



Proposed Rule (PR) 1407.1

Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

Working Group Meeting #11
August 27, 2020

Join Zoom Meeting

<https://scaqmd.zoom.us/j/97233160955>

Meeting ID:

972 3316 0955

Passcode:

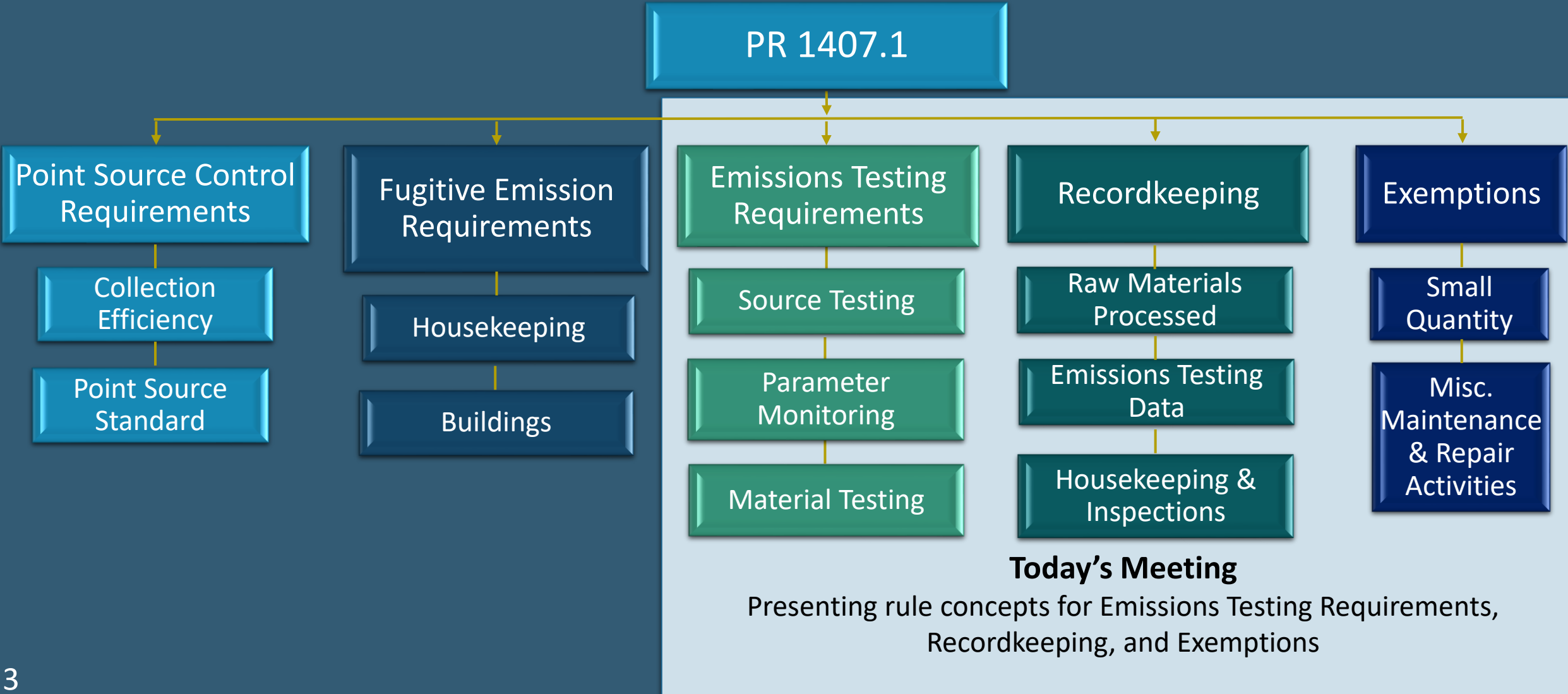
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AGENDA

- Previous Working Group Meeting
 - Summary
 - Stakeholder Comments
- Rule Concepts
 - Testing & Monitoring
 - Recordkeeping
 - Exemptions
- Next Steps



