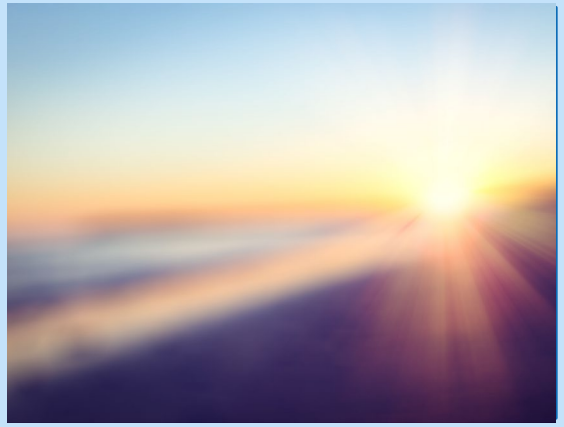
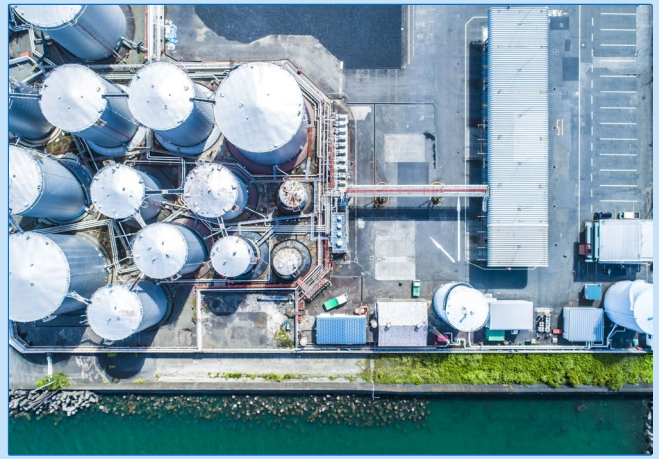
Thanks for joining

WE'LL GET STARTED SHORTLY





Volatile Organic Liquid Storage Vessels

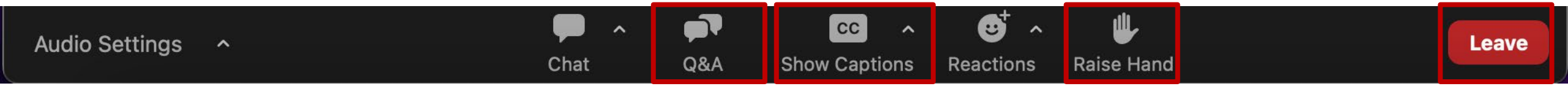
New Source Performance Standards Proposed Rulemaking

POST-PROPOSAL OUTREACH

OCTOBER 24, 2023

Webinar Instructions and Tips

- Please join by phone or computer, not both
- If you have a question about **the information EPA presents during today's webinar**:
  - Raise your hand or type your question in the Q&A
  - EPA staff will call on you when we are at a stopping point, or at the end of the presentation during the Q&A portion of the webinar
  - When you are called upon, please unmute yourself.
  - If you are on the phone, please press *9 to raise your hand and again to lower your hand. Once called upon, please press *6 to unmute yourself.



Type questions in Q&A

Closed captioning is available

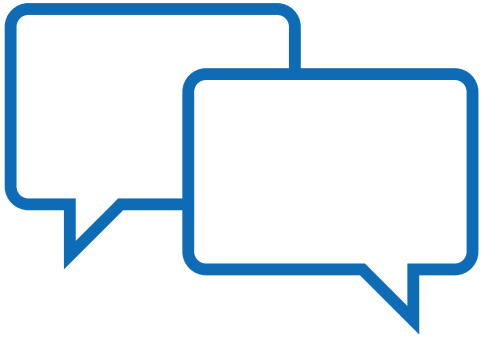
Raise hand to ask questions

Leave meeting at any time

The US Environmental Protection Agency (US EPA) is committed to facilitating productive dialogue and an environment of mutual respect and safety. The Agency will not tolerate harassment, discrimination, intimidation, inappropriate language and images, or sustained disruption of this public event.

EPA expects all participants, including panelists, speakers, and presenters, to conduct themselves in a respectful, professional, and civil manner. US EPA will monitor and moderate this virtual event to ensure that common standards of decency are upheld.

In a proposal signed September 28, 2023, EPA proposed to reduce the amount of volatile organic compounds (VOCs) from volatile organic liquid storage vessels



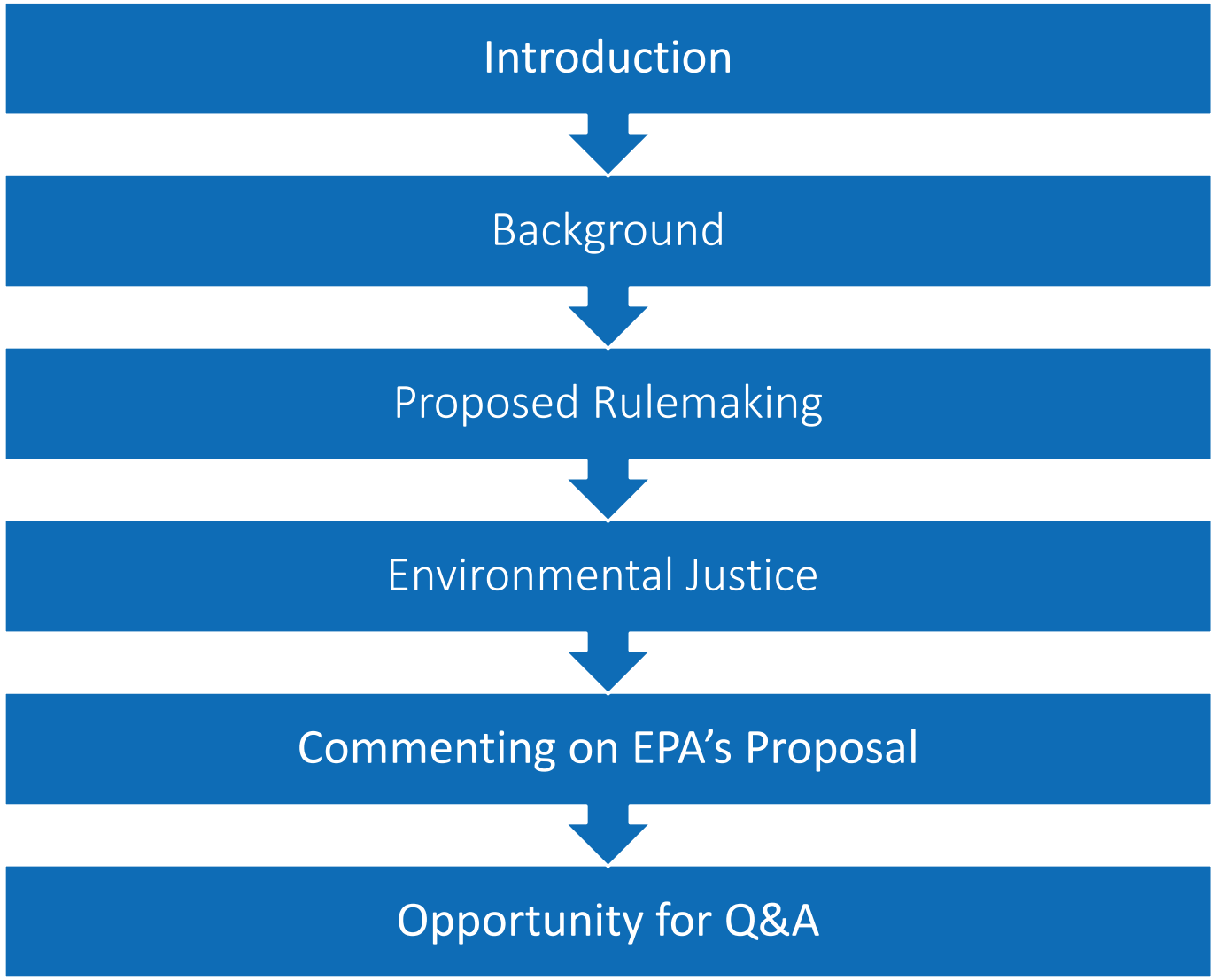
EPA is seeking comment on all aspects of the proposal

