stripper, sour water steam stripper, etc.)
  - Updated equipment (e.g., new oil-water separator)
- Third-Party Audit
  - Corresponding corrective action plans & reports to Agencies
- Comprehensive Internal Compliance Monitoring Programs
  - E.g., root cause analysis requirements
- Community Monitoring
  - Ambient air quality, gas chromatography analyzer, etc.
  - Location selection based on surrounding infrastructure and population

SUPPLEMENTAL ENVIRONMENTAL PROJECTS (SEPs)

- Generally, should involve same pollutant (or health effects) as involved in alleged violations to be resolved (nexus requirement)

- Recent examples include:
  - Updated infrastructure (e.g., alternative fuel transportation infrastructure)
  - Updated transportation (e.g., school buses, train engines, etc.)
  - Heightened monitoring/repair requirements (e.g., semi-annual monitoring with infrared gas-imaging camera and 5-day repair window, *United States v. Drummond Co.)*

Enhanced CD Environmental Justice (EJ) Process

- Potential for contact with community groups
- Direct messaging of the settlement

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Brooklyn Hildebrandt

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Managing Associate

PRACTICES

- Environmental
- Regulatory Litigation

BROOKLYN HILDEBRANDT focuses her practice on litigation and project development. She has assisted clients in connection with National Environmental Policy Act and Clean Water Act matters, including enforcement actions, citizen suits, regulatory proceedings, and other challenges. Brooklyn brings a balanced approach to meeting the needs of both high-profile projects and various state and federal laws and regulations. She understands big picture goals and the importance of attention to detail and brings this understanding to her clients at every stage of litigation and project development, including strategy and concept design.

Brooklyn also maintains a diverse regulatory practice, providing quick and comprehensive counsel to a wide array of clients, expanding across industrial sectors. Extending from her love for the coast, she has dedicated part of her practice to advising clients nationwide and helps clients with particularly challenging and unique issues arising from wildlife protection laws, including the Endangered Species Act, Marine Mammal Protection Act, Migratory Bird Treaty Ac, and the Coastal Zone Management Act.

Prior to joining Sidley, Brooklyn was an associate at another firm, focusing exclusively on environmental matters. She also clerked with the U.S. Department of Justice's Environmental Enforcement Section during law school.

