

# **EPA's BWON Enforcement Initiative and How to Prepare for Your Audit**

**March 7, 2024**

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# Topics

- ▶ Understand the current EPA enforcement initiatives
  - ▶ Common audit findings
- ▶ Understand the complexities of complying with the BWON regulation.
  - ▶ How to prepare for an EPA audit
  - ▶ Best practices for compliance

# Highlights of EPA BWON Enforcement Initiatives

- ▶ Audits being led by EPA and NEIC
  - ▶ Kosta Loukeris – EPA Region V
    - ▶ Originally focused in Region V
    - ▶ Branched out to cover national effort
  - ▶ Matthew Schnieder – NEIC
    - ▶ Directed by Regional offices
    - ▶ Reports typically issued through Regions
- ▶ Issuance of BP Whiting Consent Decree Settlement
  - ▶ Issued in August 2023
  - ▶ Enforcement negotiations took almost 4 years reach a settlement

# EPA and NEIC Inspection Focus

- ▶ EPA
  - ▶ Sole focus typically on BWON and NSPS QQQ
  - ▶ Review of all controlled systems
  - ▶ Reliant primarily on knowledge of environmental staff and contractor support
- ▶ NEIC
  - ▶ Audits are typically part of a full air audit (all NSPS, MACT, NESHAP, etc.)
  - ▶ Usually consists of upwards of 10-12 inspectors (local, state, federal)
  - ▶ Pulls heavily on operations knowledge
    - ▶ Tabletop walk-through of all facility PFDs
    - ▶ Field walk-through of full facility processes
- ▶ Both
  - ▶ Visual and OGI (on all systems, including drains)
    - ▶ Very “Hands-On”
  - ▶ Method 21 on Waste Management Units
  - ▶ Summa Can sampling
  - ▶ Mobile Monitoring (GMAP) using Duvas and Picarro (BTEX, Methane, H<sub>2</sub>S)

# EPA Records Review

## What records are they requesting?

- ▶ Reports for previous 3 years
  - ▶ TAB and BQ reports
  - ▶ EOL reports, if applicable
  - ▶ Quarterly reports
- ▶ Documentation for exempt waste streams
  - ▶ <10 ppm for 2BQ facilities
  - ▶ Flow/concentration of uncontrolled 6BQ streams (where they first become uncontrolled)
- ▶ Inspection and Monitoring Records
  - ▶ Inspection lists
    - ▶ May be LDAR Database download (LeakDAS, Guideware)
  - ▶ Inspection Records (both paper and electronic)

# EPA Records Review

What records are they requesting?

- ▶ WWTP, Slop, and Controlled Waste Management System schematics
- ▶ WMU Inventory
- ▶ Facility Drawings
  - ▶ PFDs
  - ▶ P&IDs
  - ▶ Sewer Maps
- ▶ Controlled Equipment and Control Device engineering design documentation
  - ▶ Including signed certifications for control devices
- ▶ Carbon canister breakthrough monitoring records

# Common Audit Findings

- ▶ Failure to properly identify all BWON waste streams
- ▶ Failure to properly identify all BWON waste management units
- ▶ Failure to conduct *effective* inspection and monitoring on BWON waste management units
- ▶ Failure to document and report failures/deficiencies
- ▶ Failure to perform proper (final, durable) repair
- ▶ Lack of design documentation and certification for BWON control devices AND controlled equipment
- ▶ Integrity issues on BWON controlled equipment (repeat failures/chronic leakers)
- ▶ Control device bypasses
- ▶ Conservation vent/vacuum breaker issues
- ▶ Adherence to and compliance with treatment standards

# Waste Stream Identification

- ▶ Accounting for waste streams downstream of the Point of Generation
  - ▶ Slop oil systems
  - ▶ Spent caustic systems
  - ▶ Quench water systems
- ▶ Missing waste streams
  - ▶ Exempted sour water streams that leave the sour water system prior to the sour water stripper
  - ▶ Routine and non-routine maintenance
  - ▶ Equipment leaks
  - ▶ Seal flushes
- ▶ Waste stream documentation basis
  - ▶ Hydrocarbon contributions
  - ▶ Old or misrepresented concentrations



# Waste Management Unit Identification

- ▶ Sour water system vessels
  - ▶ Slop system equipment
  - ▶ Oil water separation equipment
  - ▶ Process sewer cleanouts
  - ▶ OSBL IDS systems
  - ▶ Non-segregated stormwater systems
  - ▶ Container management
  - ▶ “Process vessels” that vent to the atmosphere
- ❖ Many of these issues stem from downstream waste stream accounting or lack of documentation around facility waste management systems.