GENERAL OVERVIEW OF PR 1407.1



Summary of Previous Working Group Meeting

SUMMARY OF PROPOSED FUGITIVE EMISSION REQUIREMENTS

Buildings	Housekeeping
<ul style="list-style-type: none">• Conduct metal melting and handling operations in a building, with methods to minimize cross-drafts• Close all roof openings directly over metal melting operations• Option of Building Compliance Plan if conflict with OSHA requirements	<ul style="list-style-type: none">• Using an approved cleaning, conduct cleaning of:<ul style="list-style-type: none">• Metal melting and handling operation areas daily• Material storage, entryways, and control device operation areas weekly• Outside floor areas and areas exposed to foot and vehicular traffic semi-annually• Entire facility annually• Roof areas biennially• Additional housekeeping requirements for associated operations• Option of Housekeeping Compliance Plan for alternative cleaning methods

STAKEHOLDER COMMENTS

Stakeholder Comment

How will the wastewater generated from the proposed biennial roof cleaning be handled?



Staff Response

- South Coast AQMD has required facilities to conduct routine roof cleaning in previous toxic metal rules
- Facilities can install water collection systems to capture wastewater, which would need to be discharged or handled pursuant to the wastewater discharge permit by the respective agency

STAKEHOLDER COMMENTS

Stakeholder Comment

With regard to buildings and minimizing cross-drafts, do the provisions allow for roof monitors (i.e. full-length vents in roof structure)?



Staff Response

Full length roof monitors would be allowed if they are not directly above a chromium alloy melting furnace

Stakeholder Comment

How many facilities have utilized the building compliance plan option to address OSHA conflicts?



Staff Response

No facilities have utilized this option to address building requirements that conflict with OSHA

Rule Concepts for Testing and Monitoring Requirements

KEY ELEMENTS OF TESTING AND MONITORING REQUIREMENTS



Source Testing

Used to demonstrate collection efficiency and point source standards

Parameter Monitoring

Ensures proper operation of specific parameters of the emission control equipment

Material Testing

Used to determine the composition of elements in materials

KEY ELEMENTS OF SOURCE TESTING REQUIREMENTS



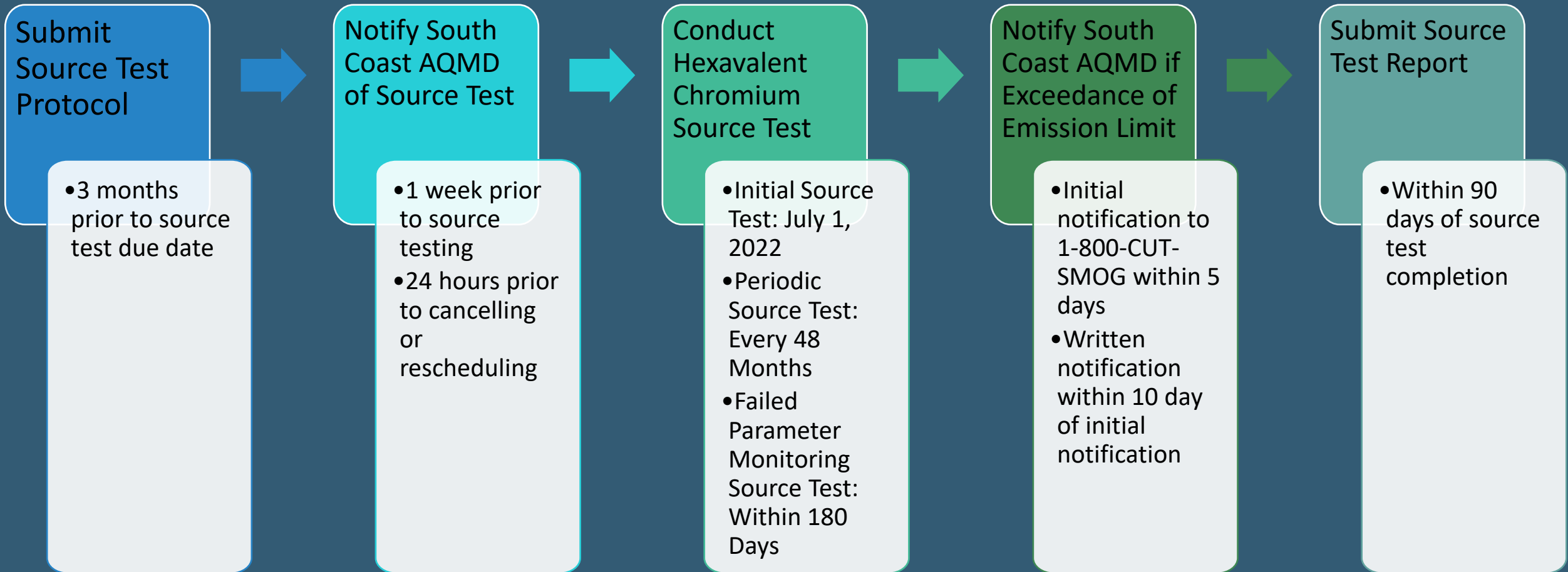
- Source test results are used to demonstrate compliance with hexavalent chromium emission limit and collection efficiency requirements
- Frequency of Source Testing
 - Initial Source Test – July 1, 2022
 - Unless a source test was conducted within 36 months from rule adoption
 - Periodic Source Testing
 - 48 months after the initial source test and 48 months thereafter
 - Failed Parameter Monitoring Source Testing
 - Within 180 days of failed parameter monitoring (discussed later)
- Source Test Method
 - CARB Method 425: *Determination of Total Chromium and Hexavalent Chromium Emissions from Stationary Sources*
 - Executive Officer approved alternative source test method

