

CEPA Meeting 04/16/2020

THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
AIR POLLUTION CONTROL DIVISION
INDOOR ENVIRONMENT PROGRAM

Colorado Environmental Professionals
Association- (CEPA)

April 16, 2020



COLORADO

Air Pollution Control Division

Department of Public Health & Environment



Introductions

Program Information

<https://covid19.colorado.gov/>

<https://covid19.colorado.gov/critical-businesses>

Certification

Executive Order D 2020 015 - 30 days from March 25

Revisions to Regulation No. 8, Part B

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Questions from the Regulated Community

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April 16, 2020

- Trevor Strosnider
- Severen McGowan



COLORADO

Air Pollution Control Division

Department of Public Health & Environment

OVERVIEW

CEPA
submitted
four questions
to CDPHE with
requests for
clarification





Summary of Questions from CEPA

1. Trigger levels for pipe and pipe wrap/TSI; linear feet, or volumetric trigger level?
2. Major spill trigger levels; should an inspector use the quantity of ACM or the area that's been contaminated?
3. Dust sampling during spills; wipes vs microvacs, requirements for sampling during a major spill.
4. Cumulative trigger levels for small jobs across large facilities; for example, electrical junction boxes or sprinkler system replacements



First question for clarification

1. “Please clarify for CEPA the Division’s stance on calculating Trigger Levels, whereas substantially large pipe needs to be measured against a 55-gallon drum thereby triggering a permitted project. This contradicts the 2 EPA ADI’s attached. Shouldn’t subjectivity be eliminated when measuring ACM for Permit or Trigger Level requirements?”



Quantifying Pipe- length vs volume?

Colorado is a NESHAP waiver state. CDPHE is empowered to administer the federal and state's asbestos regulations in lieu of the federal government.

All CDPHE regulations regarding asbestos must meet or exceed the requirements of the NESHAP. In some cases, Regulation 8 includes additional provisions to help protect public health.

Consider state vs federal limits for notification requirements:

Federal(P&C Only)- 160 sf/260 linear foot/1 cubic meter (35 cubic feet)

State (SFRD)- 32 sf/55 lf/ 55 gallon drum

State (P&C)- 160 sf/260 lf/ 55 gallon drum



Why different than the NESHAP?

Trigger levels were approved by the state legislature with the intent to ensure that projects generating significant quantities of ACM waste were regulated under CDPHE's authority. This includes projects in SFRDs, not subject to NESHAP authority.

I.B.107.b. With regard to all areas other than single-family residential dwellings, the trigger levels are:

- 260 linear feet on pipes
- 160 square feet on other surfaces
- *or* the volume *equivalent* of a 55-gallon drum.

Without the State's volumetric trigger level, many jobs could be performed with no notification, inspection, engineering controls, or disposal requirements. Untrained workers are not equipped to do a GAC's job.

The health risk from commercial jobs is significant; even "short" runs of large-scale commercial pipes generate a lot of ACM waste. Some older TSI products in particular are very hazardous, with high concentrations of asbestos and degraded conditions.



“Trigger Level” Comparison

State trigger level- volume equivalent of 55 gallon drum

1 “standard” 55 gallon drum is generally recognized to contain ~7.35 cubic feet of material.

This is a significant volume of material; for a 2 inch diameter pipe, half an inch of TSI wrap around a 260 linear foot run of line totals to roughly 7.13 cubic feet.

While this quantity does not exceed volumetric trigger levels, it would be regulated under the 50 linear foot trigger in SFRDs.





“Trigger Level” Comparison

Federal Standard-1 cubic meter of material, or ~35.31 cubic feet

Converted to 55 gallon drum volume, the Federal standard represents roughly 4.8 drums.

The volumetric trigger level per Regulation 8 is intentionally smaller than the notification threshold per NESHAP. This is because exclusive application of the linear foot trigger level could generate significant quantities of hazardous waste with no controls or notification required.