# Inspection and Monitoring

## Individual Drain Systems

- ▶ Drains
  - ▶ Drains filled with oil, dirt, debris, trash...(everything except water)
  - ▶ Drains not equipped with p-trap in vertical leg or water seal “inserts”
  - ▶ Missing, cracked, degraded caps, plugs, and inserts
  - ▶ Drains observed in the field that are not on inspection lists
  - ❖ *Large gaps between process drain lines and sewer hub drain risers*

# Inspection and Monitoring

## Individual Drain Systems (cont.)

- ▶ Above-ground sewer lines/Closed drain systems
  - ▶ Systems not actually “closed”
  - ▶ Connections not always completely “hard-piped”
  - ▶ Missing, cracked, degraded gaskets and seals
  - ▶ Evidence of leaks, spills, etc.

# Inspection and Monitoring

## Individual Drain Systems (cont.)

- ▶ Junction boxes and sumps
  - ▶ Missing gaskets, latches, bolts, etc.
  - ▶ Wetness and staining around seams and leak interfaces
  - ▶ Hatches, latches, other openings not closed and secured
  - ▶ Cracked, bulging, degraded gaskets and seals
  - ▶ Cracked, broken concrete
  - ▶ Use of wooden boards, tarps, sandbags, etc. as temporary “covers” when equipment is out of service for maintenance, but still managing BWON waste

# Inspection and Monitoring

## Oil Water Separators

- ▶ Missing gaskets, latches, bolts, etc.
- ▶ Wetness and staining around seams and leak interfaces
- ▶ Hatches, latches, other openings not closed and secured
- ▶ Cracked, bulging, degraded gaskets and seals
- ▶ Oil on roof (both fixed and floating roof)
- ▶ **Conservation vents (control device bypasses)**
  - ▶ Evidence of release
  - ▶ No flow indicators

# Recordkeeping and Reporting

- ▶ Many of the deficiencies noted during audit are not listed as failures in documentation (recent or historical)
- ▶ Many systems do not have the required design documentation
  - ▶ Control Device (with signed certification)
  - ▶ Controlled Systems (designed to meet NDE)
- ▶ Sewer maps and drainage plans to document segregation of uncontrolled systems from controlled systems
- ▶ Repairs not properly documented (many times documented incorrectly)
- ▶ No complete waste management unit inventory available
- ▶ Some databases are not equipped with rule descriptors to query inspections and failures

# Treatment Standards

- ▶ Comingling of non-benzene-containing waste streams with high benzene-containing waste streams to achieve treatment standards (dilution)
  - ▶ Only applies to 2BQ facilities which are required to meet treatment standards
- ▶ Failure to account for any organic carry-under from treatment device (i.e., benzene stripper) or into EBU
  - ▶ Often samples are taken such that it is difficult to obtain an organic phase or the lab extracts the water phase of the sample and does not analyze any organics present
- ▶ Compliance with EBU treatment standards
  - ▶ Splash fill into aeration basin
  - ▶ Requirement is to be controlled all the way into the EBU, which would require a submerged pipe

# Preparing for a BWON Inspection

## Records Review

- ▶ Know your Reports!
- ▶ Make sure you understand all of the documentation you are providing
- ▶ Do you understand the basis behind your TAB and BQ data?
  - ▶ Concentrations (sampling, knowledge of waste, etc.)
  - ▶ Flows (measured, anecdotal, design maximums, etc.)
  - ▶ Do you know and understand all alternate routes for waste streams and under what circumstances they are used?
- ▶ Compliance certifications in quarterly reports
  - ▶ Do you understand what is being certified?
  - ▶ Have you missed any inspections during the quarter?
  - ▶ Is this information accurate and verified?