Source Testing
Used to demonstrate collection efficiency and point source standards



Source Testing

SOURCE TESTING OVERVIEW



KEY ELEMENTS OF PARAMETER MONITORING REQUIREMENTS



- Early detection of operation and maintenance issues with emission control equipment
- Provides a continuous status of operating conditions of emission control equipment between source tests
- Considering four parameter monitoring requirements

Parameter Monitoring

Ensures proper operation of specific parameters of the emission control equipment

FOUR AREAS OF PARAMETER MONITORING



Parameter Monitoring



Measure Pressure Across the Filter Media

Identifies potential breach or blockage with filter media



Bag Leak Detection System

Identifies potential breach or blockage with bag



Verify Collection Efficiency

Ensures capture velocity is maintained



Smoke Test to Observe Air Flow

Ensures air from source is moving towards control device

PARAMETER MONITORING REQUIREMENTS – FILTER MEDIA



Parameter Monitoring



Measure Pressure Across the Filter Media

Identifies potential breach
or blockage with filter
media

- Technique: Use a pressure gauge to continuously measure pressure drop across each filter stage of the control device
- Gauge to be calibrated and maintained in accordance with manufacturer's specifications
- Range (+/-) of inches of water determined by permit evaluation or manufacturer specification
- Continuously record data output of pressure differential using a data acquisition system (DAS)

PARAMETER MONITORING REQUIREMENTS – BAGHOUSE



Parameter Monitoring



Bag Leak Detection System

Identifies potential
breach or blockage with
bag

- Technique: Continuously monitor bag leakage and similar failures by detecting changes in particle mass loading
- For all baghouses, bag leak detection system to be operated, calibrated, and maintained in accordance with Rule 1155 – Particulate Matter Control Devices Tier 3 requirements
- Bag leak detection system to measure relative particulate matter emissions and activate alarm when change in particle mass loading is detected

PARAMETER MONITORING REQUIREMENTS – COLLECTION EFFICIENCY



Parameter Monitoring



Verify Collection Efficiency

Ensures capture velocity
is maintained

- Technique: Use calibrated anemometer to verify slot or capture velocity for each emission collection system
- Minimum slot and capture velocities specified by:
 - Recommendations set forth in *Industrial Ventilation: A Manual of Recommended Practice for Design* (ACGIH)
 - Permit evaluation
 - Approved source test protocol
- Measure and record velocity once every six months

PARAMETER MONITORING REQUIREMENTS – AIR FLOW



Parameter Monitoring



Smoke Test to Observe Air Flow

Ensures air from source
is moving towards
control device

- Technique: Smoke stick or other device to visually observe air flow
- First smoke test to be conducted during source testing, and once every six months thereafter
- Conduct smoke test using South Coast AQMD procedure to be provided in proposed rule
 - During normal operating and draft conditions, release a persistent stream of visible smoke at points where emissions are generated
 - Observe that the path of the smoke is directly to the collection location without meandering out of its direct path

