

# 10 Tips to Keep-In-Mind for Stack Testing

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July 25, 2018 – NGFA CONVEY '18 Conference – Omaha, NE

# Introduction - Overview

A stack test air sampling, also referred to in EPA regulations as a:

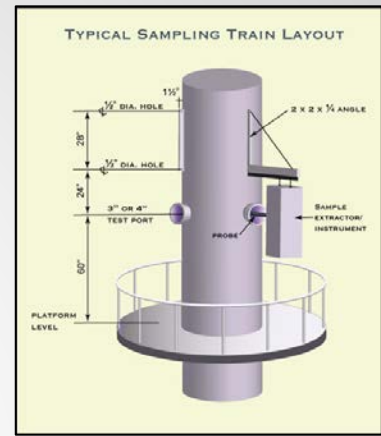
- performance, compliance, or source test.

A stack test measures the amount of:

- emissions, pollutants or surrogates of pollutants.

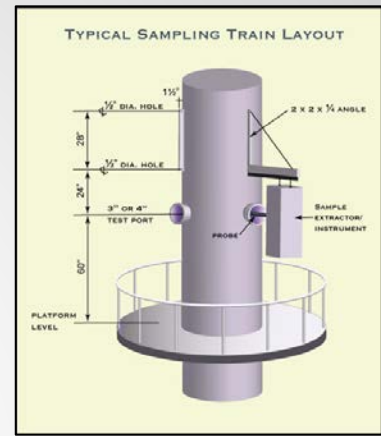
The amount is measured as a:

- concentration, rate, and/or efficiency in control or capture.



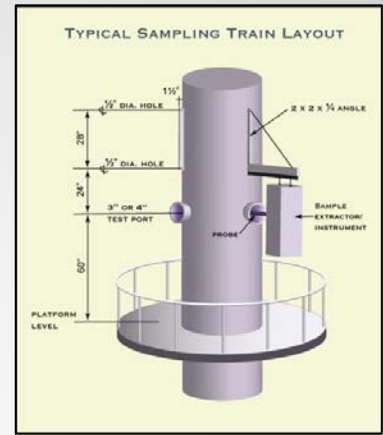


# 1. Why test?

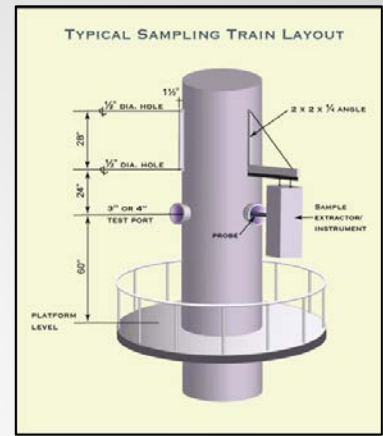


# 1. Why is the testing required?

- Permit Condition
- Regulatory Standard
  - Federal Rule
  - State/Local Rule
  - Rulemaking Information Request
- Enforcement
- Settlement
- Engineering
- Important to note that often times testing can be negotiated/extended/avoided

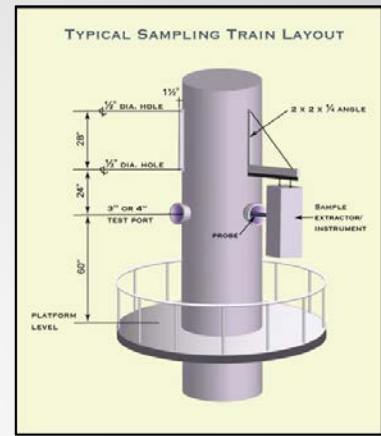


# 2. Find Testers



## 2. Where to find stack testers?

- State and regulatory agency websites have lists of consultants and testers (usually)
- Conferences
- Work with a consultant
- Internet search
- Site historical file search





# 3. Certification





### 3. Ensure testers are certified.

- Background check on work
- Some agencies require certification
- Gather multiple bids
- Qualified Source Testing
- Individual (QSTI)
- Qualified Source Testing
- Observer (QSTO)
- Source Evaluation Society (SES)