# Preparing for a BWON Inspection

## Records Review (cont.)

- ▶ Inspection and monitoring data
  - ▶ Do you know the failure history behind components?
  - ▶ Do you have equipment with chronic failures, aka “Bad Actors”?
  - ▶ Do you have little or no inspection failures?
  - ▶ Do you have documentation or reviews conducted around the design of equipment with chronic failures?
- ▶ Carbon canister changeout history
  - ▶ Does your actual breakthrough history match up with your design documentation?
  - ▶ Do you have carbon canisters that never breakthrough?

# Preparing for a BWON Inspection

## Records Review (cont.)

- ▶ Conservation vent release documentation
  - ▶ Do you have conservations vents that have frequent releases during “normal operations”?
  - ▶ Have you evaluated the potential need for replacing the conservation vent with a CVS to a control device?
- ▶ Repair history
  - ▶ Is your repair documentation complete, and does it make sense?
  - ▶ Do you have any equipment on Delay of Repair?
  - ▶ Do you have documentation behind how you meet the Delay of Repair Standards?
- ▶ Kb tank inspections
  - ▶ Is this being reported in your Kb reports or in your quarterly reports?

# Preparing for a BWON Inspection

## Field Reviews

- ▶ Know your systems!
  - ▶ Do you have a **complete** waste management unit inventory?
    - ▶ And does this match your waste stream inventory documentation?
  - ▶ Even if operations or 3<sup>rd</sup> party contractors are performing inspections, the BWON coordinator should know where all of the equipment is located, and how it is managed
  - ▶ Can you query your LDAR database, if applicable, by BWON/NSPS QQQ rules?
  - ▶ Can you locate all of your waste management units, including drains?
  - ▶ Do you know how each of these pieces of equipment are intended to be controlled (i.e. p-trap, inserts, caps/plugs on drains; what control device is CVS routed to, are there any bypasses, etc.)?

# Preparing for a BWON Inspection

## Field Reviews (cont.)

- ▶ Conduct pre audit surveys (if you are given advance notice)
  - ▶ General housekeeping (it goes a long way)
    - ▶ Are there open buckets, drums of oil or other material?
    - ▶ Is there oil in segregated “stormwater” collection systems?
  - ▶ OGI inspections of ALL controlled systems
  - ▶ Do spot checks, at a minimum, of individual drain systems
    - ▶ Dry, oily, clogged drains, etc.
    - ▶ Hatches, seals, gaskets, **BOLTS** on junction boxes and sumps

# Preparing for a BWON Inspection

## Field Reviews (cont.)

- ▶ Don't forget the conservations vents and vacuum breakers
  - ▶ Tanks, junction boxes, separators, CVS...ALL OF THEM!
  - ▶ Yes, including IFR vents and CVs (although these shouldn't be cited as non-compliance, the EPA has definite interest in the emissions relating IFRs. They will check, so you may as well know before they do)
- ▶ Do you have any temporary systems in place?
  - ▶ Frac tanks, rolloff boxes, etc.
  - ▶ How are these being managed?
    - ▶ Are they controlled?
    - ▶ Where are they accounted for in your TAB, inspection lists, etc.

# Preparing for a BWON Inspection

## General

- ▶ Does operations know what BWON and NSPS QQQ are?
  - ▶ Do they know what equipment is applicable to control standards?
  - ▶ Do they know how the equipment is intended to be operated and controlled according to the rules?
  - ▶ Do they know how to answer “yes or no questions” with a simple yes or no?
- ▶ Does your LDAR contractor have the availability and capacity to be part of the field review?
- ▶ Do you have one-to-one ratio of TVAs and FLIR cameras with the Agency? (they will divide and conquer)
- ▶ Do you know if they are bringing a GMAP vehicle? Should you set up comparative mobile monitoring? (the EPA does not always share their data)
- ▶ Do you have summa canisters on hand, or available on short notice? (beware of current initiatives with ethylene plant consent decrees and HON RTR, both requiring FLM)

# Best Management Practices For Compliance

## TAB/BQ Waste Stream Inventories – Documentation is KEY!

- ▶ Review facility P&IDs to identify all potential POGs
  - ▶ Establish positive and negative applicability for waste streams
    - ▶ Not many systems in a refinery do not have the potential to contain benzene
    - ▶ No de minimus benzene concentration
      - ▶ Operations/engineering general think of benzene content in % levels...the rule deals in ppm and ppb levels!
    - ▶ Under what scenarios can waste streams that typically contain no benzene be contaminated through mechanical failures or operational issues?
- ▶ Talk with operations about all potential waste generation scenarios
  - ▶ Document frequencies
  - ▶ Sample or use process knowledge from engineering and material balances