Real World Example (small scale) 2 inch pipe with ½ inch of TSI

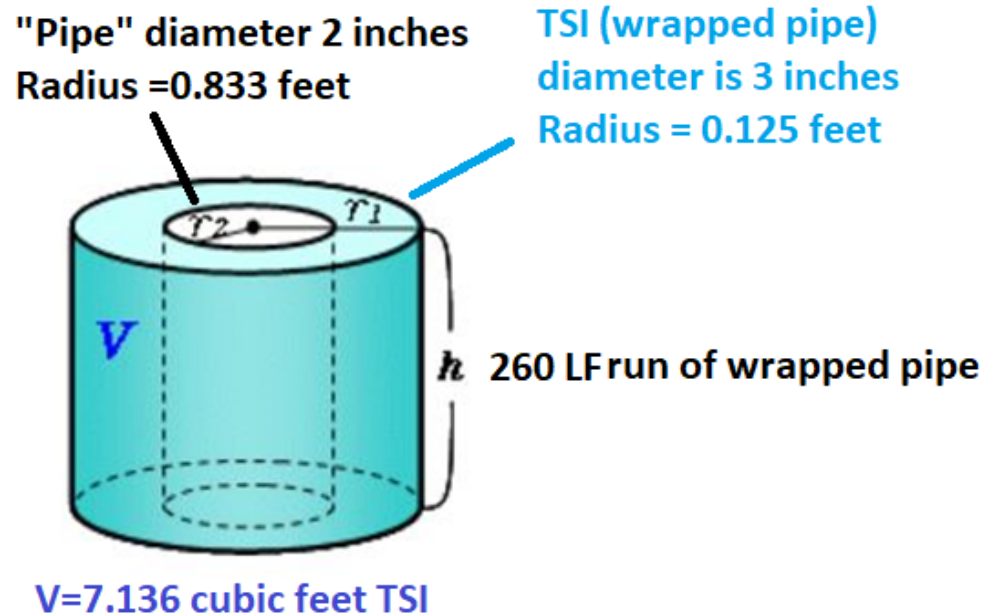
Use the “volume of a hollow cylinder” calculation:

Volume of outer cylinder (insulated run)-volume of inner cylinder (bare pipe diameter) = volume of the TSI.

$$V = \pi h (r_1^2 - r_2^2)$$

On this small line, a 260 linear foot run of ½ inch thick TSI only generates= ~7.136 cubic feet of TSI waste.

Below trigger level of 7.35 cubic feet. However, in an SFRD, the job would already require a permit based upon the 50 linear foot trigger level of pipe run.





Real World Example (large scale) 12 inch pipe with 1 inch of TSI

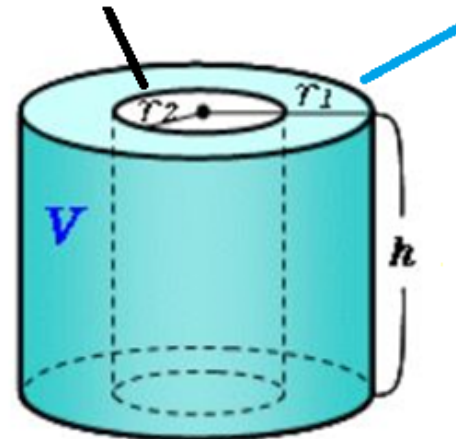
On this larger line, the volume of TSI exceeds volumetric trigger levels over a much shorter distance.

A fifty-foot linear run of 1 inch thick insulation on a pipe this size generates 14.12 cubic feet of TSI.

Above the volumetric trigger level; large diameter pipes generate significant quantities of TSI when stripped.

"Pipe" diameter is 12 inches
Radius = 0.5 feet

TSI (wrapped pipe)
diameter is 14 inches
Radius = 0.583 feet



50 LF run of wrapped pipe

$V = \sim 14.12$ cubic feet TSI

Volumetric trigger level insures GACs perform work where their expertise is needed, and helps to protect other workers/community from accidental exposure!



Some final tips on quantification

Regulation 8 allows the use of linear feet only for quantifying material on pipes. This means caulking, sealing, window glazing, etc. must be converted to square feet! EPA has also clarified this point.

The same restriction applies to “duct wrap.” If it’s not a pipe, don’t use linear feet! Convert, or the Permit Coordinator will ask you to do so and you’ll have to resubmit.

Transite pipe may be quantified in linear feet, but short runs of wide pipe can exceed volumetric trigger; please provide the diameter of the pipe on “courtesy notices.”

