

## Plywood and Composite Wood Products (PCWP) Information Collection Request (ICR)

### Part II: Completing the ICR for Kiln-Dried Lumber Producers

October, 2017

This presentation discusses how to complete the EPA's Plywood and Composite Wood Products Information Collection Request, or "ICR," for facilities that produce kiln-dried lumber.

The ICR is a survey that was approved by the U.S. Office of Management and Budget and mailed to facilities by the EPA in early October 2017.

This presentation is Part 2 of a two-part series for lumber manufacturers. Part 1 provided an overview of applicability of the ICR for kiln-dried lumber producers. The goal of this Part 2 presentation is to explain what lumber producers are asked to submit, and to walk through completion of the ICR spreadsheet.

## Target Audience for this Webinar

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- ▶ ICR respondents that:
  1. Are major sources of HAP emissions,
  2. Operate lumber kilns, and
  3. Do not produce other plywood and composite wood products (PCWP).
  
- ▶ Lumber facilities meeting these criteria are asked to complete the ICR.

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## Getting Started

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Go to website

<https://www.epa.gov/stationary-sources-air-pollution/information-collection-plywood-and-composite-wood-products-industry>

- ▶ Review the ICR Instructions Document
- ▶ There are several items to submit – summarized in Appendix 5 of the instructions
- ▶ Page through the PCWP\_survey.xlsx spreadsheet
- ▶ Instructions Table 1 lists the spreadsheet tabs lumber facilities are asked to complete.
  - ▶ Only lumber kilns are required to be included in the spreadsheet
  - ▶ Do not include other process units (sanders, saws, boilers, etc.)

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## Appendix 5 Checklist for Facilities with Lumber Kilns

- An annotated excerpt from the Appendix 5 checklist for lumber facilities is below:

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**Non-CBI materials:**

- ☐ PCWP\_survey.xlsx ← completed for lumber kilns only
  - ☐ Electronic copy of the facility operating permit in searchable format
  - ☐ Process flow diagram(s) ← can be limited to the lumber drying portion of the process (or use release point map)
  - ☐ Emissions release point map ← showing whole facility, but only lumber kiln emission points need to be labeled
  - ☐ Copy of lumber dry kiln schedules used OR reference the schedule followed in the USDA Forest Products Lab Dry Kiln Operators Manual (Agriculture Handbook # 188). For kilns with multiple kiln schedules, reference each separately. (Requested in the *LKiln* tab) ← spreadsheet asks for copies or reference of 3 to 5 of the most frequently used schedules
  - ☐ Electronic, searchable copies of previous air emission test reports requested in Section D4a and Appendix 3 of these instructions. ← for lumber kilns only, if emissions testing for organic HAP or total hydrocarbon has been conducted, or if PM testing has been conducted for direct-fired kilns
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Lumber kiln schedules will provide insight into lumber drying practices for various wood types and how temperature and humidity changes within the kiln environment over time.

## Base Year for Information Submitted

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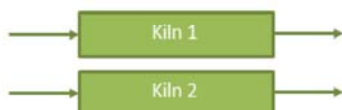
- ▶ Use 2016 as the base year for data
  - ▶ Exception: If 2016 is not representative due to a permitted project, you may provide post-project projections of equipment, production, and emissions.
    - Note alternative basis in “comments” column
    - Use consistent basis throughout spreadsheet
- ▶ Confidential business information can be marked and safeguarded following the instructions in Section C2.

*See slide for text*

CBI: We are not going to go into detail regarding confidential business information, or “CBI” in the presentation. However, if you believe that the ICR is requesting information your company considers to be confidential, you should know that the EPA offers protection of CBI as discussed in the ICR letter you received. CBI can be marked for safeguarding by following the instructions in section C2 of the instructions document.