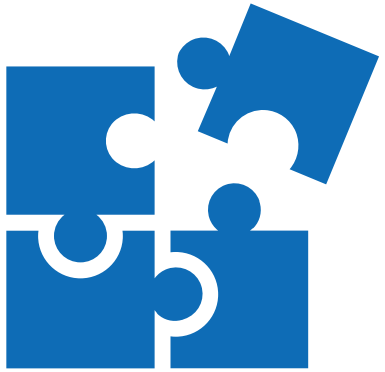
Proposal

Today's Webinar

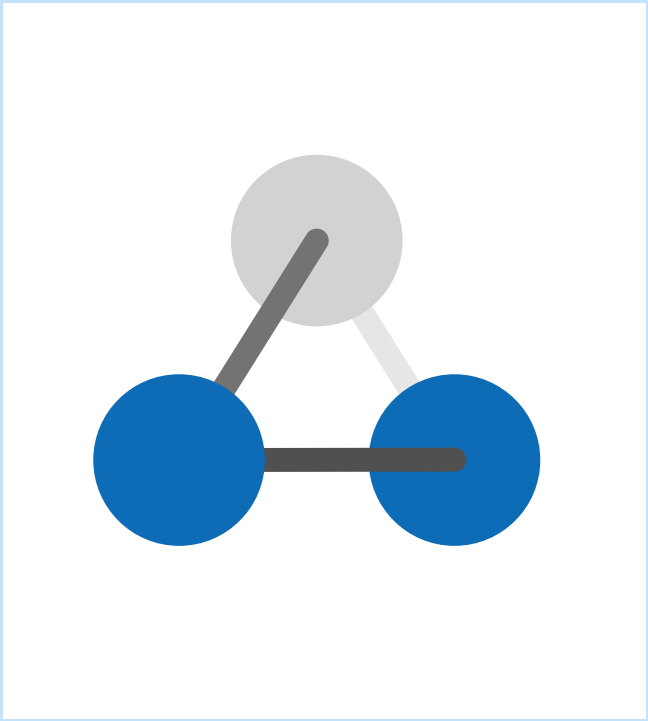
- Welcome to today's webinar!
- We will share information about proposed Volatile Organic Liquid (VOL) storage vessel (including petroleum liquid storage vessels) New Source Performance Standard (NSPS) subpart Kc – or **"NSPS Kc"**
- EPA is proposing amendments to update and strengthen the new source performance standards (NSPS) for volatile organic liquid storage vessels (including petroleum liquid storage vessels)
- These proposed amendments would further reduce emissions of volatile organic compounds, also known as VOCs
- The proposed amendments would fulfill EPA's responsibility under the Clean Air Act (CAA) to periodically review emission standards to reflect developments in pollution control technologies and techniques
- If finalized, **"NSPS Kc"** would establish more protective standards for VOC emissions from storage vessels, including floating roof storage vessel and storage vessels that utilized closed vent systems and control

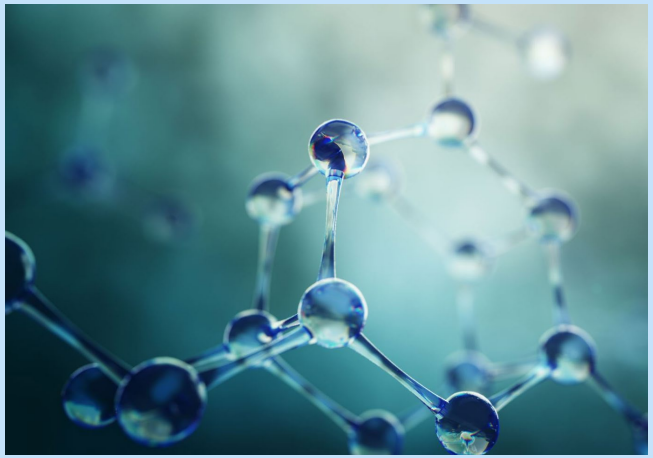
Overview of Today's Webinar





Background





What are Volatile Organic Compounds (VOCs)?

- VOCs include a large list of compounds that evaporate easily, have high vapor pressure and low water solubility
- VOCs react in the atmosphere to create ground-level ozone
- Examples include:
  - Benzene
  - Formaldehyde
  - Gasoline Vapors
  - n-Hexane

What are Volatile Organic Compounds (VOCs)?

