
**Nine Metal Fabrication and Finishing
Source Categories
40 CFR Part 63
Subpart XXXXXX (6X)**

Area Source NESHAP - Requirements

**Iowa Waste Reduction Center
University of Northern Iowa**

**Iowa Department of Natural Resources
Air Quality Bureau**

Applicability

- **6X only applies to facilities “primarily engaged” in one of the 12 SIC codes identified for the Nine Metal Fabrication and Finishing Source categories**
- **Applicability tutorial available at....**
 - **<http://www.iwrc.org/default/index.cfm/services/iaeap/metal-fabrication-and-finishing-neshap-6x/>**



Potentially Affected Operations

- **Machining**
 - Excluded processes are hand-held devices and any process employing fluids for lubrication or cooling.
 - Laser cutting tables, plasma cutting tables and oxy-fuel cutting are NOT considered “machining.”
 - **Dry grinding and dry polishing with machines**
 - Hand grinding, hand polishing, and bench top dry grinding and bench top dry polishing are exempt.
 - **Dry abrasive blasting (DAB)**
 - Hydro blasting, wet abrasive blasting or other abrasive blasting operations which use liquids to reduce emissions are not dry abrasive blasting.
 - **Welding**
 - **Spray Painting**
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Potentially Affected Operations

- Standards and management practices only apply if an affected operation uses materials that contain a *Metal Fabrication or Finishing Hazardous Air Pollutant (MFHAP)* or has the potential to emit MFHAP
- *MFHAPs* (includes compounds of these metals)
 - Cadmium
 - Chromium
 - Lead
 - Manganese
 - Nickel
- *Material containing MFHAP* is defined as...
 - Material containing cadmium, chromium, nickel or lead at $\geq 0.1\%$ (by weight as the metal); or
 - Material containing manganese $\geq 1.0\%$ (by weight as the metal).

Note: 6X regulates affected operations whether they are vented inside or outside a building

Potentially Affected Operations

- **Dry Machining & Grinding/Polishing operations – composition of the metal substrate processed by the operation.**
 - Grinding/polishing abrasive should also be considered
- **Spray Painting - composition of sprayed coatings.**
 - Composition of the substrate being painted is not a concern (i.e., the substrate does NOT have the potential to emit MFHAP)
- **Abrasive blasting – composition of the blast media & substrate**
- **Welding – composition of consumable rod or electrode only**
 - Per EPA - substrate does NOT have to be evaluated for MFHAP.
 - Welding operations (such as spot welding) that do NOT use consumables (e.g., welding rod or wire) are NOT subject to the welding requirements.

***Consult Material Safety Data Sheets (MSDS) for
composition information***

Facilities/Operations NOT covered by 6X

- **Research or laboratory facilities**
 - **Equipment used for tool or equipment repair operations, facility maintenance, or quality control**
 - **Equipment that produces military munitions for the US Armed Forces**
 - **Operations performed on site of a facility owned or operated by the US Armed Forces**
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6X Requirements Common to All Affected Area Source Facilities

- **Operate all equipment according to manufacturer's instructions.**
 - **Notification and Reporting Requirements**
 - Initial notification
 - Notification of Compliance Status Report
 - Annual Certification and Compliance Report
 - **Recordkeeping**
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Machining - Management Practices*

- **As practicable...**
 - **Minimize excess dust in surrounding areas; and**
 - **Operate equipment according to manufacturer's instructions.**

Does NOT apply to hand-held operations and processes using metalworking fluids

Does NOT apply to laser/plasma/oxy-fuel cutting tables

****Requirements only apply when the metal that is machined contains an MFHAP.***

Dry Grinding and Dry Polishing With Machines - Management Practices*

- **Must use filtration control equipment to capture and control PM emissions from the process;**
 - **Other control equipment may be used if it is documented as being 95% efficient for PM.**
- **Minimize excess dust in surrounding areas; and**
- **Operate equipment according to manufacturer's instructions.**