# Best Management Practices For Compliance

## Waste Management Inventories

- ▶ Build from waste stream inventory
  - ▶ Identify all potential routes from POG through treatment
  - ▶ Documentation of when waste streams may become uncontrolled
- ▶ Identification of all waste management systems which manage waste
- ▶ Is your segregated stormwater sewer defined and documented?
- ▶ What about WMUS that are not a part of your P&IDs?
  - ▶ Containers (roll-offs, drums, vacuum trucks, frac tanks)
  - ▶ Temporary lines used during turnaround activities



# Best Management Practices For Compliance

## Design Documentation

- ▶ Should include:
  - ▶ P&IDs
  - ▶ Mechanical drawings
  - ▶ Detailed design, to include:
    - ▶ Gasket and seal material of construction
    - ▶ Pressure ratings
  - ▶ Statement that the equipment is designed to meet NDE (i.e. not leak)
- ▶ Establish preventative and routine maintenance schedule and procedures

# Best Management Practices For Compliance

## Inspections and Monitoring: Use Available Technology

- ▶ OGI Cameras
  - ▶ Perform OGI camera surveys of BWON and QQQ equipment
  - ▶ Periodic monitoring at WWTP and other problematic equipment (conservation vents, vacuum breakers, PSVs)
- ▶ Perform follow-up M21 on any potential leak to determine if emissions exceed NDE threshold
- ▶ Additional focus on areas that don't "look good"
  - ▶ Housekeeping
  - ▶ Cracks in concrete
  - ▶ Old/bad seals
  - ▶ Too much RTV silicone "goop"

# Best Management Practices For Compliance

## Inspections and Monitoring: Use Available Technology

- ▶ GMAP Monitoring, or the equivalent
  - ▶ Emulate EPA/NEIC monitoring.
  - ▶ Perform baseline and periodic internal auditing.
  - ▶ Narrow focus to smaller areas within your refinery.
  - ▶ Use in combination with OGI camera to identify contributing sources

# Best Management Practices For Compliance

## Inspection and Monitoring Training

- ▶ General awareness of BWON requirements
  - ▶ Periodic training for ALL employees (operations, maintenance, management, field technicians)
- ▶ Comprehensive inspections lists and schedules
  - ▶ What inspections and monitoring apply to each type of WMU?
- ▶ Dedicated inspection staff, *in addition to* operators conducting routine checks
- ▶ Routine, focused reviews and audits of inspection and monitoring

# Best Management Practices For Compliance

## Inspections and Monitoring Follow-up and Review

- ▶ Properly document date of failure and date of repairs
- ▶ Perform final durable repairs
- ▶ If temporary repairs are necessary to meet repair deadlines, be sure to follow up with projects for long-term solutions
- ▶ Establish tracking system for equipment with chronic failures
- ▶ Perform root cause analysis to determine if PM or low-emission technology should be considered
- ▶ Determine if selected control method is appropriate

# Best Management Practices For Compliance

## Know Where You Stand!

- ▶ How confident are you in the controlled systems designs?
- ▶ Does the EOL match up with your estimated BQ?
- ▶ What does the slop oil balance look like in comparison to hydrocarbon contributions at the POG?
- ▶ How would the program be affected if a portion of your controlled system was deemed to be uncontrolled, for example your WWTP?
- ▶ Where are the largest risk areas in your compliance program?
  - ▶ It is a large, complicated rule. It is important to manage systematically, especially regarding corrective actions that may impact the whole facility.

# Words of Caution

- ▶ Requirement is to remain in continuous compliance, at all times, not just during required periodic inspections
- ▶ There are several areas with which industry does not agree with EPA and NEIC interpretations (often referred to as the 5%)
  - ▶ Failed inspections = Uncontrolled systems
  - ▶ Air gap between drain line and waste sealed drain
  - ▶ Some waste management unit vs. process vessel determinations (POG designations)
    - ▶ Most of these are in the petrochemical sector
  - ▶ Application of comingling streams for treatment in an EBU
  - ▶ Application of treatment standards (outside of EBU) to 6BQ facilities

# Questions?

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