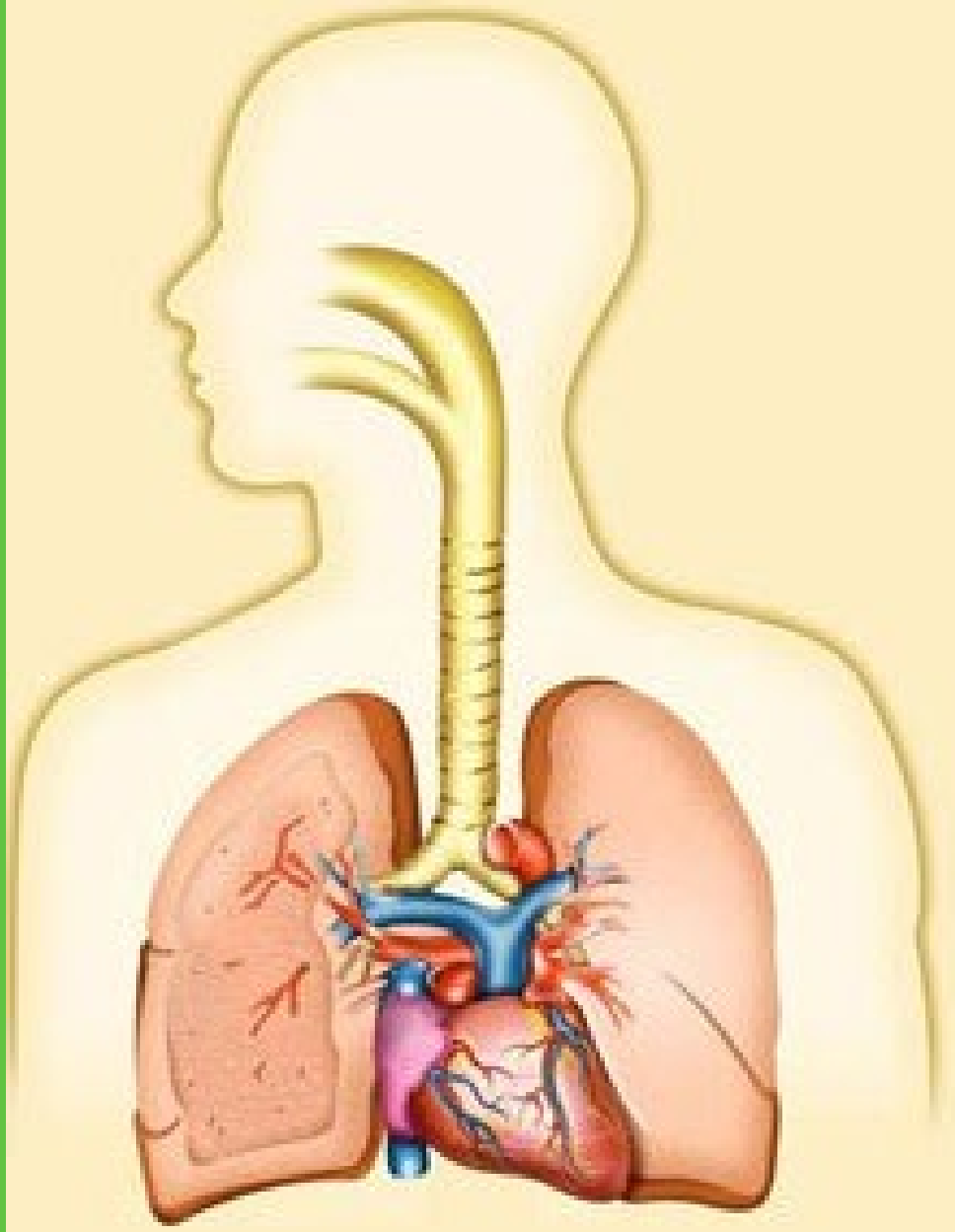
- Common sources of VOCs include:
  - Paint and lacquers
  - Cleaning supplies
  - Copiers and printers
  - Glues and adhesives
- VOCs are commonly emitted from storage vessels at chemical manufacturing and petrochemical facilities
- Some VOCs are designated also as Hazardous Air Pollutants (HAPs)

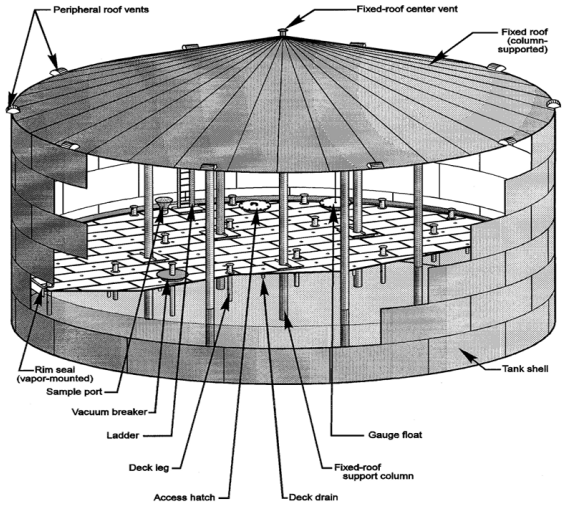
Ozone (O_3) Health Impacts

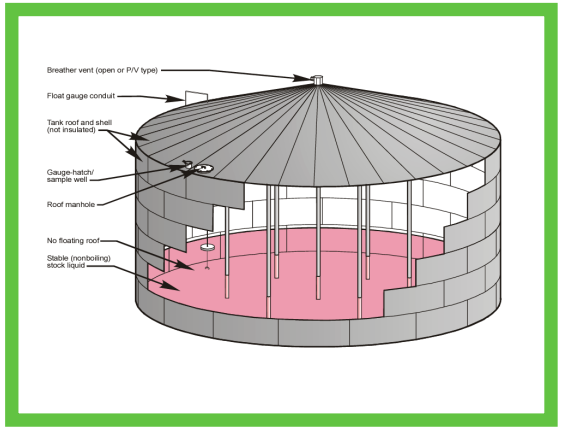
- VOCs react in the atmosphere to create ground-level ozone
- Human health impacts of ground-level ozone include:
  - Causing coughing and sore or scratchy throat
  - Making it more difficult to breathe deeply and vigorously and causing pain when taking a deep breath
  - Inflaming and damaging airways
  - Making the lungs more susceptible to infection
  - Aggravating lung diseases such as asthma, emphysema, and chronic bronchitis
  - Increasing the frequency of asthma attacks
- The following groups have the greatest risk of developing ozone related health problems:
  - Children
  - Older Adults
  - Individuals frequently active or working outdoors
  - Individuals with asthma

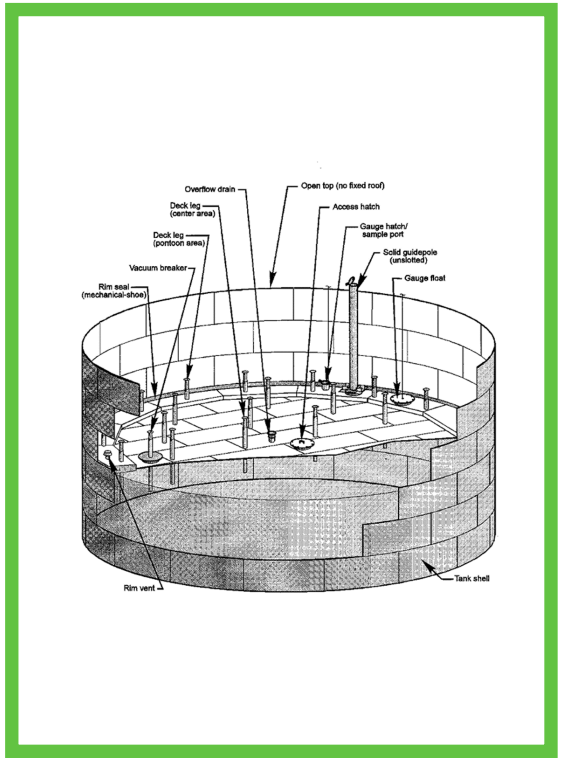
For more information visit:

- https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution
- https://www.epa.gov/ozone-pollution-and-your-patients-health/health-effects-ozone-general-population