## Permit Copy and Process Flow Diagrams

- ▶ A copy of the facility's air operating permit, and flow diagrams of the lumber drying area of the process will help EPA answer questions to avoid needing to follow-up with the facility
- ▶ Permit: preferably electronic and searchable
- ▶ Flow diagrams:
  - ▶ Can be existing diagrams or hand drawn.
  - ▶ The emission release point map can suffice as the flow diagram for uncontrolled kilns



*See slide for text*

## Emission Release Point Map

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- ▶ Show the whole facility.
- ▶ Marking the fence line is optional.
- ▶ Only lumber kiln emission points need to be labeled.
- ▶ Any mapping software or GPS may be used
  - ▶ Set to provide longitude and latitude coordinates in decimal degrees (not degrees, minutes, seconds), with 6 digits to the right of the decimal point. Example:
    - Longitude: -123.123456
    - Latitude: 45.123456
  - ▶ Coordinates are key input parameters for risk modeling

You are asked to provide an emission release point map showing the whole facility. You can generate this using any mapping software or GPS. One example of a free tool is Google Earth. You can go into a program, such as Google Earth, and set the coordinates to display as decimal degrees. You can insert markers on the map in the software, or save a picture of it to annotate by hand if that is easier. The goal is to indicate where the lumber kiln emission points are in relation to the facility boundary. If you choose, you can mark the facility fenceline. This helps distinguish the facility property from nearby residences.

Only the lumber kiln emission points need to be labeled.

The EPA requires longitude and latitude coordinates in 6-digit decimal form for residual risk modeling, not UTM coordinates or degrees/minutes/seconds. Page 35 of the instructions shows how to convert from degrees/minutes/seconds to decimal degrees.

In North America longitude is negative and latitude is positive.

The coordinates are critical input parameters for residual risk modeling because they define the distance to receptors that may be exposed to hazardous air pollutant emissions.

## Spreadsheet Tabs to Complete

- ▶ One facility per PCWP\_survey.xlsx spreadsheet
- ▶ Per ICR Instructions Table 1, the spreadsheet tabs to complete for lumber kilns are:
  - Mill
  - Prod
  - EquipDetail
  - ReleasePt
  - Permit
  - LKiln
  - DFDryerFuel (for direct-fired kilns)
  - APCD (if applicable)
  - EmTest (if applicable)
  - HAP Emissions
  - Certification
- ▶ Work from left to right: Mill → Certification

1. Some companies may have received ICRs for multiple facilities. The PCWP\_survey spreadsheet was designed to hold data for one facility. A separate spreadsheet needs to be submitted for each facility that received the ICR.

2. The spreadsheet contains about 25 tabs to encompass the various process types operated by PCWP facilities. Lumber facilities only need to complete 11 of these tabs, and the *only* equipment that needs to be entered is lumber kilns. No other equipment at sawmills is included in the PCWP rule. The EPA is not asking sawmills to provide information on saws or sanders or boilers. Only lumber kilns.

Table 1 in the ICR instructions document lists the spreadsheet tabs for lumber mills to complete. We will discuss each of these tabs as we look at the spreadsheet.

3. It is important to remember to work from left to right, from the Mill to the certification tab, because the spreadsheet is set up to prepopulate information from one tab to the next, to help guide you through completion.

### GO TO SPREADSHEET

*Mill and Prod – general info about facility*

*EquipDetail – where you identify each lumber kiln and associated emission release points*

*ReleasePt – asks for details on each release point → show tab and then return to slides for ReleasePt discussion*



**Mill tab:**

This is a copy of the PCWP spreadsheet filled out for lumber producers.

Work from left to right from the Mill tab to the end of the spreadsheet (certification tab).

In this copy we have darked out the tabs that do not apply for lumber producers.

In the Mill tab, enter the ICR and FRS IDs provided in the ICR letter received from EPA. These values will carry through the spreadsheet.

Enter information into the white cells. The gray cells contain formulas that prepopulate information based on your entries.

There is an instruction row (row 10). The field row (row 11) provides the column names that relate to the nationwide data base the EPA will create from all of the ICR results.

The red block at the top is for confidential business information (CBI). Indicate “yes” if the spreadsheet contains CBI and then shade the CBI red for later removal from the non-CBI version of the spreadsheet.

The Mill tab asks for basic facility and contact information. You are asked for NAICS code. See Table 3 of the instructions for small business size status based on NAICS, which is less than 500 employees for sawmills.

There are general questions about other rule applicability (beginning in column AM).

**Prod tab:**

The Prod tab asks for basic information about the lumber kilns (lumber production area) of your facility. The product is “kiln-dried lumber.” The ICR ID updates when you enter a selection in column C.

Production and capacity are provided in thousand board feet per year (MBF/yr).

Questions, such as panel thickness, which apply for PCWP facilities but not for lumber facilities can be left blank.

**EquipDetail tab:**

The EquipDetail tab is where you list your lumber kilns. We entered K1 and K2 batch kilns and K6 as a continuous kiln as examples.

