



# 2020 National Emissions Inventory Technical Support Document: Nonpoint Overview



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2020 National Emissions Inventory Technical Support Document: Nonpoint Overview

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## 6 Nonpoint Overview

This section includes all sources that are in the nonpoint data category, including biogenics, and new for the 2020 NEI, all fires, including wildfires, prescribed burning, and agricultural field burning. These sources are reported at the county level, though some sources such as shipping lanes and ports are more-finely resolved to the county/shape identifier (ID) (polygon) level. Stationary sources that are inventoried at facilities and stacks (coordinates) are discussed in the Point Section 3. This section discusses all sources in the Nonpoint inventory. Some “nonroad” mobile sources such as trains and commercial marine vessels reside and are discussed here in the nonpoint data category, not in the Nonroad Equipment Section 4.

### 6.1 Nonpoint source approaches

Nonpoint source data are provided by state, local, and tribal (S/L/T) agencies, and for certain sectors and/or pollutants, they are supplemented with data from the EPA. This section describes the various sources of data and the selection priority for each of the datasets to use for building the National Emissions Inventory (NEI) when multiple data sources are available for the same emissions source. Section 2.2 provides more information on the data selection process.

### 6.2 Sources of data overview and selection hierarchies

Table 6-1 describes the datasets comprising most of the nonpoint inventory, and the hierarchy for combining these datasets in construction of the NEI. Rail line-specific data are provided in the stand-alone dataset “2020EPA\_Rail”. While the bulk of these datasets are for stationary sources of emissions, some of these datasets contain mobile sources so that emissions from ports, shipping lanes, rail lines, and in-flight aircraft (lead emissions only) could be included as nonpoint sources. The following table includes the rationale for why each dataset was assigned its position in the hierarchy. We excluded certain pollutants from stationary sources in the 2020 NEI: greenhouse gases for stationary sources and pollutants in the pollutant groups “dioxins/furans” and “radionuclides”<sup>1</sup>. The EPA has not evaluated the completeness or accuracy of the S/L/T agency dioxin and furan values nor radionuclides and does not have plans to supplement these reported emissions with other data sources to compile a complete estimate for dioxin and furans nor radionuclides as part of the NEI.

**Table 6-1:** Data sources and selection hierarchy used for most nonpoint sources

Dataset name	Description and Rationale for the Order of the Selected Datasets	Order
Responsible Agency Data Set	S/L/T agency submitted data. These data are selected ahead of other datasets. The only other situation where S/L/T agency emissions are not used is where certain records are tagged in the Emissions Inventory System (EIS) (at the specific source/pollutant level). This occurs: 1) for hierarchy purposes to allow EPA nonpoint emissions to be used ahead of S/L/T agency data where states asked for EPA data to be used in place of their data and 2) where S/L/T agency data were suspected outliers, unexpected pollutants for a given process, or submitted for a source category not widely reported or significant.	1

<sup>1</sup> Dioxins/furans include all pollutants with pollutant category name of: Dioxins/Furans as 2,3,7,8-TCDD TEQs, or Dioxins/Furans as 2,3,7,8-TCDD TEQs – WHO2005. Radionuclides have the pollutant category name of “radionuclides” The specific compounds and codes are in the pollutant code tables in EIS.

<b>Dataset name</b>	<b>Description and Rationale for the Order of the Selected Datasets</b>	<b>Order</b>
2020EPA_Cr_Aug	Hexavalent and trivalent chromium speciated from S/L/T agency reported chromium. EIS augmentation function creates the dataset by applying multiplication factors by SCC, facility, process or North American Industry Classification System (NAICS) code to S/L/T agency total chromium. See Section 2.2.2.	2
2020EPA_PMAug	PM components added to gap fill missing S/L/T agency data where S/L/T agency have missing emissions across PM components. Uses ratios of emission factors from the (new for 2020) EIS PM Augmentation function for covered source classification codes (SCCs). PM augmentation is discussed in Section 6.3.	3
2020SLT_HAPAug_NP	HAP data computed from S/L/T agency criteria pollutant data using ratios of HAP to CAP emission factors. The emission factors used to create the ratios are the same emission factors as are used in creating the EPA estimates (i.e., in the EPA nonpoint emission tools). This dataset is below the S/L/T agency data so that the S/L/T agency HAP data are used first. HAP augmentation is discussed in Section 6.4.	4
2020EPA_HAPAug-PMAug	This dataset was created in the same fashion as the 2020SLT_HAPAug_NP dataset above and is a supplement to it. This dataset contains HAPs calculated by applying a ratio to PM25-PRI emissions, for those instances where the S/L/T dataset did not contain any PM25-PRI emissions, but the PM augmentation routine was able to calculate a PM25-PRI value from some PM species that was reported by the S/L/T.	5
2020EPA_NONPOINT	All nonpoint EPA estimates are included in this dataset except those listed elsewhere in this table. This dataset includes sources with and without point source subtraction and outputs from most of the EPA tools, including the “Wagon Wheel” with (if provided) SLT-submitted Input Templates (see Section 6.2.2). This dataset also includes EPA-estimated biogenic, wildland fires, and commercial marine vessel emissions. Other sources in this dataset include agricultural fertilizer application, most livestock waste, industrial and commercial/institutional fuel combustion, residential wood combustion, solvent utilization, oil and gas exploration and production, open burning, agricultural field burning, road and construction dust, and portable fuel containers.	6
2020EPA_HAPAugWWSLInput	This dataset was created in the same fashion as the 2020SLT_HAPAug_NP dataset above and is a supplement to HAPs not generated in the 2020EPA_NONPOINT dataset via EIS HAP Augmentation computations.	7
2020EPA_Rail	Blend of SLT-submitted and collaboratively generated diesel line and diesel yard locomotive data (referred to as “rail” in this document) emissions estimates. See Section 12.	8
2020EPA_Rail_HAPAug	This dataset was created in the same fashion as the 2020SLT_HAPAug_NP dataset above and is a supplement to HAPs not generated in the 2020EPA_Rail dataset via EIS HAP Augmentation computations.	9
2020EPA_Airports	2020 aircraft in-flight emissions (Lead only)	10

The EPA developed all datasets listed above except for the “Responsible Agency Selection,” which contains only S/L/T agency data. We used various methods and databases to compile the EPA generated datasets, which are further described in subsequent subsections. The primary purpose of the EPA datasets is to add or “gap fill” pollutants or sources not provided by S/L/T agencies, to resolve inconsistencies in S/L/T agency-reported pollutant submissions for PM (Section 2.2.4) and to speciate S/L/T agency reported total chromium into hexavalent and trivalent forms (Section 2.2.2). The hierarchy or “order” provided in Table 6-1 defines which data are preferentially used when multiple datasets could provide emissions for the same pollutant and emissions process. The dataset with the lowest order on the list is preferentially used over other datasets.

In addition to the order of the datasets, the hierarchy was also influenced by the EIS feature of data tagging (Section 2.2.6). Any data that were tagged by EPA in any of the datasets were not used. S/L/T agency data were tagged for three reasons: 1) S/L/Ts requested that their data not be used, 2) EPA found unexpected pollutants for a source, and 3) sources were submitted that are not widely reported or significant (e.g., NH<sub>3</sub> from human perspiration and domestic animal waste). Due to continued improvements in the new nonpoint survey (next section), there was very little need to tag EPA nonpoint data for 2020. If S/L/T agencies report zero emissions, then backfilling with other datasets will not occur. There are two ways that S/L/T agencies can prevent inappropriately backfilled emissions from being included in the NEI: 1) S/L/T agencies can submit zeros for any pollutant they do not want filled in (the EPA data will otherwise fill in for all pollutants that are on the nonpoint expected pollutant list), 2) S/L/T agencies can complete the nonpoint survey and specify “No...” to prevent any EPA estimates from backfilling where S/L/Ts did not submit data, or 3) the EPA can add tags to backfill datasets that prevent the tagged pollutants from being included in the NEI. The first option is most straightforward and takes care of any possible augmentation from the numerous other datasets in the selection hierarchy. The second option was developed as a quick tool for S/L/Ts to essentially prevent the need to “tag out” EPA data yet achieve the same goal.