SOURCE TESTING FREQUENCY AND PARAMETER MONITORING



Source Testing



Parameter Monitoring

- Proposing periodic source test frequency of every 48 months
- Proposing that a source test be conducted within 180 days if:
 - Operator fails to conduct parameter monitoring based on the specified frequency of the proposed rule; or
 - Operator continues operation and does not correct issue(s) after a parameter monitoring problem is identified
- Facility that was required to do a source test because of failing to conduct parameter monitoring or continued operation after parameter monitoring problem must test again within 48 months from the most recent source test

KEY ELEMENTS OF MATERIAL TESTING REQUIREMENTS



Material Testing
Used to determine the composition of elements in materials

- Material testing is needed to ensure alloys with arsenic and cadmium meet CARB's Airborne Toxic Control Measure (ATCM) for Non-Ferrous Metal Melting*
- CARB's ATCM establishes requirements for controlling arsenic and cadmium for non-ferrous alloys
- Superalloys are the only non-ferrous alloy applicable to PR 1407.1
- PR 1407.1 proposes to limit the arsenic and cadmium content consistent with the ATCM for non-ferrous chromium alloys
 - Less than 0.002% arsenic
 - Less than 0.004% cadmium

* Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting, CARB, 1998
<https://ww2.arb.ca.gov/sites/default/files/classic/toxics/atcm/metalm.pdf>

MATERIAL TESTING AND NON-FERROUS METAL MELTING



Material Testing

- Material testing will apply to materials melted in non-ferrous melting furnaces to verify compliance with proposed arsenic and cadmium content limits
- Technique: Determine the weighted percentage of arsenic and cadmium contained in all materials melted in non-ferrous melting furnaces
 - Materials include ingots, customer returns, and re-run scrap
- Use the most applicable test method for the sample matrix and as approved by the Executive Officer
 - U.S. EPA-approved methods
 - Active ASTM International methods
 - South Coast AQMD-approved alternative methods
- Can use metallurgical assays, such as certificates of analysis, in lieu of material testing

* Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting, CARB, 1998
<https://ww2.arb.ca.gov/sites/default/files/classic/toxics/atcm/metalm.pdf>

Rule Concept for Recordkeeping Requirements

RECORDKEEPING

- Assists in verifying compliance with rule provisions

Keep and maintain records of the following for three years

- Quarterly quantities of raw materials processed, including purchase records
- Material testing data, including metallurgical assays
- Source test data
- Housekeeping activities conducted
- Applicable maintenance, repair and construction activities conducted
- Inspection, calibration documentation, and maintenance of control devices
- Parameter monitoring data

Keep on-site and make available to South Coast AQMD upon request

Rule Concept for Exemptions

PROPOSED EXEMPTIONS

- Facilities that melt less than 1 ton of chromium alloy(s) per year
 - Exemption from all proposed rule provisions except recordkeeping to demonstrate quantity processed
 - Verified that melting quantity of 1 ton does not exceed any screening risk threshold (e.g. 1 in a million Maximum Individual Cancer Risk Threshold for permit evaluations)
- Universities, jewelers, and artists that melt less than 1 ton of chromium alloy(s) per year are exempt from all provisions of the rule
- Maintenance and repair purposes of equipment and structures that are not directly related to chromium alloy melting and handling operations
- Equipment subject to Rules 1420.1 and 1420.2 exempt from all provisions of the rule

ADDITIONAL TOPICS NEEDING STAKEHOLDER INPUT

- Post-consumer scrap in chromium alloy melting
- Challenges with addressing post-consumer scrap
 - Arsenic and cadmium content unknown
 - Difficult to track metal composition through distribution chain
- If include post-consumer scrap in PR 1407.1, facilities must follow ATCM requirements for non-ferrous metal melting
 - Demonstrate 99% control efficiency for arsenic and cadmium
 - Material testing of every material resulting from melting of post-consumer scrap material
- Considering prohibition of post-consumer scrap in chromium alloy melting
- Seeking stakeholder input on need to address post-consumer scrap in PR 1407.1

NEXT STEPS

Opportunities remain to revise initial concepts as rule development process progresses

- Requesting stakeholder input and further information

Next Working Group Meeting • Present Preliminary Draft Rule Language	September 10, 2020 (Tentative)
Public Workshop	September 24, 2020 (Tentative)
Stationary Source Committee	October 16, 2020
Set Hearing	November 6, 2020
Public Hearing	December 4, 2020

PROPOSED RULE 1407.1 STAFF CONTACTS

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[PR 1407.1 Proposed Rules
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