Does NOT apply to hand-held or bench-scale devices

****Requirements only apply when the metal or grinding/polishing powder contains an MFHAP.***

Dry Abrasive Blasting (DAB) - Standards and Management Practices

- **For DAB performed in completely enclosed/unvented blast chambers***
 - **Must minimize dust generation during emptying of enclosure; and**
 - **Operate equipment according to manufacturer's instructions.**

**** For example - a "glove box" type of abrasive blasting system with no vents or openings***

****Requirements only apply when the blasted substrate or abrasive media contains an MFHAP.***

Dry Abrasive Blasting (DAB) Standards and Management Practices

- **For DAB performed in vented enclosures*:**
 - **Capture emissions and vent them to a filtration control device;**
 - **Control equipment other than filtration (e.g., wet scrubbers) may be used if 95% efficient for controlling PM (PM = a surrogate for MFHAP).**
 - **Maintain manufacturer's specifications for control equipment**
 - **As practicable, minimize excess dust in surrounding areas;**
 - **Enclose dusty abrasive material storage areas/holding bins.**
 - **Seal chutes and conveyors that transport abrasive materials.**
 - **Operate all equipment according to manufacturer's instructions.**

**** Enclosure = Structure that includes a roof, at least two complete walls, & side curtains (as needed). The structure must be ventilated to a cartridge, fabric or HEPA filter to prevent PM from escaping while blasting is performed.***

Dry Abrasive Blasting (DAB) Standards and Management Practices

- **For DAB objects > 8 feet (any dimension) without particulate matter (PM) control equipment**
 - **As practicable, minimize excess dust in surrounding areas;**
 - **Enclose abrasive material storage areas/holding bins;**
 - **Seal chutes & conveyors that transport abrasive material;**
 - **Do NOT reuse media unless contaminants (e.g., paint residue) have been filtered out and abrasive material conforms to its original size;**
 - **Whenever practicable, use low PM-emitting media (steel shot, aluminum oxide, specular hematite);**
 - **Sand = high PM emissions**
 - **Operate equipment according to manufacturer's instructions;**
 - **Perform Method 22 visible emissions (VE) monitoring and recordkeeping**
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Dry Abrasive Blasting (DAB) Method 22 Visible Emissions (VE) Determinations

- ***If DAB performed outdoors*** - perform Method 22 VE determinations at the fence line or property border nearest to the outdoor DAB operation.
 - ***If DAB performed indoors*** - perform Method 22 fugitive VE determinations at the primary vent, stack, exit, or opening from the building in which DAB is conducted.
 - **Method 22 guidance and monitoring log available at...**
 - <http://www.iwrc.org/default/index.cfm/services/iaeap/metal-fabrication-and-finishing-neshap-6x/> and
 - <http://www.epa.gov/ttn/emc/methods/method22.html>
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Dry Abrasive Blasting (DAB) Method 22 Visible Emissions (VE) Determinations

■ In General, Method 22...

- Uses the human eye to determine the total time an industrial activity causes visible emissions.
- *No certification is required* - just record the amount of time you see emissions present.
- Must understand the effects of background contrast, ambient lighting and where you should stand to make your observation.

■ Method 22 determinations - observe the blasting emission point under normal operating conditions for a duration of 15 minutes