### 6.2.1 Nonpoint Survey updates for the 2020 NEI

The nonpoint survey, first developed for the 2014 NEI, streamlined for the 2017 NEI, underwent minimal changes for the 2020 NEI. The purpose of the nonpoint survey is to increase the accuracy and transparency in how the nonpoint inventory is built using EPA and S/L/T agency data. The nonpoint inventory includes all nonpoint source categories that EPA generates estimates except for wildland fires, commercial marine vessels, and rail line estimates.

Because each agency has their own universe of sources and inventory development approaches, each agency reports nonpoint estimates a little differently. The nonpoint survey gathers information specifically for each SLT regarding which source categories are covered by point, nonpoint, or both, and about where point source reconciliation needs to be done to nonpoint activity.

For the 2020 NEI, the nonpoint survey was updated to include new source categories (e.g., agricultural silage), new or revised SCCs (Dust from Hooves Tool), a checkbox for SLTs “Did Your Agency Provide an Input Template for this Category?”, and a tagging function for EPA inventory developers to change the Nonpoint Survey response back to the default “Yes – Supplement my data with EPA estimates”.

The nonpoint survey has an “Accept All Emissions Estimates” button on the home page for S/L/Ts that did not submit emissions for any nonpoint sector. Note, acceptable S/L/T activity inputs (next section) provided to EPA were absorbed into EPA tools and therefore became “EPA” estimates. For S/L/Ts that wanted to prevent some EPA data from backfilling, there were options to edit the default responses for each SCC or accept EPA estimates for entire sectors. The optional reasons to select “No” (and this was applied for each SCC that EPA generates

estimates) are: 1) I do not have this Source, 2) This source is included in my Point Source contributions, 3) My agency uses different SCCs, and 4) My inventory is complete; it does not need to be supplemented. An additional option to select “Yes -Supplement Only for Missing Pollutants at my reported Counties or Tribe” is provided to allow only missing (expected) pollutants to be added for locations where emissions were submitted for at least one pollutant. More information on the nonpoint survey is available in [Section 7.2.6 of the 2020 NEI Plan](#). A detailed 2020 NEI nonpoint summary “2020NEI\_Nonpoint\_Survey\_detail\_25mar2023.xlsx” covering all reporting agencies has been uploaded to the [2020 NEI Supplemental data FTP](#) site.

## 6.2.2 Wagon Wheel and Input Templates

A central database, called the “[Wagon Wheel](#)”, developed for the 2017 NEI, and updated for the 2020 NEI, houses all inputs and calculates emissions for most nonpoint source categories. Prior to the 2017 NEI, EPA shared different tools to S/L/Ts, many with the same inputs; this process was very inefficient and prone to human error as many tools shared similar inputs and different versions of these tools were often used by S/L/Ts vs the “final” versions ultimately regarded as “EPA” for the NEI. The Wagon Wheel links each activity input tables to the appropriate sector/module such that refreshing one dataset ensures the next tool iteration captures it for all appropriate sectors. The full list of nonpoint source categories/tools included in the Wagon Wheel is provided in Table 6-2.

**Table 6-2:** List of Wagon Wheel source categories; categories needing point inventory subtraction noted

Wagon Wheel Source Category	Point Inventory Subtraction?	Ability to Submit Control Information?	Input Template Required?
ICI Fuel Combustion	Yes	County/SCC/pollutant-level	Yes
Ag Dust (from hooves)		County/SCC-level	
Ag Silage		County/SCC-level	
Ag Tilling		County-level	
Asphalt Paving		County/SCC-level	
Aviation Gas Distribution Stage 1		County-level	
Aviation Gas Distribution Stage 2		County-level	
Commercial Cooking		County/SCC-level	
Composting		County-level	
Construction Dust: Non-Residential		County/SCC-level	
Construction Dust: Residential		County/SCC-level	
Construction Dust: Road		County/SCC-level	
Cremation: Human and Animal		County/SCC-level	
Landfills: working face (Hg-only)		County-level	
Mining & Quarrying		County-level	
Nonpoint Mercury (including human cremation)		County/SCC-level	
Open Burning: Land Clearing Debris		County/SCC-level	
Open Burning: Municipal Solid Waste		County/SCC-level	
Open Burning: Yard Waste		County/SCC-level	
Publicly-Owned Treatment Works (POTWs)	Yes	County/pollutant-level	
Residential Charcoal Grilling		County-level	
Residential Heating -Non-wood		County/SCC/pollutant-level	
Residential Wood Combustion		County/SCC-level	
Road Dust: Paved and Unpaved		County/SCC-level	



Wagon Wheel Source Category	Point Inventory Subtraction?	Ability to Submit Control Information?	Input Template Required?
Solvents (to be renamed VCPs)	Yes	County/SCC-level	
Stage 1 Gasoline Distribution	Yes	County/SCC-level	

EPA strongly encouraged S/L/Ts to provide only inputs to the Wagon Wheel because, often late in the inventory development cycle, EPA finds a need for a tool update (e.g., error, or new, improved information, and so if S/L/Ts submitted emissions (rather than inputs) using an old version of the tool, then their submitted data could be out of date or incorrect.

EPA provided blank input templates for all Wagon Wheel source categories. These blank templates included all default activity data, and as these default activity data were updated, the input templates and the wagon wheel were updated to incorporate it. S/L/Ts then provided their completed input templates back to EPA where their updated data, after rudimentary quality assurance, were used to supersede the default data in the template and ultimately the Wagon Wheel. In this process, all S/L/T-submitted input activity data became “EPA” data. Input activity data also included information on controls and emission factors where provided.

With one key exception, S/L/Ts could opt out of submitting input templates as EPA methods did not need S/L/T inputs to compute reasonable nonpoint estimates. EPA used S/L/T-submitted point emissions as default for nonpoint reconciliation for solvents, stage 2 gasoline distribution, and publicly owned treatment works (POTWs); and little to no overlap with the point inventory would be expected for most other nonpoint source categories in the Wagon Wheel. However, for Industrial and Commercial/Institutional (ICI) nonpoint fuel combustion, we relied on S/L/T-submitted throughput (fuel consumption) data, ideally from their Point inventories. As discussed in Section 25, EPA provided four different options for submitting throughput for the ICI tool. Only three state reporting agencies and two territories did not submit ICI emissions, an input template, or a nonpoint survey indicating there were no nonpoint ICI emissions.

A complete list of all S/L/T-submitted wagon wheel input activity data is provided in Table 6-3. The input templates that are needed for point inventory reconciliation are shaded.