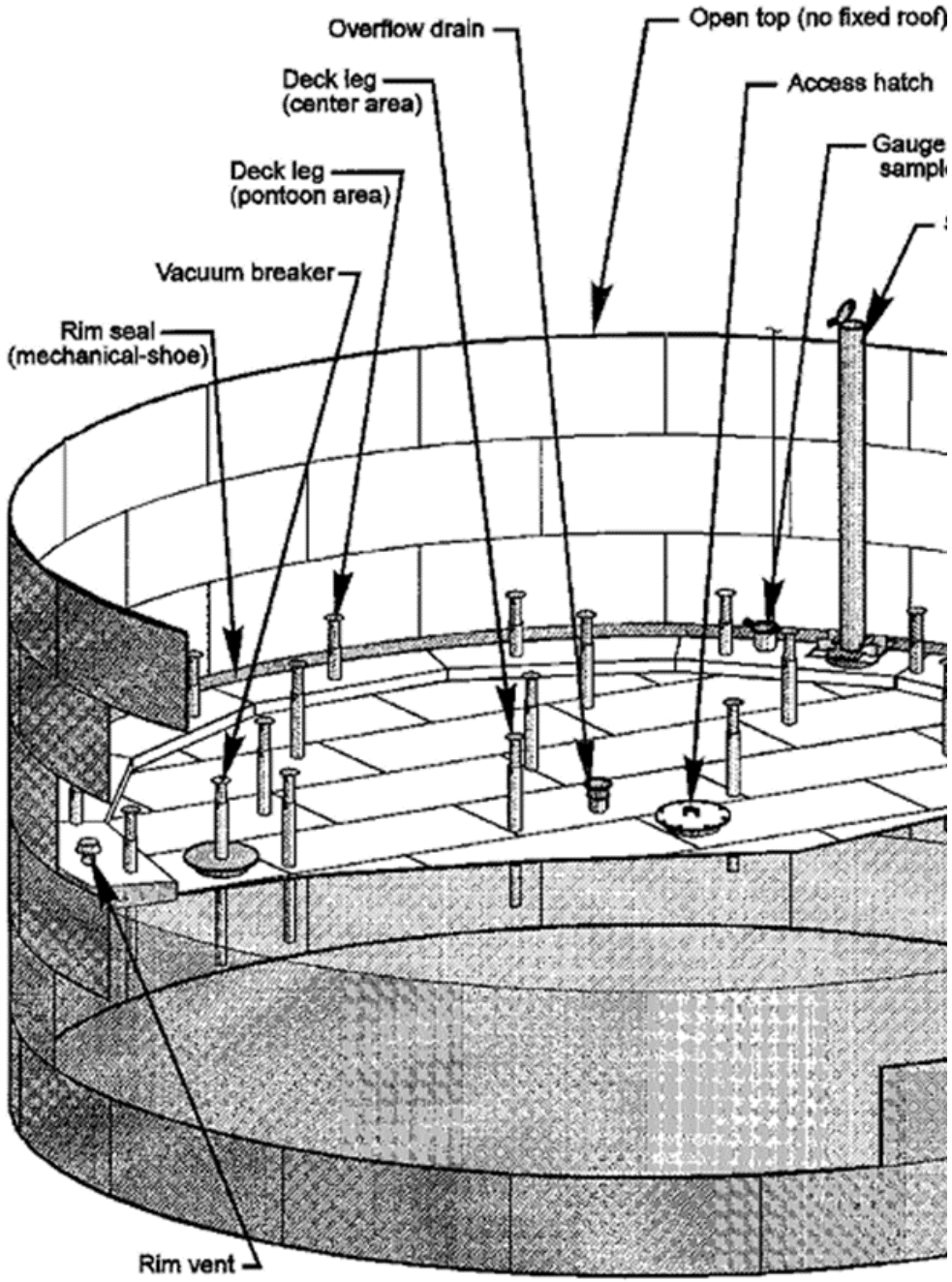






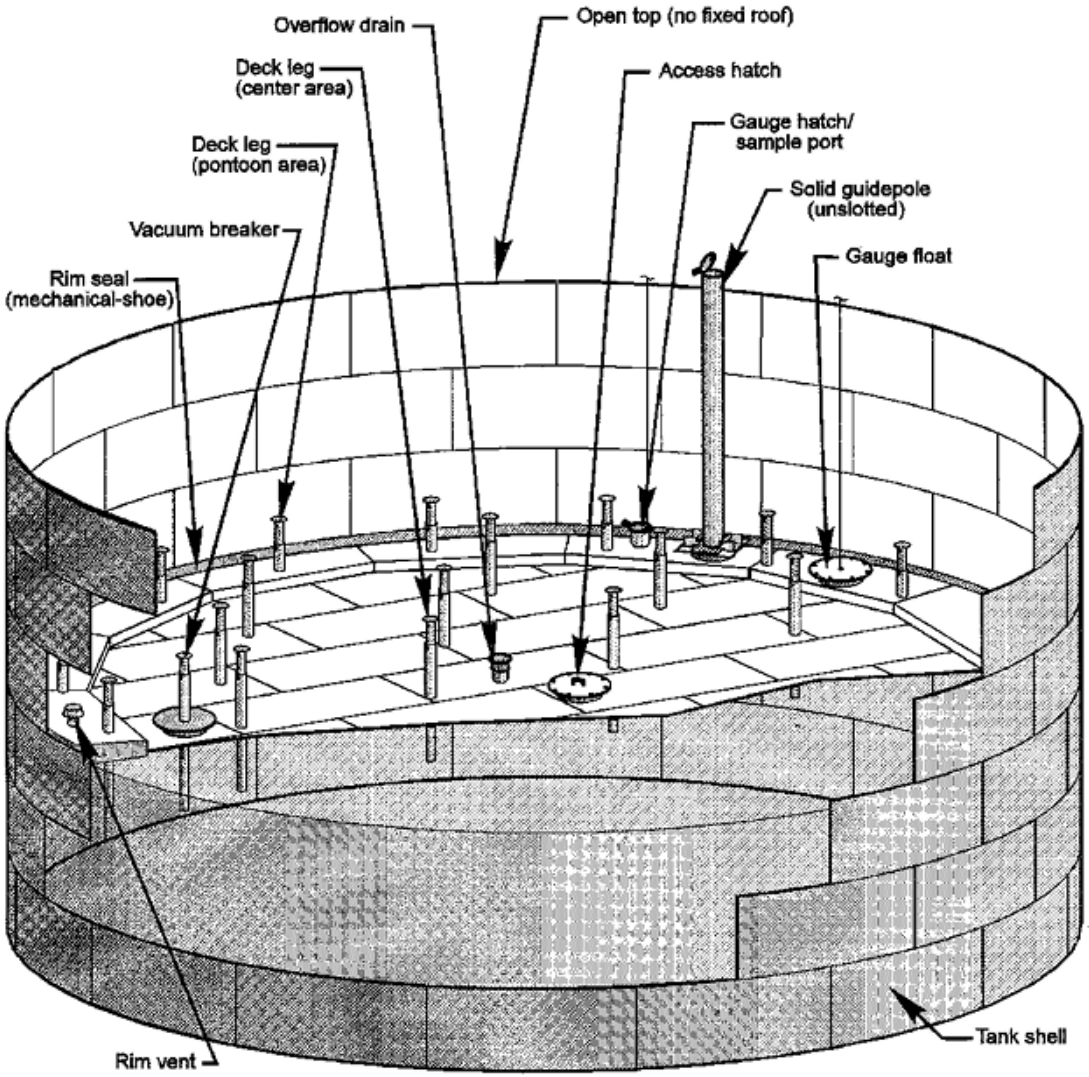
VOL Storage Vessels

- Storage Vessels that emit VOCs include tanks, reservoirs and containers
- Process tanks, subsurface caverns, and porous rock reservoirs are not VOL storage vessels
- There are three main types of tanks discussed in the VOL storage vessel rules
  - Fixed Roof Tank
  - Internal Floating Roof (IFR)
  - External Floating Roof (EFR)