- VEs are “present” if detected for more than six minutes of accumulated time during the 15 minute observation period
 - Maintain records and document corrective action used to bring unit into compliance
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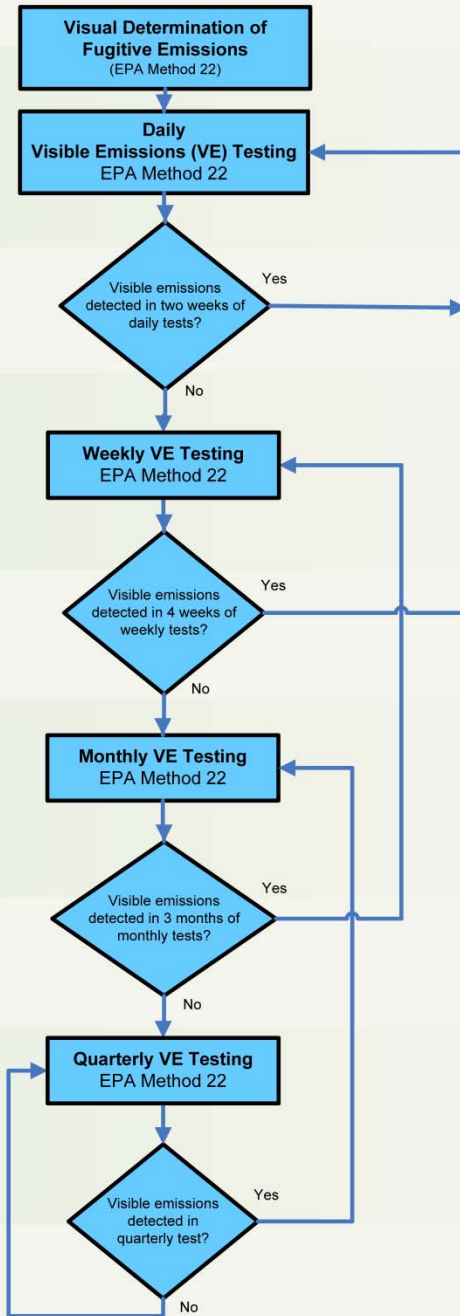
Dry Abrasive Blasting (DAB)

Method 22 Determination Procedure and Format

Graduated Method 22 monitoring schedule

- **Daily - monitor once/day each day the process is operating**
 - **If no VE present for 10 consecutive days - go to weekly monitoring**
 - **Weekly - monitor once per 5 days of process operation**
 - **If no VE present for 4 consecutive weeks - go to monthly monitoring**
 - **Otherwise, resume daily monitoring**
 - **Monthly - monitor once per 21 days of process operation**
 - **If no VE present for 3 consecutive months - go to quarterly monitoring**
 - **Otherwise, go back to weekly monitoring**
 - **Quarterly - monitor once per 60 days of process operation**
 - **If no VE present - continue quarterly monitoring**
 - **Resume monthly monitoring if VE are present**
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Flow Charts For Determining Your Requirements For The
Nine Metal Fabrication And Finishing Area Source NESHA^(a)
CHART 4 - GRADUATED VISIBLE EMISSIONS (VE) MONITORING - EPA METHOD 22



Dry Abrasive Blasting (DAB)

Method 22 Recordkeeping

- ❑ **Keep monitoring records of all VE determinations (including documentation of corrective actions taken)**
 - ❑ **Method 22 observation log sheet and instructions available at...<http://www.iwrc.org/default/index.cfm/services/iaeap/metal-fabrication-and-finishing-neshap-6x/>**
 - ❑ **If VEs are “*present*”, perform corrective actions and follow-up inspections.**
 - ❑ **Report instances where VE are detected, the corrective action taken, and results of subsequent VE inspections in annual certification and compliance report**
 - ❑ **Follow graduated observation schedule**
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Spray Painting - Exemptions

- **The following materials or activities are exempt:**
 - **Paints applied from a hand-held device with a paint cup capacity less than 3.0 fluid ounces.**
 - **Powder coating**
 - **Surface coating operations that use hand-held, non-refillable aerosol containers, or non-atomizing technologies, including but not limited to, paint brushing, rollers, hand wiping, flow coating, dip coating, electrodeposition coating, web coating, coil coating, touch-up markers, or marking pens.**
 - **The application of paints that normally have a dried film thickness of less than 0.0013 cm (0.0005 in).**
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Spray Painting – Standards and Management Practices