**Table 6-3: S/L/T Input Templates submitted for the 2020 NEI**

S/L Agency	Central Database	ICI Fuel Combustion	POTWs	Solvents	Stage 1 Gas	Ag Tilling	Commercial Cooking	Landfills	Grilling	Road Dust	Residential Heating	Residential Wood Combustion	Mining and Quarrying	Compost	Asphalt Paving	Cremation	Animal Populations	Construction Dust and Open Burning	County Business Patterns
Alabama																			
Alaska																			
Maricopa Co, AZ		X		X	X														
Arizona		X		X						X									
Arkansas		X																	
California																			
Colorado																			
Connecticut	X	X	X	X	X						X								
Delaware	X	X		X													X		
District of Columbia		X	X	X	X														
Florida		X																	
Georgia		X																	

S/L Agency	Central Database	ICI Fuel Combustion	POTWs	Solvents	Stage 1 Gas	Ag Tilling	Commercial Cooking	Landfills	Grilling	Road Dust	Residential Heating	Residential Wood Combustion	Mining and Quarrying	Compost	Asphalt Paving	Cremation	Animal Populations	Construction Dust and Open Burning	County Business Patterns
Hawaii		X																	
Idaho																	X		
Illinois		X																	
Indiana																			
Iowa		X	X	X	X			X						X					
Kansas		X	X	X	X	X		X		X		X	X	X	X	X			X
Jefferson Co, KY		X																	
Kentucky																			
Louisiana																			
Maine		X	X	X															
Maryland		X	X	X															
Massachusetts	X	X	X	X	X						X			X					
Michigan		X		X															
Minnesota		X		X															
Mississippi																			
Missouri		X																	
Montana																			
Nebraska		X																	
Clark Co, NV																		X	
Nevada																			
New Hampshire		X		X															
New Jersey			X		X														
New Mexico		X																	
New York		X		X															
North Carolina		X	X	X	X					X							X	X	
North Dakota																			
Ohio		X	X	X	X														
Oklahoma		X		X															
Oregon		X		X						X		X							
Pennsylvania		X		X															
Puerto Rico																			
Rhode Island	X	X	X	X	X														
South Carolina		X		X				X					X						
South Dakota																			
Knox Co, TN		X			X													X	
Nashville, TN			X	X	X											X			
Shelby Co, TN		X																	
Chattanooga, TN		X																	
Tennessee		X		X															
Texas																			
Utah				X															
Vermont		X				X		X		X	X			X	X			X	
Virgin Islands																			
Virginia		X																	
Washington	X	X	X			X				X		X						X	

S/L Agency	Central Database	ICI Fuel Combustion	POTWs	Solvents	Stage 1 Gas	Ag Tilling	Commercial Cooking	Landfills	Grilling	Road Dust	Residential Heating	Residential Wood Combustion	Mining and Quarrying	Compost	Asphalt Paving	Cremation	Animal Populations	Construction Dust and Open Burning	County Business Patterns
West Virginia	X	X		X				X		X									
Wisconsin		X	X	X	X					X									
Wyoming																			

A complete list of the specific S/L-submitted Input Templates for each EPA tool estimate category is provided in the workbook “2020NEI\_WW\_SL\_Input\_Template\_Submittals.xlsx” on the [2020 Supplemental data FTP site](#).

#### 6.2.2.1 Wagon Wheel updates for the 2020 NEI

For the 2020 NEI, we made several key changes to the Wagon Wheel, including how default and S/L Input Template data were shared. High-level Wagon Wheel updates include:

- As shown in Table 6-2, all sources now allow S/Ls to submit controls to be applied at the state and county level by SCC and by pollutant for ICI fuel combustion, residential non-wood heating, and POTWs.
- All VOC HAP computations have been removed from the Wagon Wheel; we instead rely on EIS HAP Augmentation to compute all Wagon Wheel VOC HAPs. This serves two purposes, 1) reduces the size of the Wagon Wheel output data, and more importantly, 2) ensures that a consistent set of VOC HAPs are produced between Wagon Wheel data and S/L/T-submitted emissions -particularly when we update emission factors for either VOC or VOC HAPs; having one centralized location (EIS) for VOC HAP computations reduces a quality assurance issue of inconsistent HAPs being computed between EPA and S/L/T emissions.
- Input Template distribution to and from EPA was streamlined using a “NOMAD” (NONpoint Method Advisory) Committee SharePoint site available to S/L inventory developers, contractors, and EPA NEI team members
- Input Template structure was reformatted, and Wagon Wheel modified, to allow immediate upload by S/Ls of their activity data to create Wagon Wheel outputs/draft estimates. This allowed S/Ls to immediately develop and test the impacts of their local activity data changes to the latest version of the Wagon Wheel tool.
- Default point fuel consumption data for nonpoint ICI computation was developed based on the relationship between S/L-submitted Point inventory carbon monoxide emissions and S/L-submitted point fuel consumption data from ICI Input Templates. This was done at the sector/fuel-level and analysis constrained which S/L-submitted input data were used, but the result was -for S/Ls that did not submit nonpoint ICI emissions or Input Templates- a reduction in unavoidable double-count of nonpoint ICI with the point ICI inventory for the 2020 NEI.

It is important to stress that the relative changes in emissions between NEI cycles are often more a result of if/how S/Ls choose to submit activity data, accept EPA estimates, or submit direct emissions. A summary of Wagon Wheel tool updates for each tool category between the 2017 NEI and the final version (7) used for the 2020 NEI are provided in Table 6-4.

**Table 6-4: Summary of Wagon Wheel tool updates in the 2020 NEI**

<b>Tool Category</b>	<b>Summary of Impactful Changes Between 2017 and 2020</b>
Agricultural Silage	N/A; new category for 2020
Agricultural Tilling	No major changes overall; emissions are similar between years
Asphalt Paving	A new methodology was used to calculate asphalt paving emissions for the 2020 NEI. The methodology included two new SCCs (for hot-mix and warm-mix asphalt), and many states' emissions increased.
Aviation Gas	Emissions for most states are similar between years. States with larger differences are due to fugitive valve emissions and fugitive pump emissions. Emissions for both of these are calculated using a ratio of county to US LTOs. LTOs changed significantly between 2017 and 2020 and drive changes in emissions. For example, in LA, TX, and FL, the county to US LTO ratio increased between 2017 and 2020, valve and pump emissions increased, and overall emissions increased. In CA, DC, and DE, county to US LTO ratio decreased, so valve and pump emissions and overall emissions decreased.
Commercial Cooking	Emissions increased for all states because of increases in restaurant counts. The Hoovers database reported approximately 77% more restaurants nationally between 2017 and 2020. An analysis comparing County Business Patterns reported by the US Census and the Hoovers database shows that 2017 restaurant counts were underestimated by Hoovers.
Composting	No major changes overall; emissions are similar between years
Construction Dust	Emissions increases are mostly driven by an increase in nonresidential construction emissions due to an increase in the value of private nonresidential construction (\$347,666 to \$471,450). This led to a 35% increase in acres disturbed by nonresidential construction, which are the activity data behind nonresidential construction emissions.
Cremation	Human deaths increased 29% nationally between 2017 and 2020 due to the COVID-19 pandemic, causing an increase in emissions across all states. Cremation rates also increased overall.
Dust from Hooves	No major changes overall; emissions are similar between years
ICI	No major changes in underlying activity data without point source subtraction. When considering point source data, there are some SCC-dependent changes in emissions. For example, nonpoint coal consumption decreased, so coal emissions decreased. For 2017, there was no EPA default point source data, but EPA default point source data is included for 2020. There is also a difference in both the quality and quantity of point source fuel consumption templates submitted for the 2020 NEI compared to those submitted for 2017. Default sulfur content for distillate fuel updated to 15ppm based on ultra-low sulfur distillate.
Landfills	No major changes overall; emissions are similar between years
Mining and Quarrying	Emissions in many states increased significantly because of increases in mineral, metal, or coal production. Mineral production has a higher EF, so increases in mineral production impact emissions increases the most.
Open Burning	Emissions are mostly similar between years, but some states saw larger increases in emissions due to significant increases in land clearing debris emissions. Acres distributed from nonresidential construction are used to calculate the amount of land clearing debris, and this increased (see construction dust note).
Other Mercury	No major changes overall; emissions are similar between years
POTWs	No major changes overall; emissions are similar between years
Residential Grilling	No major changes overall; emissions are similar between years

