

# EH&S Driving Grab Sampling Culture

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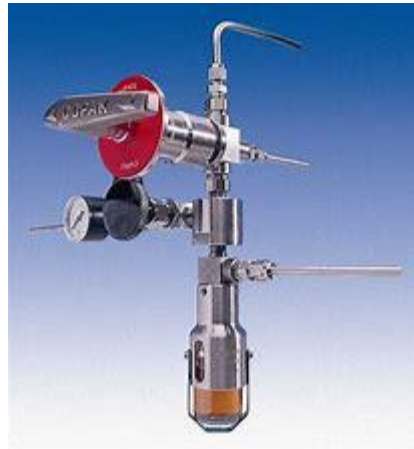
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# Objectives

- Engineered grab samplers and why they are required.
- The importance of identifying the right stakeholders.
- ➔ *Possible consequences for inadequate stakeholder involvement.*
- Road Map to Compliance.

# Why Are Engineered Sampling Assets Required?

Engineered grab samplers are used to obtain safe, representative and compliant samples by mitigating hazards and controlling emissions associated with grab sampling activities.




# Critical Stakeholders in Your Facility

- Operations
- Environmental
- Safety
- PSM
- Maintenance
- Laboratories
- Engineering

# Operations

## Primary users of the asset. (Customer)

- Responsible for delivering a representative sample to the Laboratory
- Primary group that will troubleshoot the assets and report problems to maintenance

 Highest consequences of being exposed or injured if sampling is not performed safely and compliantly.

# Environmental

**Ensures compliance with applicable regulations.**

## Clean Air Act

- LDAR (40 CFR subpart VV/VVa § 60.482-5)
- BWON

## Resource Conservation and Recovery Act

- Waste Minimization
- Waste identification
- Waste Disposal

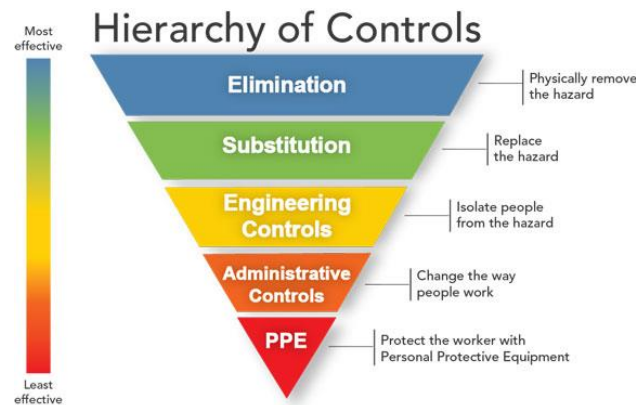
➡ Highest likelihood of being held accountable for poorly designed samplers

# Safety

## Responsible for providing a work place free of recognized hazards

Properly engineered grab sample stations reduce and eliminate exposure hazards to:

- Chemicals (I.e. H<sub>2</sub>S & Benzene)
- High pressure processes
- High Temperatures
- Flammability and Volatility



➡ Improperly designed/maintained samplers increase the risk of injuries

# Process Safety Management

## Understanding hazards which could be created by grab sampling

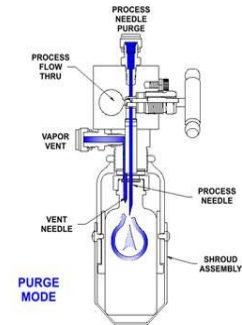
- Loss of Primary Containment (LOPC)
- Process Hazard Analyses
- Naming Sample Locations on P&IDs
- Facilitating Proper Sampling Procedures



# Maintenance

## Troubleshoot, Repair, and Increase Reliability of the Assets

- Ensure that the proper craft is assigned
  - Pipe Fitters vs Instrumentation Technicians
- Managing inventory levels that use unique components to these systems that can utilize multiple manufactures.



# Maintenance cont.

- Adequate knowledge to troubleshoot these assets.
    - Selecting crafts that are trained in tube and instrument fittings for each application.
  - Prioritization or repairing these assets.
    - Being hazard mitigation devices, these should be given high priority to repair.
- ➡ Maintenance can help identify whether assets selected during installation can be supported in terms of available craft skills and parts support.

# Laboratories

## Receive and Analyze Samples

- Determine proper sample container and size
- Can help identify how samples are being collected in the field by recognizing abnormalities with sample containers.