The volumetric trigger level should not be interpreted to mean “how much material could be crammed in here if I crushed it.” Any materials off their substrate should also use the 55-gallon drum.



Second question for clarification

2. “When determining the Trigger Levels on potential spill situations, is the quantity of the adjacent area used or the quantity of the actual spilled ACM used in the quantification process?”



Spill trigger level- calculated by quantity of source material.

- I.B.21. Asbestos spill means any release of asbestos fibers due to a breach of the containment barrier on an abatement project, or due to any cause other than asbestos abatement.
- III.T.1. Major Asbestos Spills
“In the event of an asbestos spill involving greater than the trigger levels, the building owner or contractor shall...”

Major spill requirements are only mandatory *above trigger levels*. Therefore, spill delineations are always calculated based upon the amount of source material disturbed, with one notable exception...



Asbestos spills in soil- the exception

III.S.5. Asbestos-Contaminated Soil

“Any soil containing visible friable asbestos-containing material or any soil with greater than 1% friable asbestos content in the top 1" of soil is, for the purposes of this subsection, asbestos-contaminated soil. Where the surface area of the asbestos-contaminated soil exceeds the trigger levels, or the volume of contaminated soil to be removed exceeds the volume equivalent of a 55-gallon drum, the GAC and the building owner shall comply with all of the requirements in subsection III.T. (Asbestos Spill Response)...”

This is the only situation where Regulation 8 utilizes the extent of the area contaminated to determine whether a major spill exists.



...but why is soil different?

Quantifying spills in soil presents unique challenges. Soils are difficult to assess because:

- spills are often historic, and source materials are frequently gone or unknown (old pipe wrap in crawlspace, buried building debris)
- the full extent of contamination may not be visible to the naked eye (inspector has a limited visual perspective of materials below the obvious surface layer)

Therefore, “any soil containing visible friable asbestos-containing material or any soil with greater than 1% friable asbestos content in the top 1" of soil is, for the purposes of this subsection, asbestos-contaminated soil.”



Connect the dots, delineate the spill

Don't assume what you can see is all the contamination that exists! Patchy, uneven sections of soil with visible debris are suggestive of a wider spill.

Where logical, these areas should be considered together, rather than analyzed in isolation.

Consider the likely source of the material - pipe wrap? Buried demo debris? Excavated transite pipe?

Typically, spills in soil extend across the "installation area" of a product. For example: everywhere below a furnace duct system where wrap has been removed.



Field example- incorrect technique

-Bulk of contamination likely hidden from casual inspection.

-Consider the material source and err on the side of caution.

-Inspectors should not attempt to “isolate” small pockets of visible contamination where a broader trend is visible.





Visual example- correct technique

-Capture the entire area of soil affected by spill material

-Additional materials may exist below; hence the requirement for 2" soil lifts and visual clearances

-More suspect debris likely exists in this type of scenario; photo used for example purposes only to demonstrate concept





Final word- soils vs building material

To review:

For spilled materials not in soil, spill determination is based on quantity of material disturbed (III.T.1).

For spills in soil, spill determination is based on surface area (or volume) of soil that has been contaminated (III.S.5).

The Division can be contacted with questions regarding cleanup of complex asbestos spills if needed.



Third question for clarification

3. “Could you please clarify the Division’s stance on dust sampling? When is a specific method required? Specifically, wipe vs. microvac sampling? As a sub-question, when is quantification vs. qualification warranted or required? How is the gathered information interpreted and applied when determining spill threshold levels and future cleanup requirements?”

This leads to a broader discussion about how to characterize asbestos spills.



Every spill is different!

CDPHE does not endorse a specific protocol of sampling (wipe, microvac, or ambient) for all spills. There are many logical factors to consider when attempting to delineate a spill:

- Type and quantity of ACM damaged by the spill
- Triggering event; Fire? Renovation? Roof collapse?
- Building layout; elevators and stairwells?
- HVAC situation; central air, window units?
- Time since spill; have fibers had time to settle?



Do you *always* have to delineate?

No! “Spill delineation” is sometimes quite simple.

“Dust and debris” is the obvious trigger. Anywhere suspect debris has spread from a major spill *must* be included in the scope of the spill. This includes dumpsters and trails of debris through buildings.