Tool Category	Summary of Impactful Changes Between 2017 and 2020
Residential Heating	<p>No major changes overall; emissions are similar between years</p> <p>Some states had significant changes in residential kerosene and distillate consumption, according to the EIA SEDS data, that had larger impacts on emissions. Default sulfur content for distillate fuel updated to 15ppm based on ultra-low sulfur distillate.</p>
Residential Wood Combustion	<p>Emissions from RWC were most affected by SEDS data. The 2020 SEDS data uses an updated methodology: the national wood consumption from the Residential Energy Consumption Survey (using updated 2015 data; the 2017 SEDS used 2009 RECS data) is allocated to states using American Community Survey data on housing units and heating degree days. Because of this, many southern states' emissions decreased, which is consistent with decreases in wood consumption in SEDS. Many northern states' emissions increased because of increases in wood consumption in SEDS.</p> <p>In addition to updates to SEDS data, the 2020 NEI also uses higher PM2.5 emissions factors from AP-42 for EPA-certified woodstoves (SCCs 2104008220, 2104008230, 2104008320, 2104008330). Wood density values updated based on USDA tree species data. Removed SEDS adjustment when S/Ls submitted a burn rate or appliance fraction template.</p>
Road Dust	<p>There are no major trends nationally, but some significant differences for specific states. Road dust emissions are impacted by both paved VMT and unpaved VMT. For example, in FL, both paved and unpaved VMT decreased causing emissions to decrease. In MO, paved VMT decreased, but unpaved VMT increased, causing an overall increase in emissions. In TX, the length of paved roads decreased, so the calculated EF decreased causing emissions to decrease.</p> <p>Updated meteorological adjustment factors overall also led to higher emissions for some states. Meteorological adjustment factors account for roads being wet when it rains, containing residual moisture, and leading to lower dust emissions. The meteorological adjustment factors are updated in each inventory cycle based on modeling conducted by EPA. The factors calculated for 2020 generally show that roads contain less residual moisture than the 2017 factors and therefore dust emissions are higher.</p>
Solvents	<p>The most impactful change to the Solvents tool was the updated emissions factors. Total solvents emissions decreased for many states. There were both increases and decreases in the solvent emission factors for 2020 compared to 2017, but some large sectors, such as graphic arts and certain consumer solvents had large decreases in their emission factors. The net result was large decreases in total solvents emissions in many states.</p> <p>The states whose total solvents VOC emissions decreased the most were KY (25.6% decrease), RI (26.2%), IL (27%), OH (37%), and UT (69.9%).</p> <p>The states whose total solvents VOC emissions increased were MD (1% increase), CA (1.4%), PR (5%), NY (5.2%), VI (6.1%), WA (6.6%), MT (10.7%), DE (12.4%), SD (22.7%), NE (23.8%), DC (24.6%), ID (27%), and ND (68.7%).</p>
Stage 1 Gas	<p>Stage 1 Gasoline Distribution emissions decreased for most states. The US product supplied of finished motor gasoline (also reported by SEDS), decreased between 2017 and 2020, and this data is used for many of the SCCs included in this tool. For some states, emissions increased significantly, driven by increases in service station unloading and breathing and emptying emissions. The activity for both SCCs is total gasoline consumption, which increased in these states between 2017 and 2020 due to the new distribution method.</p>

A complete list of activity data used in the 2020 NEI, including the sources of all data and Wagon Wheel release dates, is provided in the workbook “NEI 2020 Activity Data Tracker\_updated27mar2023.xlsx” on the [2020 Supplemental data FTP site](#).

### 6.2.3 SLT-submitted emissions

A complete list of S/L/T agencies that submitted 2020 nonpoint emissions for source categories that EPA also estimates are provided in Table 6-5. It is important to note that this does not provide a single indication on whether some/all S/L/T data or some EPA data are included in the 2020 nonpoint NEI selection for these agencies and categories. Factors that could result S/L/T data not being in the NEI, or EPA data appearing in the NEI for these agencies/categories include:

- Completeness of S/L/T data: complete geographic and expected pollutant coverage
- Outlier values resulting in tagging out of S/L/T data
- Nonpoint Survey responses set to (Yes) allow EPA data to supplement any missing S/L/T data
- Decision to use only EPA data for a particular source category (e.g., Biogenics)

**Table 6-5: S/L/T nonpoint emission submittals for each category that EPA estimates**

EPA Estimate Category	TSD Section	State Agencies	Local Agencies	Tribal Agencies
Fires - Agricultural Field Burning	7	CA, GA, ID, NJ, WA		Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fires - Prescribed Fires	7	GA, WA		
Fires - Wildfires	7	GA, WA		
Biogenics - Vegetation and Soil	8	CA	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Agriculture - Fertilizer Application	9	DE	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Agriculture - Livestock Waste	10	CA, DE, ID, UT	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Mobile - Commercial Marine Vessels	11	CA, NH		
Mobile - Locomotives	12	AK, CA, CT, NC, TX, VA, WA	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho

<b>EPA Estimate Category</b>	<b>TSD Section</b>	<b>State Agencies</b>	<b>Local Agencies</b>	<b>Tribal Agencies</b>
Industrial Processes - Oil & Gas Production	13	AK, CA, CO, NJ, OH, OK, TX, UT, WV, WY		Southern Ute Indian Tribe
Portable Fuel Containers	14	CA, DE, ID, NJ	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Non-combustion Mercury: Dental Amalgam	15	MN		Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Non-combustion Mercury: Fluorescent Lamp Recycling	15	MN		Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Non-combustion Mercury: Laboratory Activities	15	MN		
Non-combustion Mercury: Switches + Relays	15			Coeur d'Alene Tribe, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Non-combustion Mercury: Thermostats + Thermometers	15			Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Dust: Ag Tilling	16	CA, DE, ID, NH, UT	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Dust: Animal Hooves	16	CA, DE, ID	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Agricultural Silage	17	CA		Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Bulk Gasoline Terminals	18	AK, CA, CT, NJ, TX, UT	Knox County Department of Air Quality Management, Maricopa County Air Quality Department	Coeur d'Alene Tribe, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho

<b>EPA Estimate Category</b>	<b>TSD Section</b>	<b>State Agencies</b>	<b>Local Agencies</b>	<b>Tribal Agencies</b>
Gas Stations: Aviation Gasoline	18	DE, NJ, UT	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Gas Stations: Stage 1 Gasoline Distribution	18	AK, CA, DE, NH, NJ, UT, VA	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, Southern Ute Indian Tribe
Storage + Transport: Stage 1 Gasoline Distribution	18	AK, CA, DE, MA, NH, NJ, UT, VA	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Commercial Cooking	19	CA, ID, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Construction Dust: Residential	20	CA, DC, DE, ID, NH, NJ, UT	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Construction Dust: Heavy	21	CA, DC, DE, ID, NJ, UT	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Dust - Construction Dust	22	AK, CA, DC, DE, ID, NJ, TX, UT	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Dust - Paved Road Dust	23	CA, DE, ID, NH, TX	Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Dust - Unpaved Road Dust	24	AK, CA, NH, TX, UT	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho



<b>EPA Estimate Category</b>	<b>TSD Section</b>	<b>State Agencies</b>	<b>Local Agencies</b>	<b>Tribal Agencies</b>
Fuel Comb - Comm/Institutional - Biomass	25	ID, TX, UT	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Comm/Institutional - Coal	25	CA, ID, NJ		Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Comm/Institutional - Natural Gas	25	AK, CA, ID, NJ, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Comm/Institutional - Oil	25	AK, CA, ID, NJ, PR, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Comm/Institutional - Other	25	AK, CA, ID, NJ, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Industrial Boilers, ICEs - Biomass	25	ID, TX, UT	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Industrial Boilers, ICEs - Coal	25	AK, ID, NJ		Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Industrial Boilers, ICEs - Natural Gas	25	AK, CA, ID, NJ, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho

<b>EPA Estimate Category</b>	<b>TSD Section</b>	<b>State Agencies</b>	<b>Local Agencies</b>	<b>Tribal Agencies</b>
Fuel Comb - Industrial Boilers, ICEs - Oil	25	AK, CA, ID, NJ, PR, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Industrial Boilers, ICEs - Other	25	AK, CA, ID, NJ, PR, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, Southern Ute Indian Tribe
Fuel Comb - Residential - Natural Gas	26	CA, ID, NJ, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, Southern Ute Indian Tribe
Fuel Comb - Residential - Oil	26	AK, CA, ID, NJ, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Fuel Comb - Residential - Other	26	AK, CA, ID, NJ, TX, UT	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, Southern Ute Indian Tribe
Residential Wood Combustion	27	AK, CA, ID, MN, TX, WA	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho, Southern Ute Indian Tribe
Industrial Processes - Mining	28	AK, CA, ID, NJ, RI, TX, UT	Clark County Department of Air Quality and Environmental Management, Knox County Department of Air Quality Management, Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho

<b>EPA Estimate Category</b>	<b>TSD Section</b>	<b>State Agencies</b>	<b>Local Agencies</b>	<b>Tribal Agencies</b>
Cremation: Human and Animal	29	ID, RI	Knox County Department of Air Quality Management, Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Residential Charcoal Grilling	30	ID, TX	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Solvents: Asphalt Paving	31	CA, DE, ID, MA, NH, NJ, TX, VA	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Solvent - Consumer & Commercial Solvent Use	32	AK, CA, DE, ID, MN, NH, NJ, TX, UT, VA	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Solvent - Degreasing	32	AK, CA, DE, ID, NJ, TX, VA	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Solvent - Dry Cleaning	32	CA, ID, NJ, TX	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Solvent - Graphic Arts	32	CA, ID, NJ, TX, VA	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Solvent - Industrial Surface Coating & Solvent Use	32	AK, CA, DE, ID, MA, MN, NJ, TX, VA	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Solvent - Non-Industrial Surface Coating	32	CA, DE, ID, NJ, TX, VA	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho

EPA Estimate Category	TSD Section	State Agencies	Local Agencies	Tribal Agencies
Composting	33	CA, NC, UT	Maricopa County Air Quality Department	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Open Burning: Land Clearing Debris	34	DE, GA, ID, NJ, WA	Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Open Burning: Household Waste	35	AK, CA, DE, ID, MN, NC, NJ, TX, UT	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Open Burning: Yard Waste	36	CA, DE, ID, NJ, TX, UT	Maricopa County Air Quality Department, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Northern Cheyenne Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho
Publicly-owned Treatment Works	37	CA, ID, TX, UT	Knox County Department of Air Quality Management, Maricopa County Air Quality Department, Memphis and Shelby County Health Department - Pollution Control, Washoe County Health District	Coeur d'Alene Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation of Idaho

#### 6.2.4 Data selection rules: cross-dataset tagging

We compiled the 2020 nonpoint inventory using much of the same EIS automated data selection rules first implemented for the 2017 NEI: Nonpoint Survey Rule, Pollutant Grouping Rule, and the Option Group/Option Set Rule. In addition, the PM speciation rule has since been automated to run as part of the NEI selection, rather than a separate EIS processing step (and input/output data). When applied, these rules greatly minimized the need to “tag” out data that would otherwise be needed to prevent double counting of emissions across pollutant groups, SCCs, and from different data submittal sources.

##### 6.2.4.1 Nonpoint Survey rule

The 2020 nonpoint survey responses were directly applied to the nonpoint selection in the EIS. All S/L/Ts that completed the nonpoint surveys (green status button on the home screen for the nonpoint survey), had their responses directly applied in the NEI selection. For each “EPA Tool Estimate Category”, nonpoint survey responses were applied if the “Category Complete?” column was saved and submitted as “Yes”. By default, all nonpoint survey responses were defaulted to “Yes -Supplement my data with EPA estimates. This simply means that if S/L/T data was not submitted, and EPA data exists (for that process/pollutant), then EPA data will be selected for the NEI with a caveat to the 2 rules discussed in the next two sections. S/L/Ts were strongly encouraged to leave the SCCs as default (yes) if they were submitting nonpoint inputs, because S/L/T inputs

were absorbed into EPA tools and became “EPA” data; as discussed in Section 6.2.1, we updated the Nonpoint Survey in 2020 to include a checkbox for each tool category “Did Your Agency Provide an Input Template for this Category?” to help with quality assurance, particularly for tool categories that are limited to a single SCC.

A detailed 2020 NEI nonpoint summary “2020NEI\_Nonpoint\_Survey\_detail\_25mar2023.xlsx” covering all reporting agencies has been uploaded to the [2020 NEI Supporting Data and Summaries](#) site.

#### 6.2.4.2 *Pollutant grouping rule*

In previous NEI cycles, we tagged out data to prevent double counting of pollutants across datasets that overlap one another. Starting with the 2017 NEI and continued for the 2020 NEI, a software solution that occurs during the blending process was developed so that overlapping pollutants would be excluded from the selection. Business rules were developed to select data with overlapping pollutants across datasets, to allow different datasets included in a selection to be blended together in a way that avoids double counting due to overlapping pollutants. Because there are several HAPs that belong to pollutant groups or represent a pollutant group themselves, these rules are needed to prevent both a group and individual pollutant in that group from being used for the same process or facility. The implementation of these rules is automated in the EIS. These rules are applied at the process level (location and SCC) for nonpoint sources and prevents lower-hierarchy dataset pollutants/pollutant groups from possible double-counts. For example, if an S/L/T reports “Xylenes (Mixed Isomers), then any EPA (lower hierarchy) -generated individual (or mixed) isomers will not make it into the NEI. Rules for the following pollutant groups were applied: xylenes, cresols, polychlorinated biphenyls (PCBs), glycol ethers, chromium, nickel, and PAHs. A complete discussion of the cross dataset tagging proposed rules, applied to the 2020 NEI nonpoint inventory selection are available in [Appendix 5](#) of the 2017 NEI Plan. One change to these “Proposed” rules that we implemented for the 2017 and 2020 NEI is that we allow individual xylene isomers to be reported with Xylenes (mixed isomers) within the same dataset.

#### 6.2.4.3 *Option Group/Option Set rule*

We applied the EIS Option Group/Option Set (OGOS) feature for the first time in the 2017 nonpoint NEI and continued with the same application for the 2020 NEI. In the Source Classification Code table, we can define SCCs that have a hierarchical nature. That is, there may be a “general” group, as well as more specific SCCs within the same group. These relationships are defined by the “Option Group / Option Set” (OGOS) fields in the SCC table. When EPA and SLT datasets are placed in an NEI selection, there is the potential for double counting of data sources (emissions) across these data sources. For example, the EPA may report emissions to a “general” SCC while SLTs report data to detailed SCCs. Without OGOS evaluation, both sets of data would be included in the NEI selection. The current OGOS rules employed in the Selection assumes that if a SLT submits data, they are submitting data for the entire group and no additional data sets are to be used to “back-fill” any SCCs within the same option set. The desired function is for the selection to back-fill any SCCs within the same option set. Refer to “[Appendix 6 - Option Group Option Set Enhancement EIS Requirements.pdf](#)” on the 2017 National Emissions Inventory Documentation website for a comprehensive discussion on the OGOS business rules implemented in EIS for the 2020 nonpoint NEI. A complete list of OGOS assignments can be obtained by downloading the complete SCC table (Bulk Download Options) from the [SCC search site](#), and filtering on columns where Option Group is populated.

### 6.3 Nonpoint PM augmentation

Section 2.2.4 provides an overview of PM augmentation in the 2020 NEI and explains that we integrated all PM Augmentation directly into EIS for the 2020 NEI. EIS QA procedures eliminated much of the functionality needs

from the PM Augmentation Tool that was used in prior NEIs. For the nonpoint data category, the results from EIS PM Augmentation serve to merely supplement PM components (PM-CON, PM25-FIL, and PM10-PRI) where expected and where SLTs did not submit. PM Augmentation will zero out any computed PM component less than zero that could result from arithmetic operation of SLT and PM augmented species; for example, computed PM-CON computed from SLT-submitted PM10-PRI minus PM10-FIL exceeding SLT-submitted PM25-PRI (which would result in computed PM25-FIL being less than zero). Analysis of PM augmentation output revealed a couple suspect SLT-submitted PM component emissions and these were tagged out where necessary. In cases like this example, it is likely that the SLT erroneously submitted PM25-FIL as PM25-PRI.