➔ Improper container selection during design phase can cause issues with lab waste and proper adaptation of the sample container to the lab analyzer

# Engineering

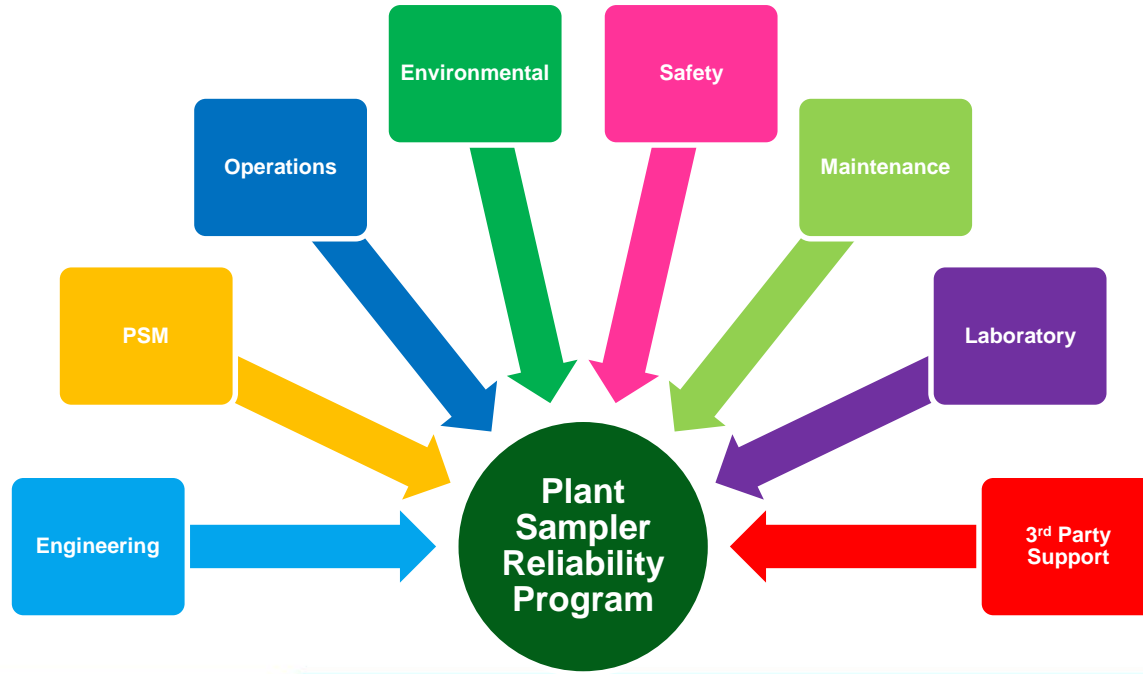
- New Installations, Designs, and construction.
    - Temperature, Pressure, and Composition
    - Physical Locations
    - Venting Locations
      - (I.e. using a scrubbing media or sending vapors to a control device.)
  - Documentation to ensure repeatable process with future installations.
- ➡ Exclusion of engineering from the process will likely result in a sampler installation not meeting plant standards.

# Road Map to Compliance

- Key Pillars for Ensuring Compliance
  - Involvement of Critical Stakeholders
  - Training
  - Continued Maintenance and support
- Considerations to Achieve Compliance.
  - Internal vs. External Implementation

# Get Stakeholders Involved

Draw on the expertise from all the previously mentioned stakeholders. This will ensure all of the many focus points around these assets are addressed.



# Training

- Clarifies to operations the “why” of using engineered samplers
  - Environmental, Safety, and Process Engineering requirements.
- Operators trust the asset because they understand how to properly use it.
  - Decreases the likelihood of using non-compliant “bandit” sample points
- Operators are more likely to report issues which will keep these assets in a good state of reliability.
  - When using engineered samplers becomes the norm, operations will demand the availability of these assets.

# Continued Maintenance and Support

- Determine which craft will perform the maintenance
  - Instrumentation technicians are best suited.
- Will assets be routinely inspected?
  - Preventative maintenance or reactive maintenance
- Who has the expertise to properly troubleshoot these assets?
- What parts will be stocked in warehouse stores to maximize reliability?
  - Generate a Bill of Materials for each asset to allocate sufficient supplies.



# Internal vs. External Implementation

- What is our level of compliance?
  - Who is capable of auditing samplers and documenting compliance?
  - Are the samplers being utilized by operations?
- Grab sampler specification/application
  - Installation design/details
  - Elimination of waste during sampling
  - Venting vapor methodology

# Internal vs. External Implementation

- Grab sampler troubleshooting experience
  - Qualified personnel to diagnose problems with these assets.
- Maintenance capability- Instrument fitter knowledge at a minimum
  - Pipe fitters are not trained to handle tubing and compression fittings or the various unique instrumentation valves used in grab sampler technology.
  - Parts identification and inventory management including BoM and failure rates.



After considering all these factors, SWRC elected to enlist AES in assisting with implementing a sampler reliability program to maximize reliability of these assets.

# Questions??