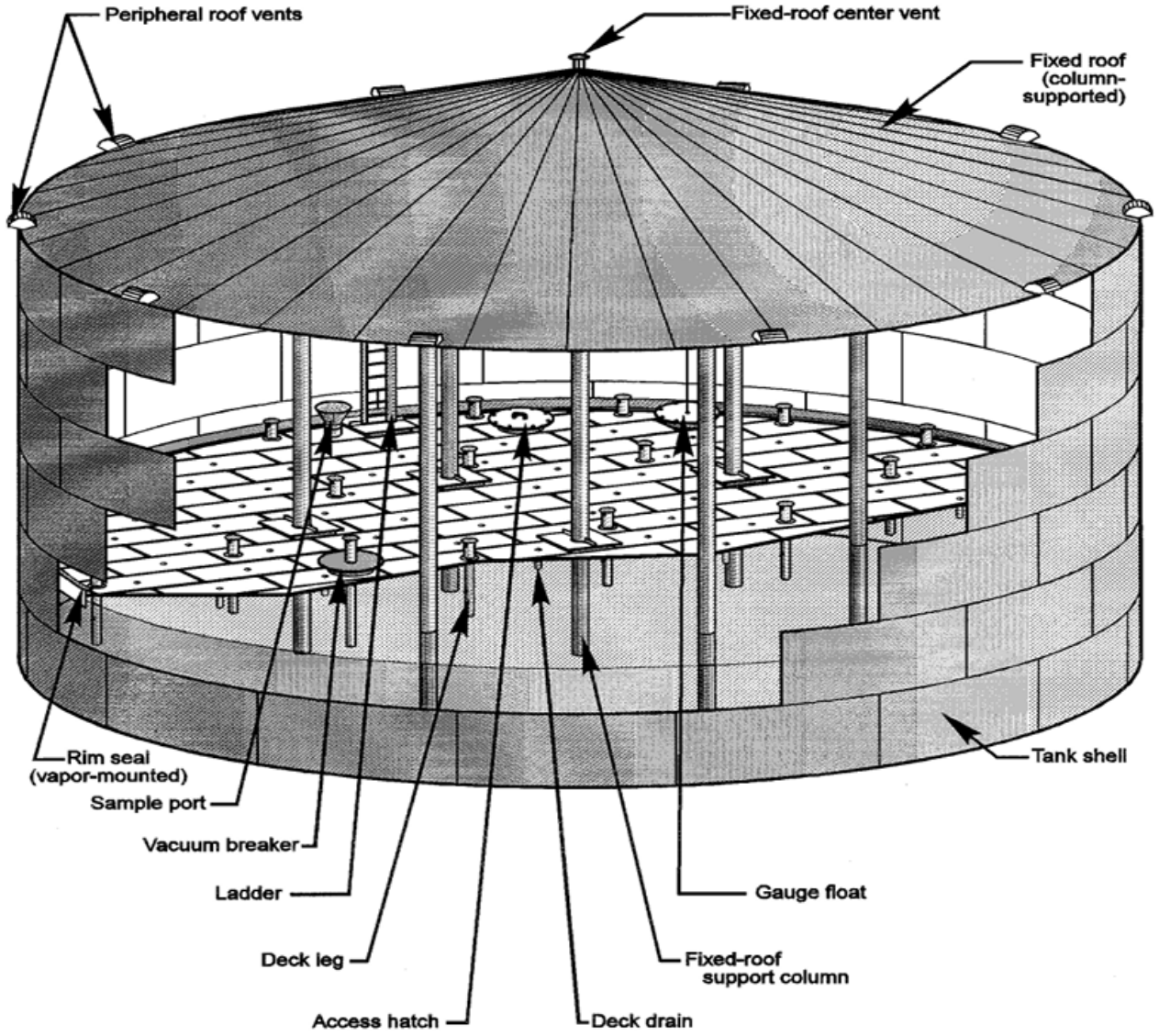


Floating Roof Storage Vessels

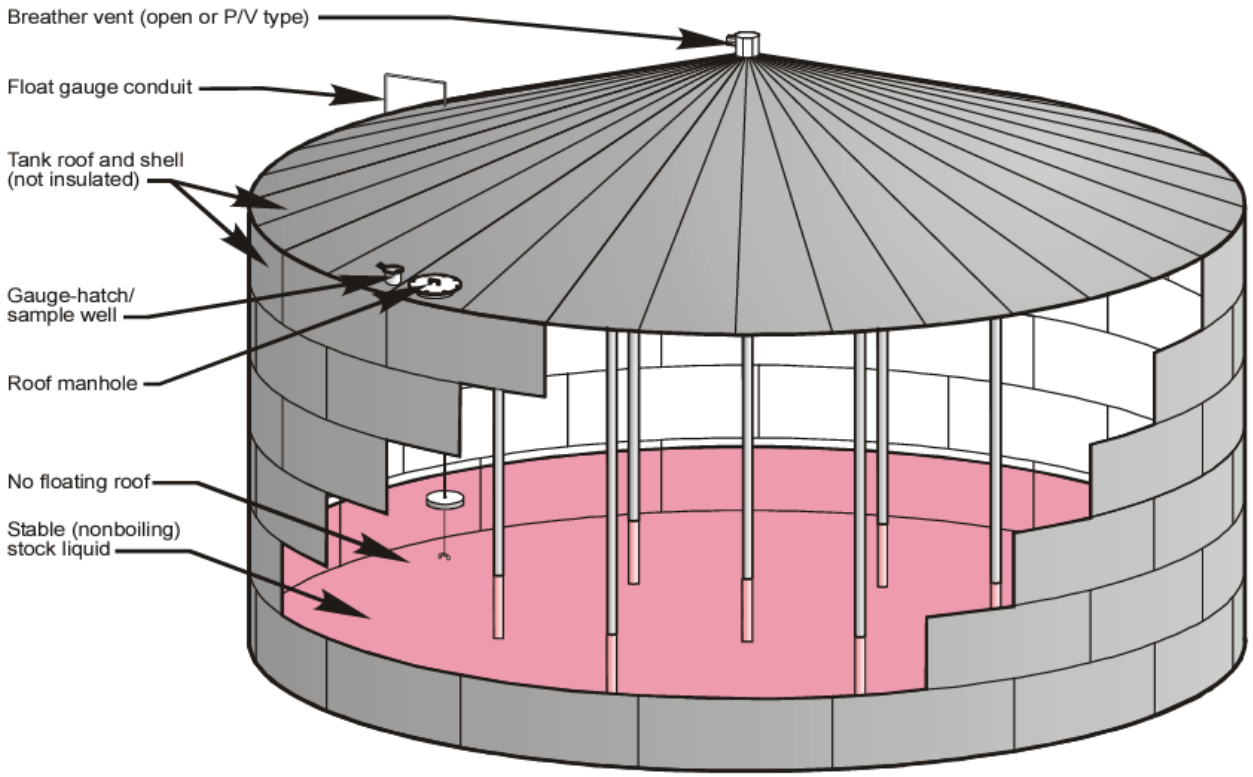
- Floating Roof
  - Sits on the liquid surface
  - Reduces vapor space in storage vessel above the liquid
- Floating Roof Components include:
  - Floating Roof Deck
  - Rim Seal Systems
  - Deck Fittings