#### 6.4 Nonpoint HAP Augmentation

For nonpoint sources, we derived HAP augmentation ratios from the emission factors used to develop the EPA nonpoint source estimates. Most EPA nonpoint HAP emission estimates are computed in EPA nonpoint database “tools” (e.g., previously discussed wagon wheel, oil and gas tool). However, for the 2020 NEI, we removed HAP VOCs from the wagon wheel tool to reduce the resources required to package and process the wagon wheel data, and ensure that both SLT and EPA data would utilize EIS HAP Augmentation factors for computing VOC HAPs, streamlining quality assurance if/when emission factors for VOC or VOC HAPs changed.

EPA also generates HAPs with CAPs in stand-alone databases such as that used for agricultural burning and livestock waste. Because we used the same emission factors for these augmentation ratios, the ratios of HAP to CAPs for augmented S/L/T agency data are the same as the HAP to CAP ratios for the EPA-only data. For access by non-EIS users, the zip file called “HAPAugmentation\_Nonpoint\_28jan2023”, on the [2020 NEI Supplemental data FTP site](#), provides the emission ratios that the EPA used for augmenting nonpoint data. The nonpoint HAP augmentation factors were updated as compared to what was used for the 2017 NEI, particularly for the solvents, asphalt paving, and oil and gas sector. The EPA staff responsible for the nonpoint sectors use their discretion for how to augment HAP emissions and work with the S/L/T agencies to reflect as complete and accurate set of pollutants as possible for the many source types. In general, if a S/L/T agency submitted a partial list of the HAPs that would be augmented for a given category, then we allowed the missing HAPs to be gap-filled with the HAP augmentation data. These missing HAPs are determined by comparing the Expected Pollutant List for Nonpoint SCCs with those that S/L/T agencies submitted. However, this approach has a risk of potentially violating VOC mass balance, whereby the sum of the VOC HAPs exceeds the VOC total. Thus, special cases occur when such problems are identified. In the limited cases where this occurred, we applied the business rules defined in Section 3.4.2 in the [2020 NEI Plan](#) to tag out S/L/T data causing this violation; in this case, S/L/T-submitted HAP-VOCs were replaced with HAP augmentation (generally based on S/L/T-submitted VOC) -based HAP-VOC estimates.

#### 6.5 EPA nonpoint data

For the 2020 NEI, the EPA developed emission estimates for many nonpoint sectors in collaboration with a consortium of inventory developers from various state agencies regional planning organizations called the Nonpoint Method Advisory (NOMAD) Committee. Initiated for the 2014 NEI cycle, the broad NOMAD committee meets approximately monthly to discuss the overall progress on the various sectors for which tools and/or estimates are being developed or refined. During the 2020 NEI development process, NOMAD collaboration meetings focused on overall wagon wheel and associated input template development schedules, and a deeper dive into specific source categories that were undergoing methodology or significant activity data changes, such as solvents, agricultural silage, residential wood combustion, agricultural NH3 livestock and

fertilizer application, and industrial and commercial/institutional fuel combustion. Separate oil and gas subcommittee meetings also tracked the development of the oil and gas production and exploration tools.

These meetings covered methodologies, emission factors, and SCCs, allowing the EPA to prepare the “default” emission estimates/methodologies and/or input template formats for S/L/T agencies using the group’s final approaches. With the 2020 NEI, we continue to prioritize gathering of S/L/T input activity data, rather than emission submittals, which makes for a more transparent quality assurance process as we have readily available tracking of the inputs as well as resulting outputs (emissions). With S/L/Ts using the wagon wheel or submitting inputs, we can ensure that the methodology used to estimate the final emissions for all Wagon Wheel sectors is consistent.

During the 2020 NEI inventory development cycle, S/L/T agencies, using the nonpoint survey (Section 6.2.1), could accept the NOMAD/EPA estimates to supplement/fulfill their nonpoint emissions reporting requirements. The EPA encouraged S/L/T agencies that did not use the EPA’s estimates or tools to improve upon these “default” methodologies and submit input data directly.

Table 6-6 lists all EPA-developed emission estimates, technical support documentation (TSD) section number, and an indication of whether the Wagon Wheel (WW) or Oil and Gas Production and Exploration (OG) tools (v1.3) are available on the [2020 NEI Supplemental Nonpoint data FTP site](#). Table 6-6 also flags EPA estimation categories where reconciliation with the Point inventory is recommended; that is, nonpoint estimates utilize activity data encompassing the entire source category (point and nonpoint total), and the tools and/or point emissions or activity data are needed from user inputs to compute the nonpoint data category component. All EPA methodologies are discussed in the remaining nonpoint sectors that follow; however, some tables (primarily emission factors) were too large to include in this TSD, and for WW source categories, we direct the reader to the “Wagon Wheel Emission Factor Compendium” on the [2020 NEI Supporting Data and Summaries site](#). for more information on emission factors. The SCCs associated with the EPA nonpoint data categories are provided in each of these sections and can also be found on the [EPA SCC Search website](#).

**Table 6-6:** EPA Nonpoint TSD Sections with indication of possible Point inventory subtraction

EPA Estimate Category/Sector	EPA Tool	Point Recon.?	TSD Section Name	TSD Section
Fires - Agricultural Field Burning		N	Fires -Wild, Prescribed, and Field Burning	7
Fires - Prescribed Fires		N	Fires -Wild, Prescribed, and Field Burning	7
Fires - Wildfires		N	Fires -Wild, Prescribed, and Field Burning	7
Biogenics - Vegetation and Soil		N	Biogenics - Vegetation and Soil	8
Agriculture - Fertilizer Application		N	Agriculture - Fertilizer Application	9
Agriculture - Livestock Waste		N	Agriculture - Livestock Waste	10
Mobile - Commercial Marine Vessels		N	Commercial Marine Vessels	11
Mobile - Locomotives		N	Locomotives	12
Industrial Processes - Oil & Gas Production	OG	Y	Oil and Gas Exploration and Production	13
Portable Fuel Containers		N	Portable Fuel Containers	14
Non-combustion Mercury: Dental Amalgam	WW	N	Nonpoint Non-Combustion Mercury	15
Non-combustion Mercury: Fluorescent Lamp Recycling	WW	N	Nonpoint Non-Combustion Mercury	15
Non-combustion Mercury: Laboratory Activities	WW	N	Nonpoint Non-Combustion Mercury	15
Non-combustion Mercury: Switches + Relays	WW	N	Nonpoint Non-Combustion Mercury	15