The Process Unit ID can come from your permit or be another ID you provide. The Process Unit ID carries through the spreadsheet. The Process Unit Type is “lumber dry kiln.”

Enter an air pollution control device (APCD) if applicable. Our examples have no controls so we entered “none” for the APCD and Air Pollution Control System.

The Emission Release Point IDs carry through the spreadsheet. Batch lumber kilns have many vents that can be grouped into one or a few Emission Release Point IDs. There is no need to list every single lumber kiln vent. Our example uses “K1 vents” and “K2 vents” for the batch kilns. The continuous kiln example has two Emission Release Point IDs showing fugitives coming from each end of the kiln.

You are asked for kiln operating hours.

Uncontrolled kilns have no capture system (column Y). You may select “vented to atmosphere (uncontrolled)” for the uncontrolled process unit emission routing configuration (column Z). Fugitive (outdoor) would also work. You can indicate if kiln emissions are not isolated (e.g., for adjacent kilns) (columns AA-AB). In our example we indicated there is no stack suitable for gas flow measurement (column AC).

You may use “NA” for the PCWP compliance option questions because there are no applicable compliance options or work practices for kilns under the PCWP rule at this time.

**ReleasePt tab:**

Identify information on each Emission Release Point ID in the ReleasePt tab. The gray columns contain prepopulated information from prior tabs. We have four release points prepopulated from EquipDetail.

There are multiple Emission Release Point Types that can be selected. Codes 02-06 are stack or point source release point types, while 08-10 are fugitive release point types. Because kilns vent over an area, 09-fugitive two-dimensional (2D) is a good choice for batch kilns while 10-fugitive three-dimensional (3D) is a good choice for continuous kilns. Some diagrams will be shown later.

You are asked for an SCC code. There are 6 newly-revised SCCs included in the ICR for lumber kilns (listed in Appendix 8 of the instructions). Pick the most representative.

Conditional formatting blacks out columns you do not need to fill based on the Emission Release Point Type selected.

Fugitive 2D release points require release height, fugitive width and 2 coordinate pairs (2 sets of longitude/latitude).

Fugitive 3D release points require release height, fugitive length and width, and one coordinate pairs (longitude/latitude).

## Identifying Emission Release Points

- ▶ List each lumber kiln in the EquipDetail tab and identify the Emission Release Point ID(s) associated with the lumber kiln
- ▶ Provide detailed emissions release parameters and coordinates in the ReleasePt tab
- ▶ The release parameters you provide depend on the Emission Release Point Type you choose in the ReleasePt tab. Release Point Types include:

### Stack Releases

02 – Vertical  
03 – Horizontal  
04 - Goose Neck  
05 - Vertical with Rain Cap  
06 - Downward-facing Vent

### Fugitive Releases

08 - Fugitive Vent  
**09 - Fugitive Two-dimensional**  
**10 - Fugitive Three-dimensional**

Table 5 of the ICR Instructions lists parameters to be specified for each release point type.

*See slide for text*

The EPA characterizes emission release point types for risk modeling. There are multiple release point types to choose from. Five release point types are for stacks, and three are for fugitive sources.

Page 31 and Figures 3 and 4 of the instructions explain and provide a visual for the different fugitive release point types.

The EquipDetail tab has space for five emission release points. Because lumber kilns have numerous vents, it is recommended that you group the vents together to identify them using *one* emission release point ID for simplicity.

At most you might use a few emission release point IDs to group vents for a kiln that is extremely leaky. We'll show some figures on the next slide.

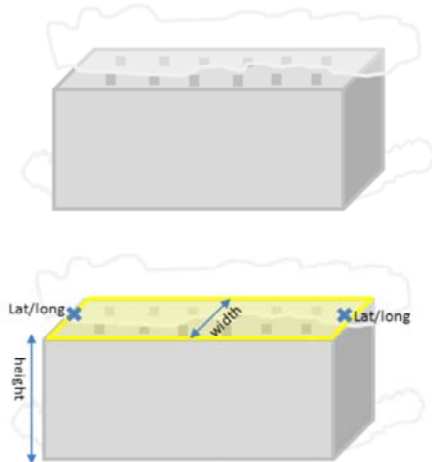
Different emissions release parameters are required for the different emission release point type codes. Table 5 of the ICR instructions document explains what is required.