External Floating Roof (EFR) Tank



Internal Floating Roof (IFR) Tank



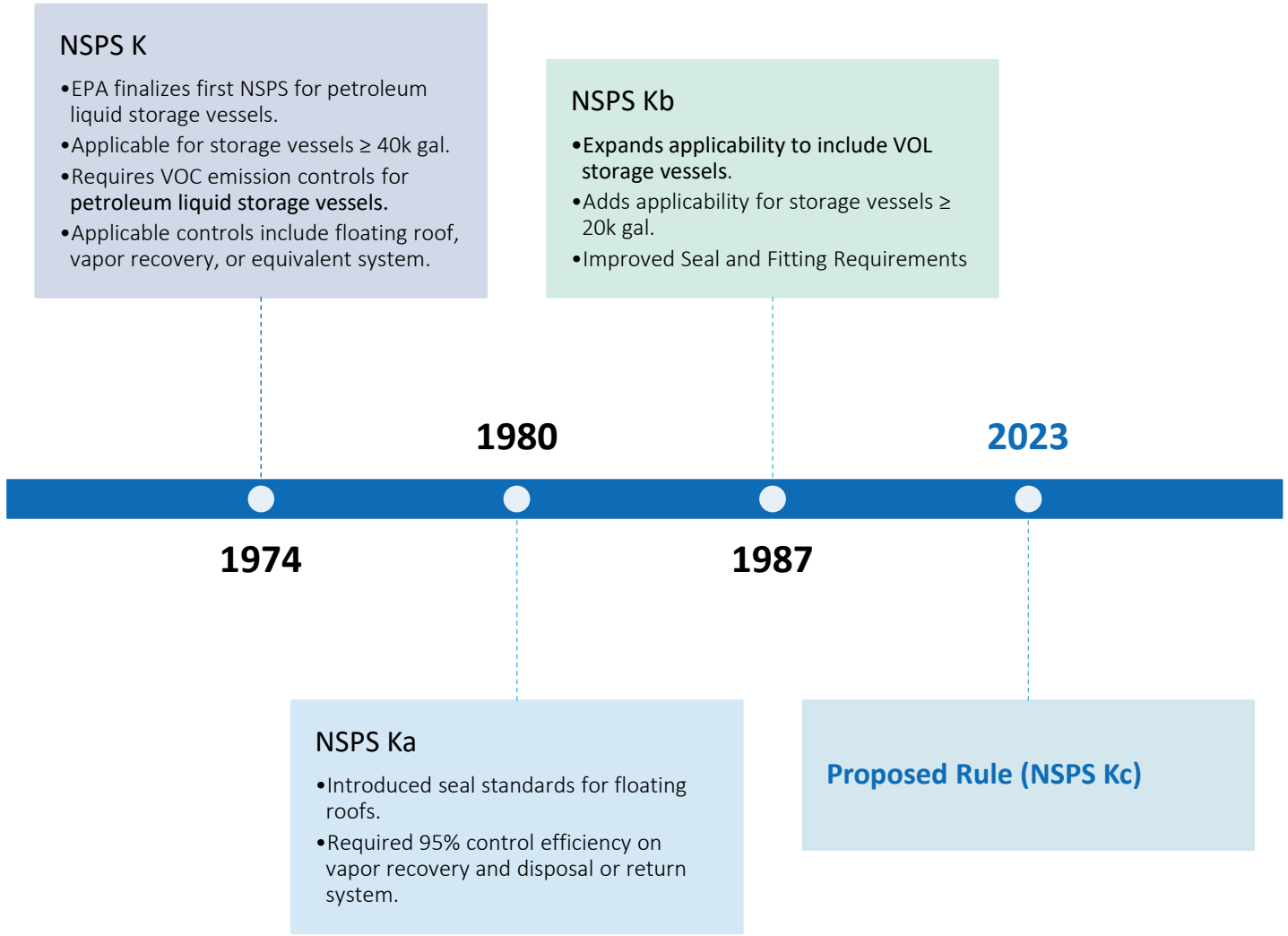
Fixed Roof Tank

New Source Performance Standards (NSPS)

EPA standards for newly constructed, modified, and reconstructed stationary sources of emissions

EPA's **NSPS subpart Kc** proposal represents the Agency's **newest proposed rulemaking** in a series of regulations that have covered both petroleum liquid and volatile organic liquid storage vessels

Timeline


NSPS K
•EPA finalizes first NSPS for petroleum liquid storage vessels.
•Applicable for storage vessels ≥ 40k gal.
•Requires VOC emission controls for petroleum liquid storage vessels.
•Applicable controls include floating roof, vapor recovery, or equivalent system.
NSPS Kb
•Expands applicability to include VOL storage vessels.
•Adds applicability for storage vessels ≥ 20k gal.
•Improved Seal and Fitting Requirements
1974
1980
1987
2023
NSPS Ka
•Introduced seal standards for floating roofs.
•Required 95% control efficiency on vapor recovery and disposal or return system.
Proposed Rule (NSPS Kc)

Proposed Rulemaking

Proposed NSPS Subpart Kc Standards

- Updates to VOL Standards / Emission Control Requirements
  - Updates to which storage vessels have control requirements
  - Updates to control requirements
  - New degassing provisions
- New Modification Requirements
- Updates to Monitoring, Recordkeeping, and Reporting Requirements

Control Requirements

Storage vessels required to control

Capacity (gal)	NSPS Kb		NSPS Kc (Proposal)	
	Lower VP Boundary (psia)	Chemical Applicability	Lower VP Boundary (psia)	Added Chemical Applicability
≥ 20k & < 40k	≥ 4	Gasoline	≥ 1.5	+Benzene +Hexane
≥ 40k	≥ 0.75	Heptane Ethyl Alcohol Benzene Hexane Gasoline	≥ 0.5	+Toluene

*Applicability determined from a storage vessel's maximum true vapor pressure

VOL Controls

Background (why do vapor pressures matter?):

- VOLs with vapor pressures ≥ 11.1 psia may reach their boiling point on high temperature days
- Floating roof storage vessels not appropriate for boiling liquids

What control options are available for VOL storage vessels with maximum true vapor pressures < 11.1 psi?

- Internal Floating Roof
- External Floating Roof
- Closed Vent System routed to a Control Device, Fuel Gas System or Process

What control options are available for VOL storage vessels with maximum true vapor pressures ≥ 11.1 psi?

- Closed Vent System routed to a Control Device, Fuel Gas System, or Process

Standards for Floating Roof Storage Vessels

Internal Floating Roofs

- 98% Control Efficiency
- Improved Seal Requirements
  - Liquid Mounted or Mechanical Shoe Primary Seal
  - Rim-Mounted Secondary Seal
- Improved Fitting Controls
  - Access Hatch and Guidepoles
- New LEL Monitoring Requirements

External Floating Roofs

- Designed to be equivalent control standard, 98% control efficiency
- More Restrictive Guidepole Requirements
- Welded Deck Seams

Closed Vent System Requirements

General Requirements

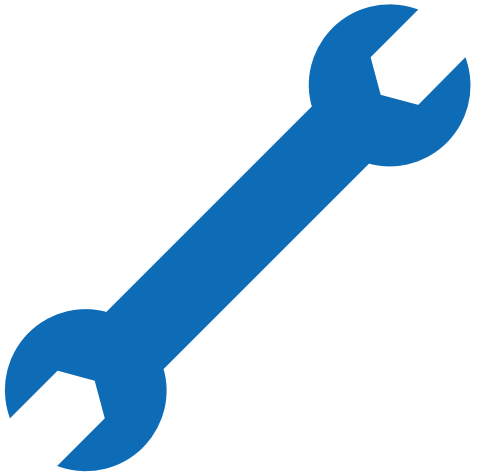
- 98% Control Efficiency Standard
- Requirements on Conservation Vents, Pressure Relief Devices, and Bypass Lines to prevent emissions venting to the atmosphere
- Annual leak detection monitoring using Method 21
- Quarterly visible, audible, and olfactory inspections
- Performance testing for control devices
- Continuous Monitoring System (CMS) requirements