<b>EPA Estimate Category/Sector</b>	<b>EPA Tool</b>	<b>Point Recon.?</b>	<b>TSD Section Name</b>	<b>TSD Section</b>
Non-combustion Mercury: Thermostats + Thermometers	WW	N	Nonpoint Non-Combustion Mercury	15
Dust: Ag Tilling	WW	N	Agriculture - Crops and Livestock Dust	16
Dust: Animal Hooves	WW	N	Agriculture - Crops and Livestock Dust	16
Agricultural Silage	WW	N	Agricultural Silage	17
Bulk Gasoline Terminals	WW	Y	Nonpoint Gasoline Distribution	18
Gas Stations: Aviation Gasoline	WW	Y	Nonpoint Gasoline Distribution	18
Gas Stations: Stage 1 Gasoline Distribution	WW	Y	Nonpoint Gasoline Distribution	18
Storage + Transport: Stage 1 Gasoline Distribution	WW	Y	Nonpoint Gasoline Distribution	18
Commercial Cooking	WW	N	Commercial Cooking	19
Construction Dust: Residential	WW	N	Dust - Construction -Residential	20
Construction Dust: Heavy	WW	N	Dust - Construction -Non-Residential	21
Dust - Construction Dust	WW	N	Dust - Construction -Road	22
Dust - Paved Road Dust	WW	N	Dust -Paved Roads	23
Dust - Unpaved Road Dust	WW	N	Dust -Unpaved Roads	24
Fuel Comb - Comm/Institutional - Biomass	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Comm/Institutional - Coal	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Comm/Institutional - Natural Gas	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Comm/Institutional - Oil	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Comm/Institutional - Other	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Industrial Boilers, ICEs - Biomass	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Industrial Boilers, ICEs - Coal	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Industrial Boilers, ICEs - Natural Gas	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Industrial Boilers, ICEs - Oil	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Industrial Boilers, ICEs - Other	WW	Y	Fuel Combustion -Nonpoint Industrial and Commercial/Institutional Boilers and ICEs	25
Fuel Comb - Residential - Natural Gas	WW	N	Fuel Combustion - Residential Heating -Natural Gas, Oil, and Other	26
Fuel Comb - Residential - Oil	WW	N	Fuel Combustion - Residential Heating -Natural Gas, Oil, and Other	26
Fuel Comb - Residential - Other	WW	N	Fuel Combustion - Residential Heating -Natural Gas, Oil, and Other	26
Residential Wood Combustion	WW	N	Fuel Combustion - Residential Wood	27
Industrial Processes - Mining	WW	N	Industrial Processes -Mining and Quarrying	28
Cremation: Human and Animal	WW	N	Miscellaneous Non-Industrial NEC: Cremation - Human and Animal	29



EPA Estimate Category/Sector	EPA Tool	Point Recon.?	TSD Section Name	TSD Section
Residential Charcoal Grilling	WW	N	Miscellaneous Non-Industrial NEC: Residential Charcoal Grilling	30
Solvents: Asphalt Paving	WW	N	Solvents - Consumer and Commercial: Asphalt Paving	31
Solvent - Consumer & Commercial Solvent Use	WW	Y	Solvents: All other Solvents	32
Solvent - Degreasing	WW	Y	Solvents: All other Solvents	32
Solvent - Dry Cleaning	WW	Y	Solvents: All other Solvents	32
Solvent - Graphic Arts	WW	Y	Solvents: All other Solvents	32
Solvent - Industrial Surface Coating & Solvent Use	WW	Y	Solvents: All other Solvents	32
Solvent - Non-Industrial Surface Coating	WW	Y	Solvents: All other Solvents	32
Composting	WW	N	Waste Disposal: Composting	33
Open Burning: Land Clearing Debris	WW	N	Waste Disposal: Open Burning - Land Clearing Debris	34
Open Burning: Household Waste	WW	N	Waste Disposal: Open Burning - Residential Household Waste	35
Open Burning: Yard Waste	WW	N	Waste Disposal: Open Burning - Yard Waste	36
Publicly-Owned Treatment Works	WW	Y	Waste Disposal: Nonpoint Publicly-Owned Treatment Works	37

## 6.6 Nonpoint Quality Assurance

New for the 2020 NEI was the formation of a dedicated quality assurance (QA) team, which primarily focused on the nonpoint data category. This team focused on six key aspects of QA for nonpoint data submissions listed in Table 6-7.

**Table 6-7:** Key Nonpoint QA issues, causes, and steps taken to address issues

Type of QA Issue	Causes	Steps taken by QA Team to Address
Impossible Sums: <ul style="list-style-type: none"> <li>• HAPVOC &gt; VOC</li> <li>• PM PRI ≠ PM-CON + PM-FIL</li> <li>• PM10 &lt; PM2.5</li> </ul>	Emission factors are inconsistent with each other.  Incomplete suite of HAPs is provided, and when incongruent datasets (EPA and SLT) are added, they add up to more than VOC.  HAP aug itself is generating impossible sums (some oil/gas profiles slightly violate this QA check).	<ul style="list-style-type: none"> <li>• Checked HAP augmentation to ensure impossible sums were not generated.</li> <li>• Ran iterative QA report on SLT submissions during the window opening to find these errors. Reported back to SLTs.</li> <li>• Ran a script on the final selection to check these sums.</li> </ul>

Type of QA Issue	Causes	Steps taken by QA Team to Address
Unexpected Pollutants or Missing Pollutants <ul style="list-style-type: none"> <li>• Not on expected pollutants list and EPA will backfill with tool</li> <li>• Not on expected pollutants list and EPA can augment HAPs</li> <li>• Not on EPA and EPA will not backfill</li> <li>• In EPA but not in SLT</li> </ul>	SLT submitted to wrong SCC, or applied an incorrect emission factor, or has additional information that EPA lacks	<ul style="list-style-type: none"> <li>• Created an expected pollutants list for comparison</li> <li>• Ran the iterative QA report on SLT submissions during the window opening to find these errors and report back to SLTs.</li> <li>• Ran a script on the final selection to check for unexpected or missing pollutants.</li> </ul>
Missing Data: <ul style="list-style-type: none"> <li>• Missing county</li> <li>• Missing SCC</li> </ul>	SLT inadvertently left out data	<ul style="list-style-type: none"> <li>• Ran an iterative report and provided feedback to SLTs when counties or SCCs appeared to be missing</li> <li>• Ran a script on the final selection to check for missing data</li> </ul>
Outliers: <ul style="list-style-type: none"> <li>• Too high</li> <li>• Too low</li> </ul>	SLT gives data that is outside of acceptable QA limits. EPA estimates are outside of acceptable QA limits. Possibly wrong data units of measure?	<ul style="list-style-type: none"> <li>• Created rankings on a state SCC pollutant basis and compared. Also looked at magnitudes, mainly looking at large orders of magnitudes of difference.</li> </ul>
Zeroes Zeroes clog up our Emissions inventory system, and should only be included if the Nonpoint Survey doesn't cover the SCC	While zeroes are not always a problem, sometimes their submittal changes the way our option group/option set selection process works, so these should be submitted with caution. See Section 6.2.4.3.	<ul style="list-style-type: none"> <li>• Reviewed the option group/option set to see if zeroes blocked out data from coming in, inadvertently</li> </ul>
Using Old Data	SLT submits data using old WW or 2017 default data.	<ul style="list-style-type: none"> <li>• Checked the "emissions comment" field for references to old tools or data.</li> </ul>

The following subsections discuss how these QA checks were analyzed and identified issues were resolved prior to finalizing the final nonpoint selection for the 2020 NEI.

### 6.6.1 The Iterative QA Report

New for 2020 inventory cycle was the Iterative QA report. The QA team performed this iterative QA while the S/L/T EIS Production window was open (July 2021 through March 2022). The chief objective of the nonpoint iterative QA report was to notify S/L/Ts in a timely fashion, to provide feedback concerns as soon as possible to the S/L/T submitter's recent memory. This automated code was run every Monday morning during the Production submittal window being open. Using [R markdown](#), we created an iterative feedback report that was emailed to each S/L/T agency that submitted the prior week via the [NEI\\_Help@epa.gov](mailto:NEI_Help@epa.gov), and this opened up a dialogue with each S/L/T agency. An example of the first page of an iterative QA report is provided in Figure 6-1.

Figure 6-1: Example of nonpoint iterative QA report

#### EIS Nonpoint Submission Summary Report

We realize the window is still open, but in the new paradigm of automated QA here at EPA, we're providing timely feedback on your submission. You still have until March 2022 to submit! - EPA NEI Nonpoint QA Team

Report generated on: December 02, 2021

Nonpoint QA Summary for <S/L/T agency>

EIS submission date(s): 2021-11-05, 2021-10-20, 2021-11-22, 2021-11-01, 2021-10-22, 2021-11-19, 2021-11-02

Submission included: 24 sectors, 102 SCCs

#### Submission Summary

The following summary contains information on the most relevant and urgent QA findings for the 24 sectors included in your recent submission(s). We appreciate your time in reviewing these findings and helping us build a complete and accurate emissions inventory.