Because lumber kilns have emissions over an area greater than 10 square feet, the EPA recommends using release point type codes 9 or 10 for fugitive 2-dimensional or 3-dimensional releases for lumber kilns.

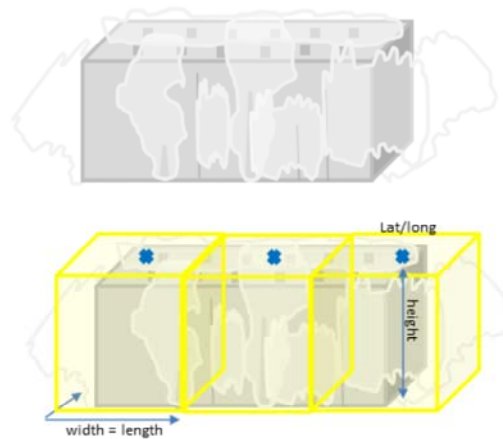
# Batch Kiln Fugitive Emissions

Use engineering judgement based on presence of kiln fugitive emissions when selecting the emission release point type in the ReleasePt tab.

Most batch kilns with minimal fugitive emissions at ground level can be modeled as “fugitive two dimensional.”



Extremely leaky kilns can be modeled as multiple “fugitive three dimensional” prisms:



These are some figures depicting batch kilns. We will discuss continuous kilns soon, but for now, imagine that these are single or double track batch kilns. There are numerous small vents across the top with flow that changes direction. Given the number of small vents, kilns can be modeled as fugitive emission sources. Rather than treat every small vent as an emission point, all of the vents can be grouped into:

- 1 fugitive emission point as we have done with the 2-dimensional area on the left, or
- a few emission points as we have done with the 3-dimensional prisms on the right.

The kiln on the left is a typical batch kiln with most of the emissions coming from the roof vents.

The kiln on the right is pretty leaky with emissions from the roof vents, but also a lot of emissions coming from the doors and cracks in the walls. This kiln might appear to be engulfed in a cloud of steam for several hours as the lumber begins to dry.

Both of these kilns may have the same estimated emissions if emission factors are used. This only difference is how well the emissions are dispersed above ground, which can make a difference for risk modeling.

The kiln with most of its emissions coming from the roof vents could be modeled as a “fugitive 2-dimensional” emission release point type. The yellow rectangle is the fugitive 2-D release point. You are asked to provide the height, the fugitive width, and 2 coordinate pairs. The coordinate pairs and width tell the model the precise location and area of the fugitive 2-dimensional release.

The leaky kiln with emissions from the top and the sides can be modeled by breaking the kiln into multiple, 3-dimensional prisms, with a footprint of equal width and length. Longitude/latitude coordinates are specified for the center of the prism.

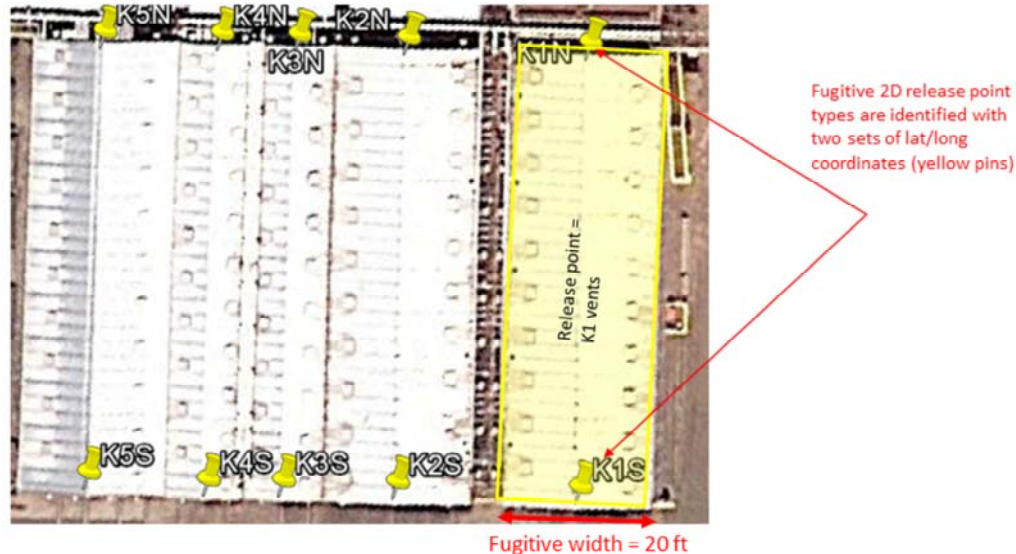
The height is also specified at the top of the prism. The length, width, and height parameters – along with the longitude/latitude coordinates – specify the exact location and dimensions of the fugitive release.