Degassing Emission Controls

Degassing emissions occur when storage vessels are emptied

Degassing emission control standard

- Applicable to storage vessels greater than 1,000,000 gallons with vapor pressure ≥ 1.5 psi
- Requires 98% control efficiency for emission controls



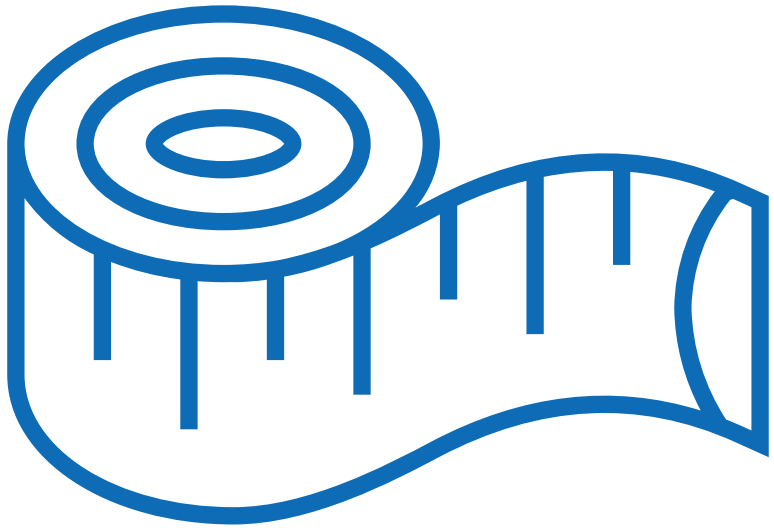
Modifications

Modifications

Under NSPS subpart A, EPA states that the "[u]se of an alternative fuel or raw material" is not considered a modification if the existing facility was designed to accommodate that alternative use.

- This provision was previously cited to assert that a change in the type of material stored in a storage vessel is not, by itself, a modification if the storage vessel is capable of accommodating the storage of the new materials

EPA proposes that **a change in the liquid stored does not constitute use of an alternative fuel or raw material, and therefore a** change in the liquid stored which results in increased VOC emissions would be a modification under NSPS Kc.



Monitoring, Recordkeeping, and Reporting

Monitoring, Recordkeeping, and Reporting

Internal Floating Roofs

- Annual Roof Top Visual Inspections
- Annual Lower Explosive Limit (LEL) Monitoring
- 10-Year Out-of-Service Inspection
- Alarm System for Monitoring Landing Events

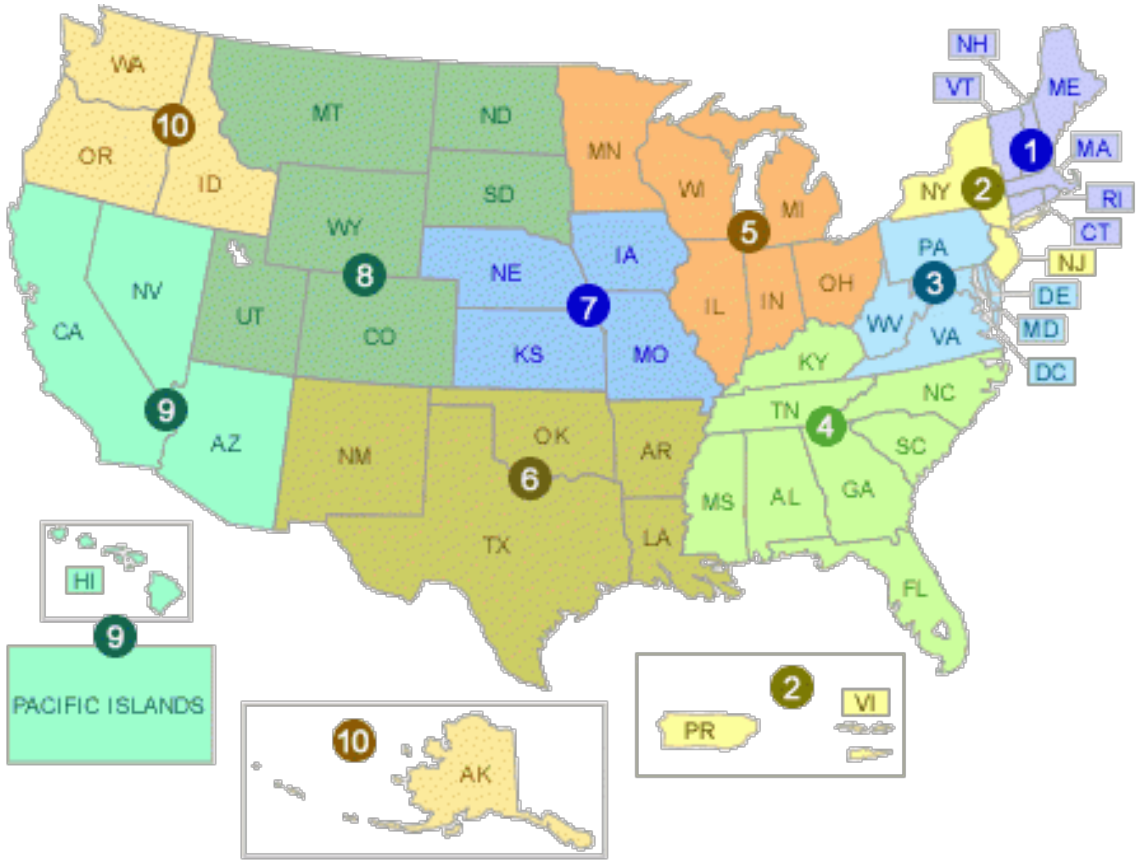
External Floating Roofs

- Gap Measurements
- Annually for Secondary Seal
- Every five years for Primary Seal
- Alarm System for Monitoring Landing Events

Closed Vent Systems

- Requirements on Conservation Vents, Pressure Relief Devices, and Bypass Lines to prevent emissions venting to the atmosphere
- Annual leak detection monitoring using Method 21
- Quarterly visible, audible, and olfactory inspections
- Performance Testing for Control Devices
- Continuous Monitoring System (CMS)