# 4. Test Methods



## 4. What type of test is required?

- Most commonly, tests at grain and feed sources are:
  - Method 5 – Total Filterable Particulate
  - Method 201A– Filterable PM10/PM2.5
  - Method 202 – Condensible Particulate
  - Method 9 – Opacity
  - Method 22 – Fugitive Visible Emissions
  - For Dryers, Boilers, and Engines on-site combustion pollutant methods as well



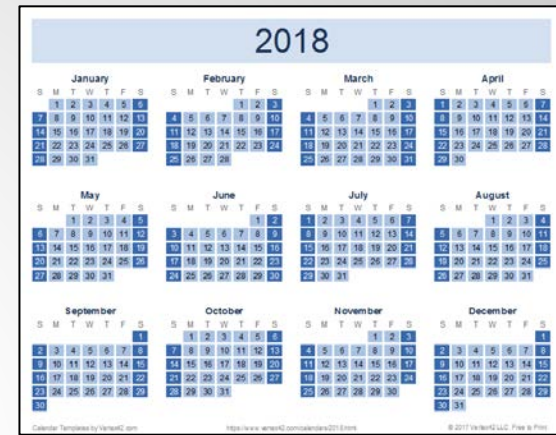
# 5. Scheduling

2018																												
January							February							March							April							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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28	29	30	31				25	26	27	28				22	23	24	25	26	27	28	29	30	31					
May							June							July							August							
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6	7	8	9	10	11	12	3	4	5	6	7	8	9	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
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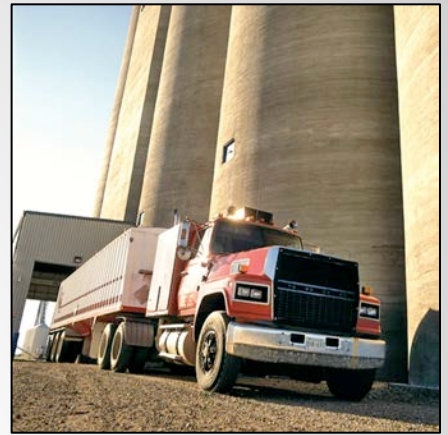
# 5. Considerations on timing when scheduling the test.

- Most rules/permits require a 30 to 60 day notification with test protocol
- Coordination with site/crews
- Seasonal variability
- Start-up/Shakedown periods
- Source operation
- Ensure highest emitting scenario (AKA, worst-case scenario)



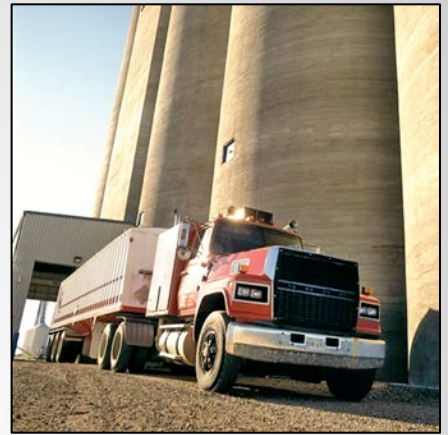


# 6. "Worst – Case"



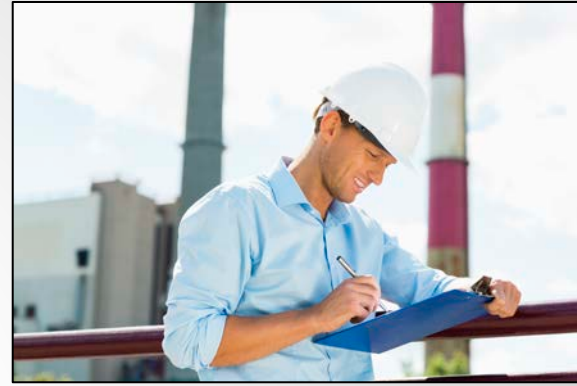
## 6. What is worst-case?