It is necessary to break the kiln into multiple prisms, each with a square footprint to cover the rectangular shape of most batch kilns.

If you operate a front-loaded package kiln that is more square than rectangular in shape, with lots of vents, you could still use either of the approaches shown here to model emissions.

## Example: Batch Kilns

- ▶ One release point "K1 vents"
- ▶ Emission release point type = fugitive two dimensional
  - ▶ One release point "K1 vents" with lat/long coordinate pairs identified at each end
  - ▶ Fugitive width = kiln width
  - ▶ Release height = height of kiln roof vents



This is another view of batch kilns showing how to label using a fugitive 2-dimensional release point. Again, the yellow area represents the one release point called "K1 vents." For this one release point, because the 2-dimensional release occurs over an area, we need to explain to the model the precise location and width of the area. This is done by providing 2 sets of coordinates and a fugitive width.

In addition to labeling the width and ends of the 2-dimensional area, the release height of the kiln vents above ground is also specified. It is important to specify a positive release height for emission releases above ground because higher release points have greater dispersion of emissions.

## Example: Continuous Dry Kilns

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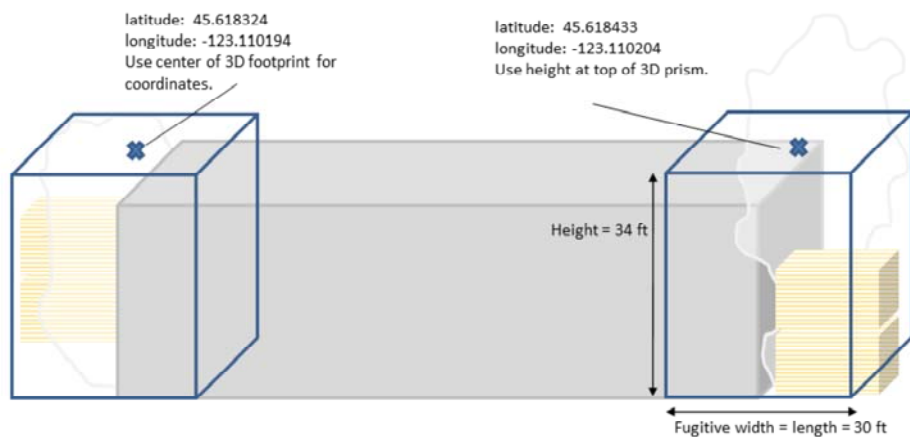
- ▶ Simplistic sketch showing emissions at ends



*See slide for text*

## Example: Continuous Dry Kilns

### ► Fugitive 3-dimensional release points specified as rectangular prisms



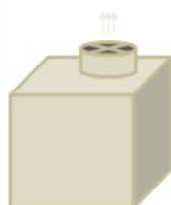
The emissions from the ends of the continuous kiln can be modeled using the fugitive 3-dimensional release point type.

*See slide for text and labeled diagram*

## Other Release Type Examples



02 – Vertical



03 – Horizontal



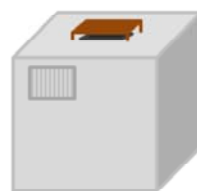
04 – Goose neck



05 – Vertical rain cap



06 - Downward-facing vent



08 – Fugitive vent

We have shown the fugitive 2-dimensional and 3-dimensional release types for lumber kilns, but keep in mind there are other release point types available if the fugitive 2 & 3D do not seem representative of your configuration.

For example, if your kiln has just one or two powered vents you could also consider using a stack release type. Figures of other release types are shown here.

As mentioned previously, Table 5 in the ICR instructions lists the parameters that need to be provided for each vent type. With so many different configurations of equipment, the EPA expects that facilities will use their engineering judgement to pick the best fit release point type. Some of the types may overlap {gooseneck}, so just pick the one you think is the best fit.

The 08-fugitive vent may also be applicable for unpowered vents with less than 10 square feet of area. One distinction to consider when choosing between stack and fugitive types is whether the vent is fan-driven with a significant velocity and ductwork, or if it is a passive vent. If passive with limited or no stack gas velocity then it would be better characterized as a fugitive vent.