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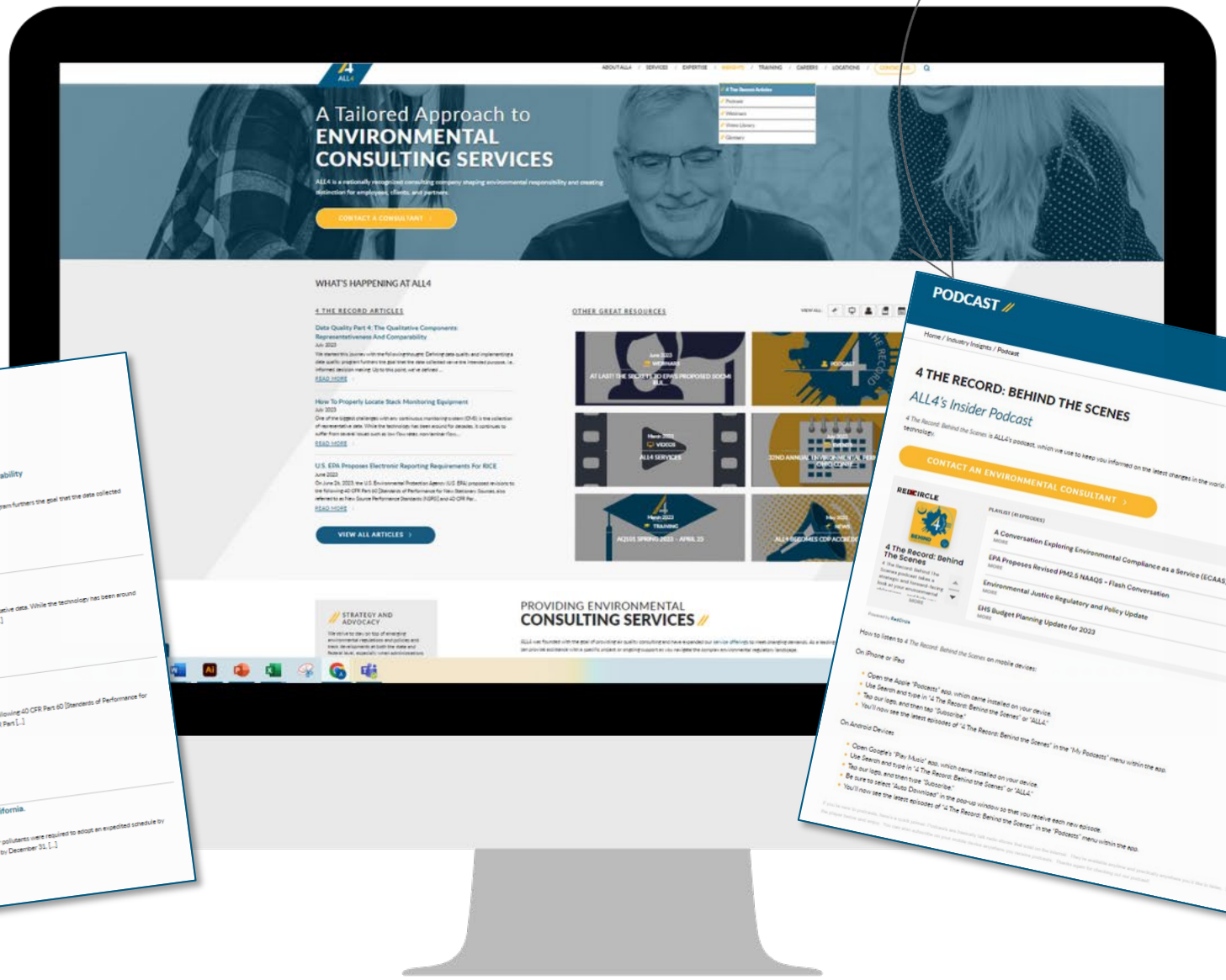

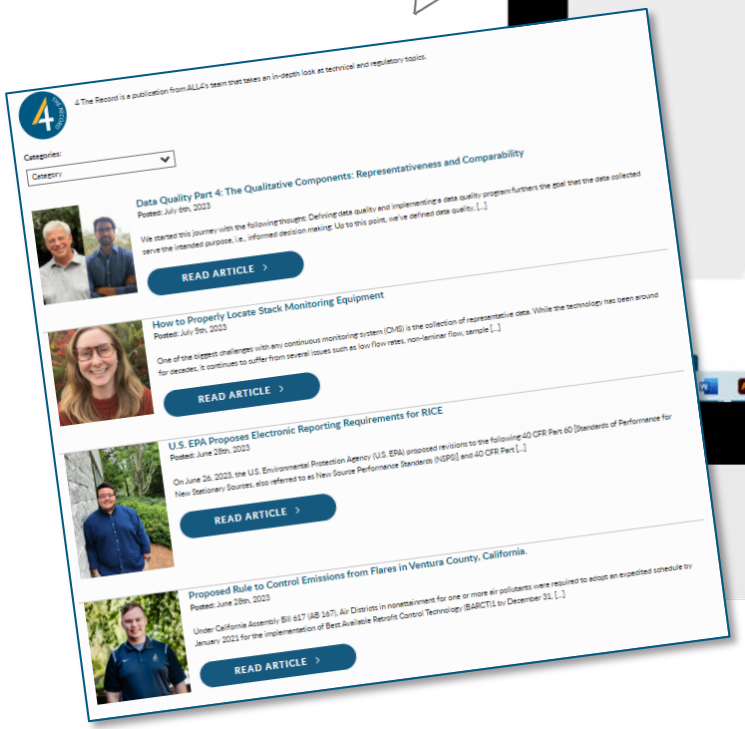

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Questions or Comments?

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