- **Paints must be applied with HVLP, electrostatic, airless, or air-assisted airless spray equipment.**
 - **Other spray application equipment may be used if...**
 - **It is demonstrated as having a comparable transfer efficiency AND**
 - **Written approval is obtained from the NESHAP administrator.**
 - **Spray gun cleaning must be done with a non-HAP solvent or in a way that prevents atomization of the cleaning solvent/residual paint.**
 - **Hand cleaning, solvent flushing (without atomizing) and enclosed spray gun washers are acceptable methods**
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Spray Painting – Standards and Management Practices

- **Spray booths or spray rooms must*:**
 - **Have a full roof and all sides covered (at least two complete walls).**
 - **Be ventilated and have a filter system or water curtain with a PM control efficiency rating of at least 98%.**
 - **Undergo regular filter inspection and replacement according to manufacturer's specifications.**

****Spray booth/room requirements do not apply to affected sources at Fabricated Structural Metal Manufacturing facilities (SIC code 3441) or sources that paint objects > 15 ft, that are not painted in a spray booth/room.***

ALL OTHER REQUIREMENTS STILL APPLY

Spray Painting – Standards and Management Practices

- **All painters must be certified that they have received hands-on or classroom training on the following:**
 - **Spray gun equipment selection, set up, and operation.**
 - **Paint viscosity measurement.**
 - **Spray techniques used to improve transfer efficiency.**
 - **Routine spray booth and filter maintenance, including filter selection and installation.**
 - **Environmental compliance with respect to this rule.**
 - **Re-certification is required every 5 years.**
 - **Training certification records must be kept on file.**
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Welding – Standards and Management Practices

- All equipment, capture, and control devices associated with welding must be operated according to manufacturer's instructions.
 - Maintain manufacturer's specifications for capture & control devices.
 - Minimize MFHAP emissions by implementing one or more of the following management practices as practicable:
 - Use welding processes with lower fume emissions (e.g. metal inert gas [MIG] or gas metal arc welding [GMAW]).
 - Use process variations that reduce welding fume (e.g. pulsed MIG).
 - Use filler materials, shielding gases, carrier gases, or other process materials that reduce welding fume.
 - Optimize process variables (e.g. electrode diameter, voltage, amperage, welding angle, etc) to reduce welding fume.
 - Use a welding fume capture and control system.
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Welding – Compliance Requirements