## Lumber Kiln Source Classification Codes (SCCs)

- ▶ Lumber kilns SCCs were revised to distinguish between firing method and wood type
- ▶ Emission factors are built into the spreadsheet provisional calculations for facilities that do not have a more-representative means of estimating emissions

SCC	Description	Provisional calculation emission factors that may be used in the absence of more representative data, lb/MBF					
		Acetaldehyde	Acrolein	Formaldehyde	Methanol	Phenol	Propionaldehyde
30700841	Lumber Kiln: Indirect-heated: Softwood: Pine Species	0.04	0.004	0.016	0.18	0.01	0.004
30700842	Lumber Kiln: Indirect-heated: Softwood: Non-Pine Species						
30700843	Lumber Kiln: Indirect-heated: Hardwood						
30700844	Lumber Kiln: Direct-fired: Softwood: Pine Species	0.04	0.004	0.065	0.018	0.01	0.004
30700845	Lumber Kiln: Direct-fired: Softwood: Non-Pine Species						
30700846	Lumber Kiln: Direct-fired: Hardwood						

lb/MBF = pounds per thousand board feet

The ReleasePt tab also asks you to specify a source classification code or “SCC.”

*See slide for text and table*

Indirect-fired → steam heated

Direct-fired → Hot combustion gases come into contact with lumber and are vented from kiln vents.

*RETURN TO SPREADASHEET*

*Permit to Certification tab*

**Permit tab:**

You may enter “NA” in column E which asks about PCWP NESHAP compliance options.

The six PCWP "total HAP" are:

- acetaldehyde
- acrolein
- formaldehyde
- methanol
- phenol
- propionaldehyde

These are not listed in the HAP columns because they are addressed in column E for PCWP facilities, but you can write them in. Alternatively, at a minimum, you could note “see permit for HAP limits” in the "comments" column if your permit contains HAP emission limits for lumber kilns.

You are asked to enter lumber kiln VOC permit limits in the preferred units of measure listed in the VOC Limits section. You are asked to enter PM limits in the PM limits section, including PM limits for smaller size fractions (if included in your permit). If you have an opacity limit for your kilns you are asked to provide it in the Opacity Limits section.

**LKiln tab:**

The ICR ID and Process Unit ID are prepopulated. You are asked to specify if the kiln is batch or continuous.

Three menu choices are available for firing method: direct-fired, indirect-fired, or electric dehumidification. Note in the comments column if you have some other configuration beyond these three choices (e.g., a combination of direct- and indirect-firing).

Throughput is requested in thousand board feet per year (MBF/yr).

The general type of wood species is requested.

Separate sections are provided for batch and continuous kilns. Leave the section blank that does not apply.

There are questions about kiln exhaust gas flow.

Work practice questions are important for the EPA to understand if facilities have implemented practices to reduce lumber kiln HAP emissions. If work practices are included in your permit, please indicate them. Practices are of interest even if they are not included in your permit. The EPA intends to evaluate whether work practices facilities are already using may are an option under the Clean Air Act in lieu of numeric HAP emission standards for lumber kilns. One potential method for reducing HAP may be to reduce the potential for over-drying lumber. The EPA is interested in how facilities minimize over-drying (e.g., what kiln parameters are monitored).

Kiln schedules will provide insights into lumber drying practices. Three to five commonly-used schedules are requested. Schedules from the USDA Dry Kiln Operator’s Manual may be entered and separated by commas.

### **DFDryFuel tab:**

The DFDryerFuel tab is prepopulated with the Process Unit ID for our example direct-fired kiln. You are asked to enter the combustion unit type, a Combustion Unit ID, and information on whether other rules apply for the combustion unit.

There are questions for the heat input capacity in million BTU per hour, fuel type, and approximate annual percentage of heat input capacity provided by the fuel. Similar questions are included for the primary fuel and two supplemental fuels.

### **APCD tab:**

The lumber kilns in our example do not have add-on controls. If your kiln has add-on controls specified in the EquipDetail tab, they will appear here and you are asked to include details about the APCD in this tab. See the instructions for details.

If you kiln has an APCD, it would prepopulate from the EquipDetail tab and you would answer the relevant questions for that type of APCD in the APCD tab.