You can logically assume where a building or area is contaminated; only attempts to restrict the scope of a spill response require additional investigation.



Major spills and time- fiber physics!

When a consultant arrives on-scene after a spill, their approach should be tailored to site-specific conditions.

Fibers can remain entrained in the air for days (or longer...) depending upon ongoing disturbance. Ambient TEM air monitoring is always the preferred choice for occupied buildings soon after a spill; are the residents exposed to fibers, or just dust/soot?

Wipes and microvacacs are not appropriate *immediately* after an event; fibers must settle. Collection locations should come from frequently cleaned surfaces, not neglected cracks and crevices (passive accumulation).



Dust sampling- another tool to use

No form of dust sampling is officially recognized in Regulation 8; air monitoring is the only technique specifically endorsed by the Regulation. Ambient TEM air samples are very useful to gain information about air quality in the building *right now* (more useful sooner than later).

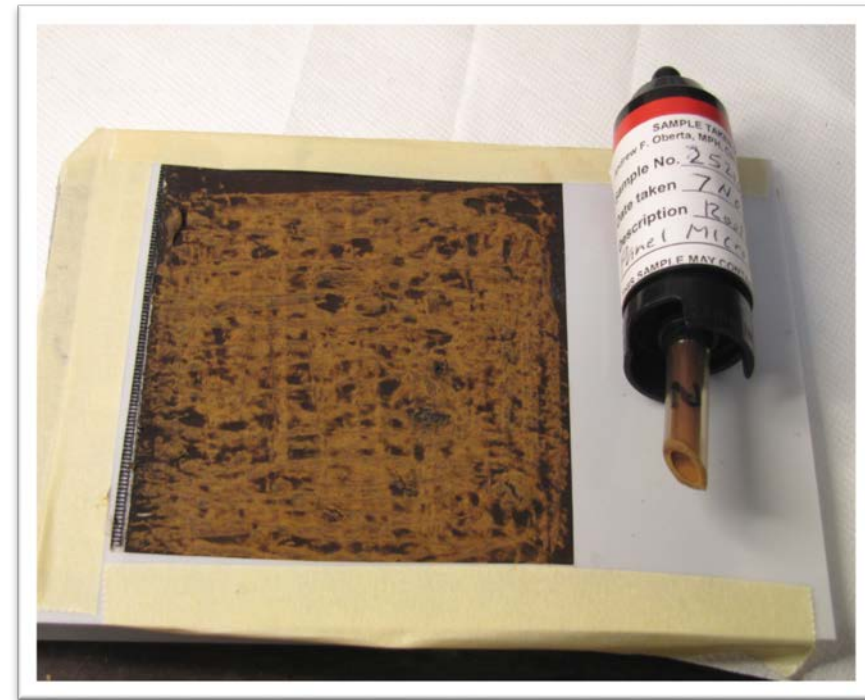
In complex spill delineations both wipe samples and microvac samples can provide valuable data to help determine the extent of fiber migration. These samples are often used in structure fires and spills that occur in large buildings to more accurately target the scope of a required cleanup.



Wipe Sample vs Microvac

Wipe Samples-ASTM D6480

MicroVac - ASTM D-5755





Wipe Sample vs Microvacs



- + simpler technique
- + good on hard surfaces
- + likely more sensitive
- not so good on fabric



- + powered suction vs passive action
- + can extract fibers from carpet
- + collects fibers neatly onto cassette
- more complex(?) technique
- lower sensitivity in settled dust



Qualification vs Quantification

Typically, “qualification” analysis (presence/absence) only provides useful data in certain limited contexts, such as air monitoring for an open-air abatement project.

In a spill situation, “qualification” analyses can lead to false positives. Most buildings with asbestos materials will have loose fibers from natural wear-and-tear. How do you tell if a positive fiber detection is from a spill, or from normal daily activities? Fiber detections may lead to expense, unnecessary cleaning and lost property; those fibers were likely already present before the spill!

“Quantified” samples are not subject to a regulatory action level, but do provide a useful basis for comparison.



CDPHE and data interpretation

As a public health agency, detecting and correcting health hazards is CDPHE's main priority in any spill. Delineation sampling plans should align with this criteria.