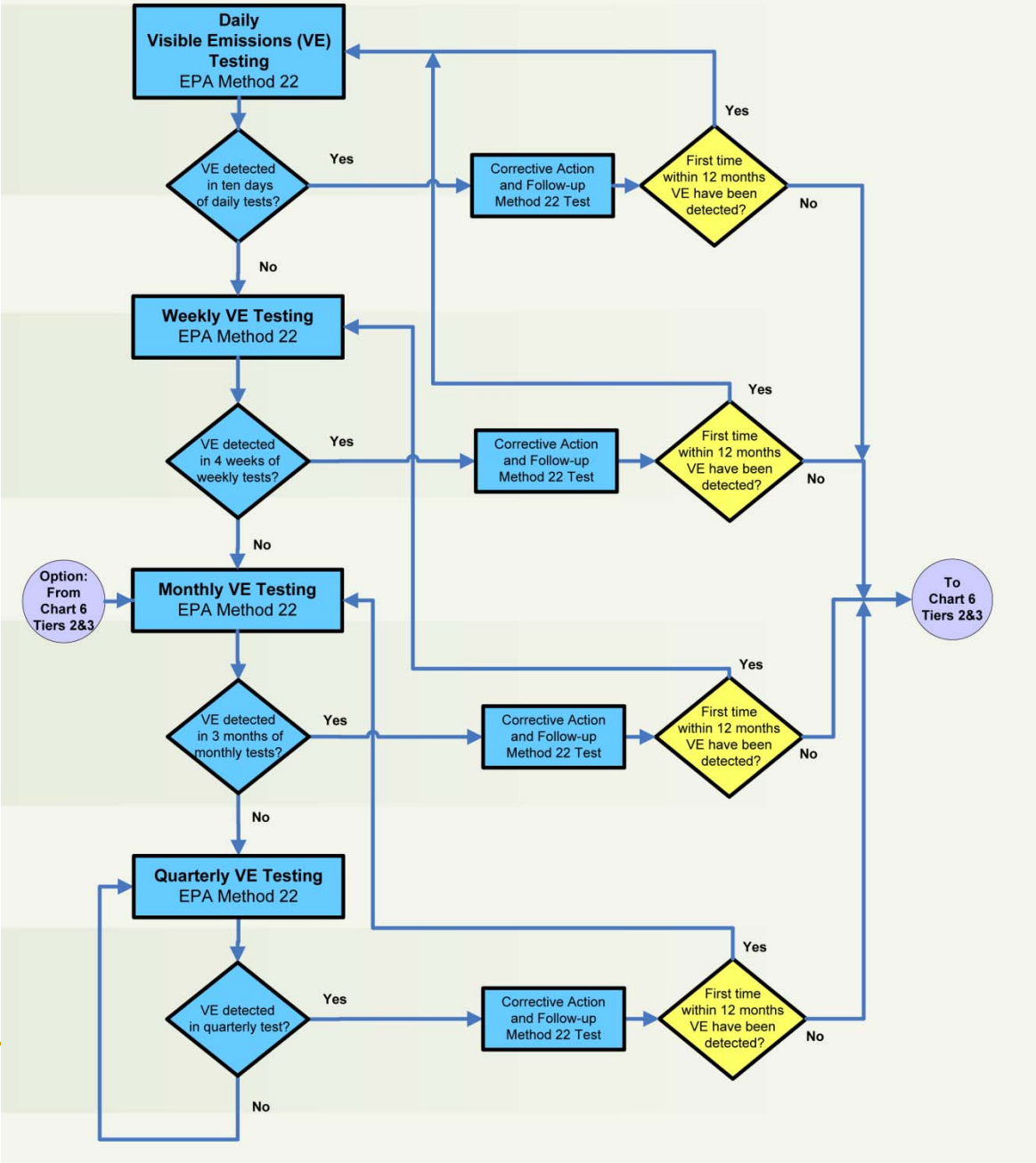
- **If a facility uses $\geq 2,000$ lbs/year* of welding rod/wire containing MFHAP**
 - **Perform previously listed requirements for welding.**
 - **Conduct Method 22 VE determinations at the primary vent, stack, exit, or opening from the building**
 - **Referred to as *Tier 1* monitoring for welding.**
 - ***Uses the same methodology and graduated monitoring frequency outlined for Dry Abrasive Blasting***
 - **If emissions are “present”, inspect fume sources/control methods and immediately perform corrective action.**
 - **Document corrective action**

****calculated on a 12-month rolling basis***

Welding – Compliance Requirements

- **Continue with Tier 1 (Method 22) monitoring *unless* emissions are found to be “present” twice within a 12-month period**
 - **More stringent Tier 2 welding requirements begin after a second failed Method 22 (Tier 1) determination**
 - **Tier 2 - Method 9 opacity determinations are required by a certified observer within 24 hours of the second failed Method 22 determination**
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**Flow Charts For Determining Your Requirements For The
 Nine Metal Fabrication And Finishing Area Source NESHAP^(a)
 CHART 5 – EMISSIONS MONITORING AT WELDING SOURCES: TIER 1**



Compliance Dates

Depends if you are an Existing or New Source

Existing Source - operation existed (facility commenced construction) prior to April 3, 2008

Otherwise - a *New Source*.

- ❑ Existing source: Compliance Date = July 25, 2011
- ❑ New source: July 23, 2008 or startup, whichever is later.

Spray painting training and certification

- ❑ Existing source: July 25, 2011 or 180 days after hiring, whichever is later.
 - ❑ New source: January 20, 2009, 180 days after start up or 180 days after hiring, whichever is later.
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Notification Requirements

Existing Sources

- Initial Notification: July 25, 2011
- Notification of Compliance Status: November 22, 2011

New Sources

- Initial Notification and Notification of Compliance Status: 120 days after initial startup or November 20, 2008, whichever is later.
- Iowa DNR has prepared *Initial* and *Compliance* Notification forms:
Notification forms are available at....