- Maximum capacity
- Highest emitting scenario for lb/hr or concentration limits
- At elevators, this often means having several trucks lined up
- Removal efficiency/percentage standards are “most challenging”
- Tests should always be representative of the source



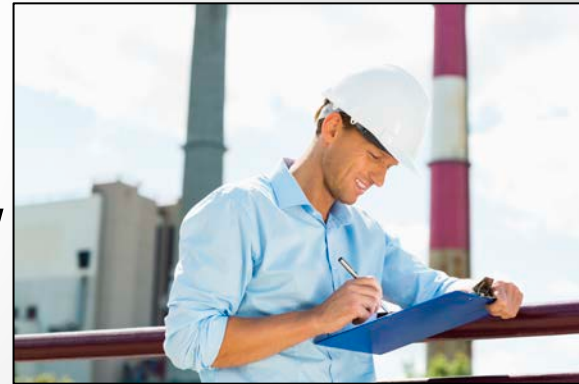


# 7. Setup

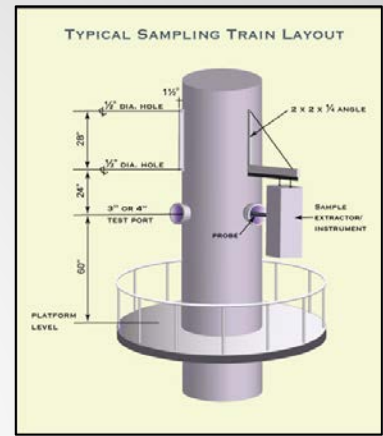


# 7. What to expect when expecting?

- Stack testers require a lot
  - Proposals list man-lift, power, stack port, etc. requirements along with fees (cancellation)
- Coordinate with testers before they show up to the site
- State agency inspectors will likely be at the test
- Be prepared to handle: (1) Site Ops
  - (2) Testers - (3) Regulators

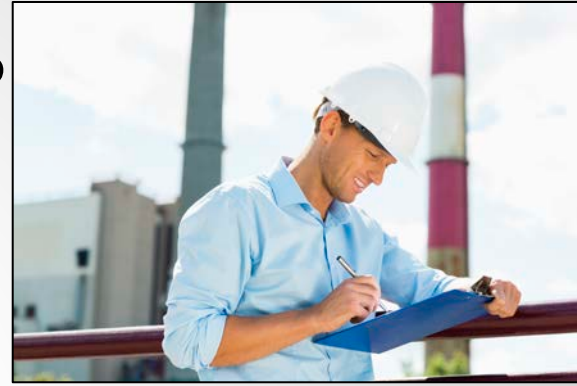


# 8. Documentation (During Tests)

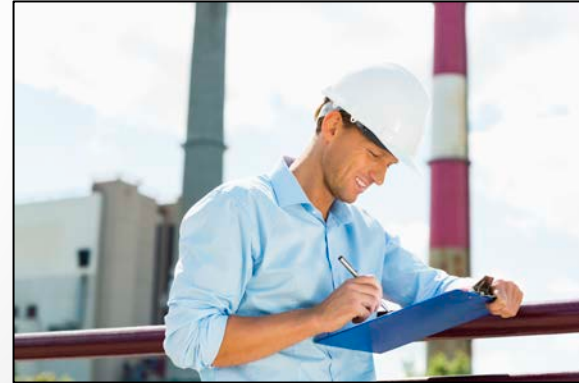


# 8. What to record during tests?

- Emission unit capacity
  - Throughput amount and type
  - Tonnages/Rates
  - Trucks/Railcars/Type
- Control device parameters
  - Differential pressure
  - Temperature
  - Trucks/Railcars/Type
- Documentation must align with testers start and stop times



# 9. Test Reports



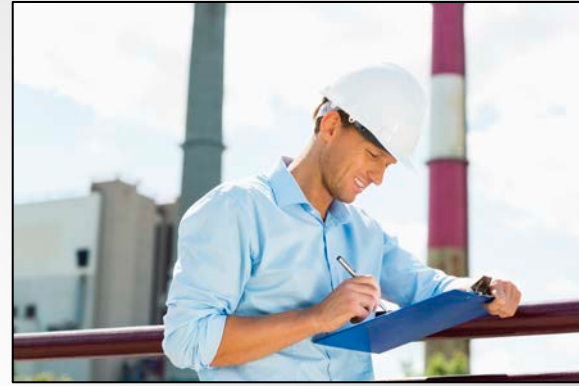
# 9. What to do with the reports?