- Consultants may contact CDPHE with a sampling plan of action prior to implementation.
- Typically, field inspectors work as a liaison with the client's hired consulting team and CDPHE senior staff to ensure adequate data is captured to characterize a spill and direct a cleanup.
- Every building is different; sampling protocol for one location may not be appropriate elsewhere.
- Additional CDPHE guidance forthcoming(??)



Fourth question for clarification

4. "Please clarify how to determine the quantification process when working on a building and how this applies to Trigger Levels. To give an example, apartment owners frequently think they can change the sizes of all of their electrical panels across 300 apartment units in the same building or at the same address without a permit because the amount of ACM disturbed is less than the 32 Sq. Ft. SFRD Trigger Level for each unit. The same theory is often applied when fire sprinkler retrofits are performed."



Regulatory review

- Regulation No. 8- III.E.1. Notices:

Any person intending to either abate asbestos-containing materials in any amount greater than the trigger levels, or demolish a facility shall, on a form supplied by the Division, provide a written notice of the intent to conduct asbestos abatement or demolition.



Supporting documentation

EPA's- APPLICABILITY DETERMINATION INDEX (ADI)

- Control Number: C41- Applicability to 64-Building Complex
- Control Number: A970005- Small Projects
- Control Number: C66- Single Family Housing
- Control Number: A060001- Demolition under Control of Same Owner or Operator



Control Number: C41

- Q: Whether or not the asbestos NESHAP would apply to an entire single-owned 64-building apartment complex undergoing asbestos removal in various four-unit and six-unit buildings.
- A: If the additive amount of friable asbestos material being removed or stripped in the complex is at least 260 linear feet on pipe or 160 square feet on other facility components, then the entire operation would be subject to 40 CFR Part 61, Subpart M.



Control Number: A970005

- Q: Is there any limit on the number of small scale, short duration projects that can be conducted annually at a facility?
- A: There might be a limit on the number of small-scale, short-duration projects that can be conducted annually at a facility. **Also, notification under the asbestos NESHAP is required if it can be predicted that the combined additive amount of regulated asbestos containing material (RACM) to be removed or stripped during a calendar year of January 1 through December 31 exceeds the threshold amount (260 linear feet, 160 square feet, or 35 cubic feet). Additionally, 40 CFR 61.19 prohibits the piecemeal carrying out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size.**



Control Number: C66

- Q: If single family housing units are subject to the asbestos NESHAP when demolished.
- A: If such an operation involving a group of residential structures is under the control or supervision of a single entity (i.e., the City), then the owner or operator is subject to the notification, work practices, and waste disposal requirements of the asbestos NESHAP.
- The amount of friable asbestos in each building included in the operation must be added together in calculating whether the minimum threshold of asbestos-containing material is exceeded. Section 61.145(a) establishes that threshold at 260 linear feet for pipes or 160 square feet for other facility components.



Control Number: A060001

- Q: Are residential structures that are demolished as part of a larger project, such as highway expansion, subject to the asbestos requirements under 40 CFR part 61, subpart M?
- A: Yes. EPA finds, pursuant to 40 CFR 61.145, that if two or more residences under the control of the same owner or operator are part of a larger demolition project, such as highway expansion, they are subject to the asbestos regulation, NESHAP subpart M.

40 C.F.R. Section 61.141 defines installation as:

- any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).



Control Number: A060001-continued

- group of residential buildings under the control of the same owner or operator is considered an installation according to the definition of "installation" and is, therefore, covered by the rule. As an example, several houses located on highway right-of-way that are all demolished as part of the same highway project would be considered an "installation," **even when the houses are not proximate to each other.** In this example, the houses are under the control of the same owner or operator, i.e., the highway agency responsible for the highway project.



Initial question

If a 300 unit apartment complex is undergoing electrical upgrades and less than 32 SF of ACM will be impacted in each unit, does the project require CDPHE notification and permit approval?

Yes!

If the cumulative amount of ACM will be exceeded for the project as a whole, then a general abatement contractor must be hired and a permit must be submitted and approved prior to beginning the abatement.



Comments/Q & A

Introduce yourself and if applicable, the company/organization you represent

THANK YOU!

More questions?

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