<http://www.iwrc.org/default/index.cfm/services/iaeap/metal-fabrication-and-finishing-neshap-6x/> or

<http://www.iowadnr.gov/InsideDNR/RegulatoryAir/AreaSourceToxicsNESHAP.aspx>

ALL* area sources primarily engaged in one of the nine metal fabrication and finishing source categories must submit an *Initial Notification

***A Notification of Compliance* is only required if the facility operates an affected source of MFHAP**

Required Recordkeeping

- **Applicable records must be in a suitable form and ready for review**
 - **Must be kept for 5 years with at least 2 years of latest records on-site.**
 - **Shall include:**
 - **Copies of all notifications, reports, and supporting documentation.**
 - **Records may be in hard copy or electronic format.**
 - **Records of applicability determinations.**
 - **If applicable, records associated with Method 22 visual determinations.**
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Required Recordkeeping

- **Shall include (continued and as applicable):**
 - **Spray booth filter records**
 - **Documents filter control efficiency of 98% and filter maintenance**
 - **Manufacturer manuals for spray painting application equipment**
 - **Written approval for use of alternative spray application equipment.**
 - **Painter training records**
 - **Facilities claiming to use < 2,000 lbs of welding rod/wire per year must record the amount of welding rod/wire used on a 12-month rolling basis**
 - **Manufacturer's specifications/operating instructions for affected equipment and control devices.**
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Annual Certification & Compliance Reports

- **Prepare & submit reports for each facility subject to 6X.**
 - A copy must also be kept in a readily accessible location for an inspector.
 - **Due January 31st each year for previous calendar year.**
 - First report due 01/31/12 for the period from 07/25/11 to 12/31/11.
 - Reports to be submitted to the Iowa DNR, NESHAP Coordinator, 7900 Hickman Road, Suite 1, Windsor Heights, IA 50324
 - **Report to include...**
 - Company name & address;
 - Responsible official certification statement;
 - Date of report with beginning & end dates of reporting period;
 - Method 22 VE monitoring records & results (for DAB and welding as applicable);
 - Only for days when VE were detected
 - Corrective actions taken and follow up observations
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6X Recap

- **6X *only* applies to facilities primarily engaged in one of 12 SIC codes**
 - **If unsure – visit applicability tutorial at..**
<http://www.iwrc.org/default/index.cfm/services/iaeap/metal-fabrication-and-finishing-neshap-6x/>
- **Five operations are potentially covered by 6X: dry machining, dry grinding/polishing with machines, dry abrasive blasting, spray painting and welding**
- **6X Management practices and standards *only* apply when the operation is using a material that contains a MFHAP or has the potential to emit MFHAP**
- **Iowa DNR adopted the rule into the Iowa Administrative Code**
 - **Submit all reports to the NESHAP Coordinator**
 - **7900 Hickman Road, Suite 1, Windsor Heights, IA 50324**
- **6X regulates operations whether they vent inside or outside of a building or have emissions control equipment**
- **More detailed guidance on Tier 2 and Tier 3 welding requirements is available at**
 - <http://www.iwrc.org/default/index.cfm/services/iaeap/metal-fabrication-and-finishing-neshap-6x/>

For Additional Assistance

- **Iowa Department of Natural Resources - NESHAP contacts**
 - John Curtin– DNR Air Quality Bureau (Permitting)
john.curtin@dnr.iowa.gov or 515-281- 8012
or 1-877-AIR-IOWA (hotline)
 - **Technical air assistance for small businesses**
 - Dan Nickey – UNI Iowa Waste Reduction Center
daniel.nickey@uni.edu or 319-273-8905
 - Brian Gedlinske – IWRC Environmental Specialist
brian.gedlinske@uni.edu or 319-273-6581
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