### **EmTest tab:**

See the instructions for details on how to populate this sheet if emissions testing for HAPs has been conducted.

Emissions tests of interest include tests for HAP, THC, or PM (from direct-fired kilns). Although the ICR requests full-scale kiln tests, small-scale kiln tests would also be informative.

Add a test report name and select the Emission Release Point tested to enter the test report.

If you are populating the EmTest tab and find column F does not appear to be working correcting, simply hide the column and ignore it. There was an error in a formula in the spreadsheet initially loaded onto the webpage which was corrected, but there is no need for facilities to download a new copy spreadsheet to correct this.

### **HAP Emissions tab:**

The HAP Emissions tab information will be used when the EPA constructs the risk modeling input file to be used in EPA's residual risk modeling. This is where you supply HAP emission estimates for your lumber kiln.

Information on the lumber kiln emission release points is prepopulated. Fifty rows prepopulate for each emission release point. Fifty is probably more rows than would be needed for any lumber kiln. This tab includes so many rows because it was designed to accommodate all types of PCWP process units and pollutants expected.

Our example includes 6 HAP with emissions based on emission factors. Other HAP can be selected or written in.

If helpful, you can hide rows, or use the freeze panes or split screen options under the View menu. You can adjust the spreadsheet zoom to seem more as well.

Provisional calculations are at the right of the tab beginning in column E.

You are asked to provide three separate emission estimates. Actual and allowable emissions are requested in tons per year. Maximum emissions are requested in pounds per hour for use in estimating acute risk. You can key in your emission estimates developed outside of the spreadsheet (e.g., from an emissions inventory or in permitting documentation) into columns M through O to complete the HAP Emissions tab for each emission point.

If you are using the provisional calculations, you would review and work through the information from column E through the remainder of the tab.

In our example continuous kiln, we had emissions coming out of two release points – the east and west ends. For these we will use the provisional calculations.

The SCC code prepopulates from the release point tab. We do not have any AP-42 emission factors for lumber kilns, but are using an industry average reference for emission factors embedded in the provisional calculations. Various parameters are prepopulated from elsewhere in the spreadsheet.

- The release point apportionment fraction (column W) is 0.5 for our example kiln to say that half of the emissions are coming out of each end of the kiln.
- The estimated combined organic HAP collection and control efficiency (column X) is zero because our example kiln is uncontrolled.
- We do not have any PM HAP metal emission factors included in the provisional calculations for lumber kilns; however, emissions for HAP not included in the provisional calculations can be written into the HAP Emissions tab.
- The provisional calculations can be used for some HAP and not for others.
- Column AC contains the emission factors included in the spreadsheet for different SCCs. You can choose to use the provisional emission factors in column AC, or you can enter a more-representative or site-specific emission factor in into column AA. The provisional formulas will preferentially use the more-representative emission factor entered into column AA (if provided) instead of the provisional emission factors.
- The scalar columns are used for unit conversions in case the units of measure of the provisional emission factor do not match the production units of measure elsewhere in the spreadsheet. This does not apply for kilns so the scalar is set to 1.
- The emissions calculation formulas are provided in the instructions document.
- To use the provisionally calculated emissions in columns AF through AH, copy and paste the results as values (without formatting) into columns M through O.

### **Certification tab:**

In the certification tab the responsible official signs the tab to certify the responses provided are (to the best of their knowledge) true, accurate, and complete.

## Submitting Your ICR Response

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- ▶ Submit non-confidential responses by either:
  - ▶ Uploading the response to EPA's CEDRI (see Appendix 6), or
  - ▶ Saving the response files on a disk (CD or flash drive) and mailing them to John Bradfield (address specified in section C1).
- ▶ There are different procedures for submitting data the facility considers confidential business information (CBI).
  - ▶ See section B and C and Appendix 5 of the instructions for details on submitting CBI.
- ▶ Responses are due February 9, 2018

*See slide for text*

## Questions?

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- ▶ Help Desk:

- ▶ [pcwpicr@epa.gov](mailto:pcwpicr@epa.gov)
- ▶ 866-522-7297 (toll free)

- ▶ Webpage:

The ICR survey, supporting documents, and frequently asked questions (FAQs) are available at: <https://epa.gov/stationary-sources-air-pollution/information-collection-plywood-and-composite-wood-products-industry>

*See slide for text*

Thank you for listening to this presentation for major source lumber producers operating kilns.