Environmental Justice



Environmental Justice

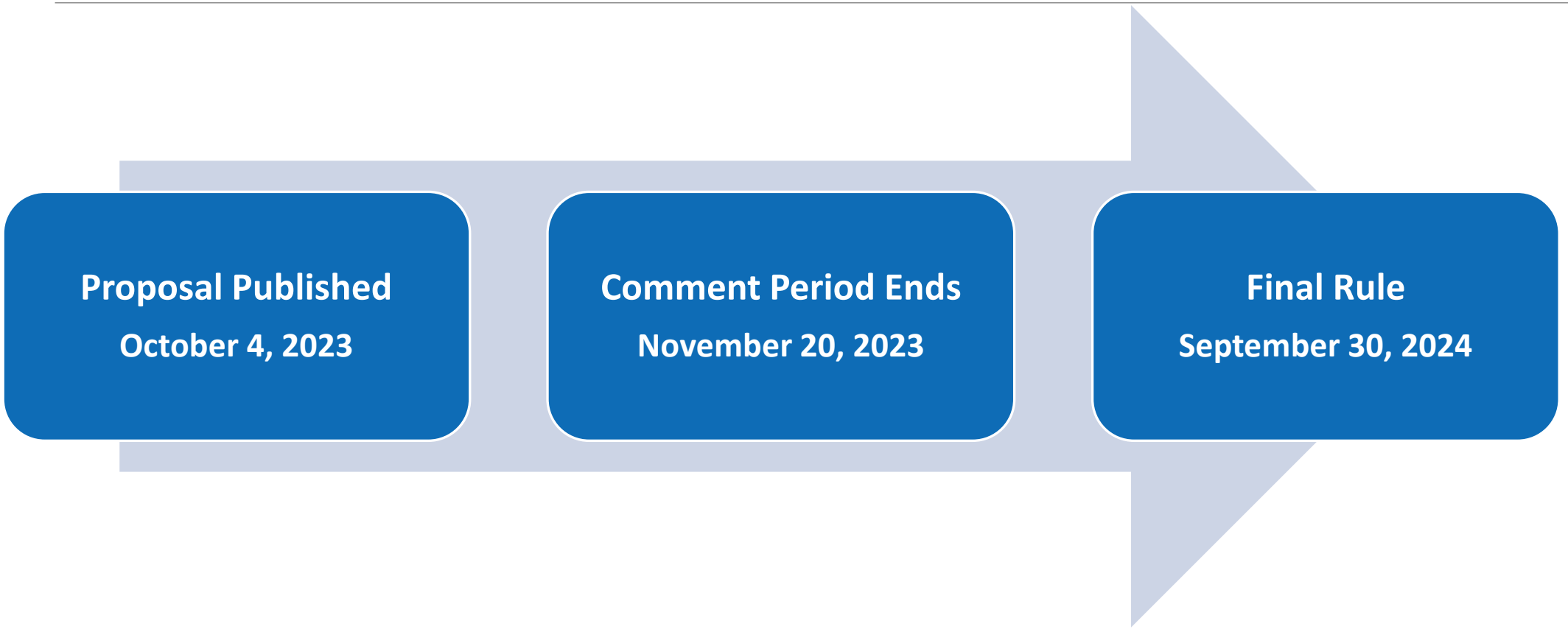
- It is difficult to predict the location of where tanks will be constructed or modified in the future
- We estimate that there are approximately more than 10,000 existing VOL storage vessels
- We do not have a list of specific units and their locations that would be necessary for a proximity demographic analysis
- We expect ~ 1,440 newly constructed storage vessels to become applicable to NSPS subpart Kc over the next five years
- We expect ~ 30 storage vessels to be modified over the same period
- We expect most applicable tanks to be constructed in EPA Region 6

Emissions Impacts

Requirement	VOC Emissions Reduction (tons)
Floating Roof Requirements	509.78
Expanded Scope of VOLs Required to Control Emissions	24.64
Modification Requirements	506.81
Closed Vent System Requirements	29.30
Degassing Requirements	14.38
Total	1,085

Commenting on EPA's Proposal

Rulemaking Process

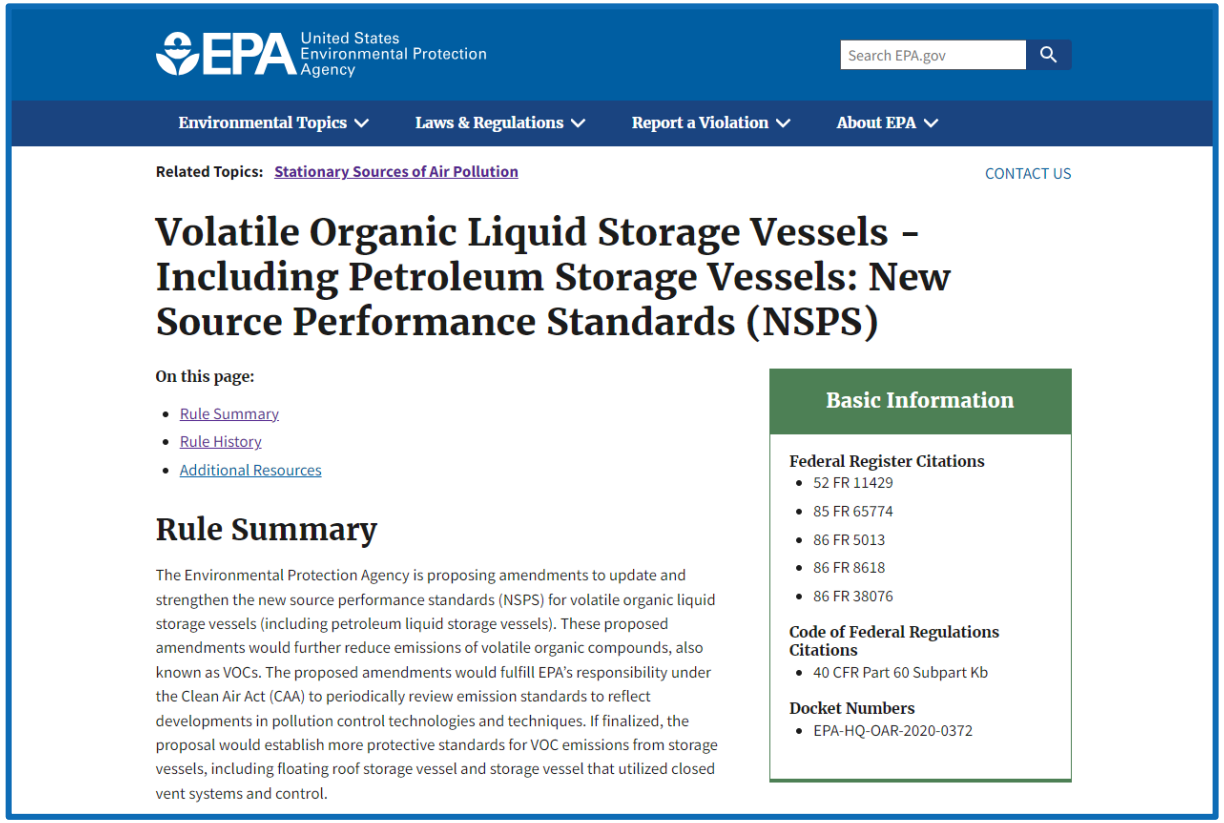


For More Information

NSPS VOL Standards Website
https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum

NSPS Kc Docket
https://www.regulations.gov/docket/EPA-HQ-OAR-2023-0358

For Information on Submitting Comments to EPA Dockets
https://www.epa.gov/dockets/commenting-epa-dockets



Tribal Consultation

- In accordance with the EPA Policy on Consultation and Coordination with Indian Tribes, EPA sent letters to all federal recognized tribes inviting them to consult with the Agency prior to issuing the final rule
- If you would like to initiate government to government consultation with the EPA or would like to request an informal discussion, please contact Amanda Kaufman at 919-541-2388 or Kaufman.Amanda@epa.gov by **November 20, 2023**

Questions