- The test report should be reviewed
- Reports often times have errors
- Ensure it meets compliance – if the test is non-compliant, it is wise to meet with legal counsel and consultants before submitting
- Most permits/rules require submitting the reports within 30 to 60 days
- Some rules require submittal to EPA's: Compliance and Emissions Data Reporting Interface (CEDRI)





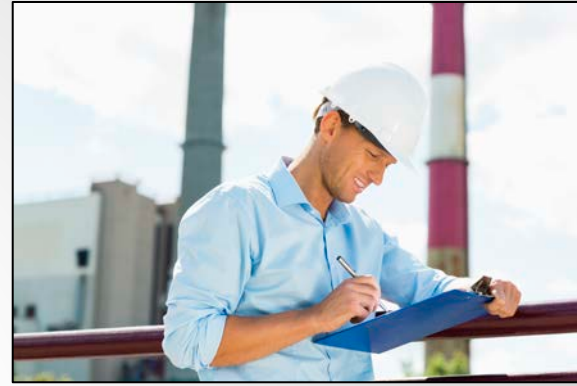
# 10. So, what?





## 10. Why is testing a big deal?

- Should any tips #1 through #9 be done incorrectly, a second test may be required
- Tests are expensive, \$15k to \$50k
- Fines are more expensive
- Bad publicity can be expensive
- Test frequencies can be long
- Could be 5/10 years between tests or one-time for life of unit



# Ethanol Production Plant Case in CO

## State Findings & Order from Stack Test/Inspection:

- Exceeding permit and major source threshold for VOC
  - Did not submit Title V permit application for VOC major source
  - Exceeding permit and major source threshold for HAP
  - Did not submit Title V permit application for HAP major source
  - Did not comply with CAA 112 requirements, NESHAP (National Emission Standards for Hazardous Air Pollutants) for major sources
  - Did not submit notice of applicability of NESHAP major source rules
- The State ordered the source to install new equipment, update maintenance plans, test every six months (in perpetuity), submit a permit application, and pay \$200,000 in fines.



# Ethanol Production Plant Case

## Resolution:

- Through technical, statistical, and regulatory analysis, ARC demonstrated the source did not exceed major source thresholds, and therefore, the ancillary findings of NESHAP applicability and permitting were not needed
- ARC settled potential permit monitoring language to better assess VOC and HAP emissions as opposed to expensive stack testing
- ❑ Eventual settlement for optional additional equipment install, two tests over the next two years, a permit application, and pay \$70k in fines
- ❑ Total savings of \$250k+ over two years
- ❑ Same, or more benefit to the environment



# Non-Metallic Mineral Processing Plant in WI

## State Findings & Order from Inspection:

- Did not install permitted control device
  - Did not build stacks to required height and diameters
  - Did not perform stack testing in a timely manner
  - Did not keep and maintain records of control device parameters
  - Exceeding permit limits for particulates
  - Exceeding permit limits for CO and NOx
  - Is causing a NAAQS exceedance in the vicinity of the facility
- The State ordered the source to install new equipment, update permit application, update emissions modeling, stack test every six months, and pay \$100,000+ in fines.



# Non-Metallic Mineral Processing Plant

## Resolution:

- Helped client install and setup recordkeeping for control devices
  - Also, demonstrated that a control device may not have been needed
  - Assisted in stack testing exercise to show emission rates were controlled and below permitted levels
  - Performed an ambient air impact analysis for new stack heights/diameters
  - Provided emissions analysis, modeling, and monitoring to demonstrate the source was not contributing to any NAAQS exceedance
  - Revised permit for more clear compliance language and achievable limits
- 
- Eventual settlement to pay \$10k in fines
  - Total savings of \$90k+
  - Same, or more benefit to the environment





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