You will receive a new summary report with any additional submissions throughout the submittal window. Once the submittal window closes, additional QA will be done on all submissions to determine completeness based on your Agency's nonpoint survey answers.

**Please remember to include all pollutants, not just revised pollutants, if submitting corrected xml files.**

Nonpoint Survey Status: **0%**

This information reflects the percent completed of Agency's most current nonpoint survey submission located in the [EIS Gateway](#). Please visit the Gateway to complete the survey.

#### Critical QA Checks

The following categories, shown in Red Text, indicate what we found that may prevent your submission from making it into the NEI as you intended. You should immediately review and correct, as necessary. When a QA check returns no findings, the check is shown in green text, meaning your data submission looks good.

#### Missing Criteria Pollutants

**Complete Omission:** You seem to be missing some important pollutant data. We compared your submission to our expected pollutants [list](#), and noted 4 criteria air pollutants (CAPs) missing from your submissions. This flag means that no values were submitted by you for this pollutant process combination for any county. If you submitted a "No" on your NP Survey, EPA cannot backfill these pollutants and your inventory could be incomplete. If you selected "Yes" on the NP Survey, and no changes are made to your submission, EPA will backfill these missing pollutants on your behalf. To view the omitted pollutants, filter on "Complete Omission CAP" in the [REVIEW\\_Flag](#) column.

**Partial Omission:** None

**Action Required:** EPA has determined that these pollutants are expected from these [processes](#), and may override your answer. Please make sure to answer "Yes" on the NP [survey](#), or submit the emissions yourself. You can review your survey answers in the provided table by checking the NP [Survey Answer](#) column. If you have a reason to believe the expected pollutant list is in error, please contact the [NEI Team](#).

#### Additional QA Checks

#### Unexpected Criteria Pollutants

You have submitted pollutants inconsistent with our expectations. EPA may or may not include these pollutants in the NEI. Please consider providing supporting documentation. These can be identified in the file by filtering on "Unexpected CAP" in the [REVIEW\\_Flag](#) column.

**Action Suggested:** If there is reason these pollutants should be included, submit documentation supporting the reason they should be included to EPA.

#### Unexpected Hazardous Pollutants

You have submitted HAPs inconsistent with our expectations. EPA may or may not include these pollutants in the NEI. Please consider providing supporting documentation. These can be identified in the file by filtering on "Unexpected HAP" in the [REVIEW\\_Flag](#) column.

**Action Suggested:** If there is reason these pollutants should be included, submit documentation supporting the reason they should be included to EPA.

#### Missing Hazardous Pollutants

Your list of HAPs is incomplete when compared to our expectations. EPA may tag out incomplete HAP submissions and, when available, use EPA tool estimates in the NEI. These can be identified in the file by filtering on "Complete Omission HAP" in the [REVIEW\\_Flag](#) column.

**Action Suggested:** Update your submission to include all [HAPs](#), or provide documentation on why they should or should not be included in the NEI. Alternatively, you may do [nothing](#) and EPA tool estimates will be used in the NEI when available.

#### Zero Emissions

It is not necessary to submit zero emissions for an entire SCC and EPA asks that you refrain from doing this as it creates extraneous records in EIS storage. Submitting the nonpoint survey will cover sectors that you do not wish to be backfilled, or that are covered in the point data category of the NEI. If you have any questions on this, please contact the [NEI Team](#).

## 6.6.2 Expected Pollutants List

To determine whether S/L/T submissions were correct, EPA needed to create an accurate expected pollutants list, or EPL. The NEI Team put together a list of EPA SCCs and EPA non-estimated SCCs that are often submitted by SLTs, and the corresponding pollutants that EPA expects to be emitted from each process. The purpose of the list is twofold: first, to guide the SLTs in providing their submissions for the NEI, and second, to cull out any pollutants that do not belong in the NEI. The expected pollutants list helps everyone to understand what each SCC is supposed to represent, as far as the suite of pollutants, and ultimately leads to a more consistent and cohesive NEI.

This nonpoint EPL “NonPointSCCs\_ExpectedPollutantsList\_2020NEI.xlsx” is available on the [2020 NEI Supplemental Nonpoint data FTP site](#). Note that this EPL includes pollutants that EPA does not have the emission factors or methodology to estimate itself. If the “EPA Tool” field is populated, it means there is an existing EPA tool for this SCC, and the EPEA tool name is given.

## 6.6.3 Completeness Reports

We issued Completeness Reports after the EIS S/L/T Production submittal window for the nonpoint data category was closed in March 2022. A preview was sent to the S/L/Ts ahead of time, with time for them to correct mistakes and incomplete submissions. In early May 2022 we sent a final report to Air Directors on EPA letterhead. It included a comparison of submission completeness when compared to other State and Local agencies in their region. We do not include example of the report as several S/Ls engaged with EPA after the reports were sent to resolve QA issues prior to finalizing the 2020 nonpoint NEI selection.

## 6.6.4 EPA-estimated emissions QA

EPA requires all data inventory developers, including contractors, to be responsible for reviewing any emissions data they provide, as well as keeping track of and reviewing the Input Templates that they upload into the Wagon Wheel.

Upon providing EPA-generated estimates, each contractor provided a spreadsheet of QA checks they performed on the data, as well as keeping a tally of and reviewing the Input Templates that they’re uploaded into the Wagon Wheel. We provide a QA Contractor Checklist “QA checklist for contractors.docx”, available on the [2020 NEI Supplemental Nonpoint data FTP site](#) that outlines all of the QA a contractor must perform when providing emissions data to EPA via a tool.

## 6.6.5 Input Template Review

Input template review is the responsibility of the contractor and was performed on a rolling basis (i.e., as they were submitted to the NOMAD SharePoint site). While Input Templates weren’t incorporated formally until after the submission window closed, getting back to the S/Ls in a timely fashion ensured that mistakes were caught early in the process.

## 6.6.6 Reviewing S/L/T data after the EIS submittal window has closed

After the EIS nonpoint data category submittal window closed, we checked the S/L/T-submitted emissions data for four main categories.

### 1. Completeness

- a. Tag out unexpected pollutants. We’ve already given them a heads up during the window opening with the iterative QA reports.

- b. Tag out incomplete HAPs. We also tagged out process records if CAPS were incomplete; for example, missing NH<sub>3</sub> from agricultural livestock waste.

## 2. Old data/methods

- a. The Wagon Wheel emissions comment field includes the version of the tool; we tagged out data for sources where old tools used noted and activity data had known updates in the latest version of the tool. We also reviewed and tagged out data significantly different from EPA estimates or previous S/L/T submittals where the comment field indicated “engineering judgement” and no other supporting documentation was provided.

## 3. Check Nonpoint Survey Responses

- a. If a S/L chose “No -do not supplement” but their submittal had missing CAPs. There should not be missing CAPs, and this would have also been caught as incomplete on Completeness Reports.
- b. Any tagged out S/L emissions data required a “YES” on their Nonpoint Survey; sometimes we had to tag out a S/L Nonpoint Survey response (from “No”) to ensure the NEI would capture EPA estimates when S/L data were tagged out.
- c. We asked states to update the Nonpoint Survey answer themselves if not time-limited; otherwise, EPA tagged out their survey responses in these cases.

## 4. Percent change from previous NEIs

- a. This does not work for new or changed SCCs, or for some county changes (e.g., changed state-county Alaska FIPS in 2020, and upcoming changes for Connecticut in 2023)
- b. Evaluated the minimum, maximum, and mean values from the last 3 NEIs (2011, 2014, 2017) – compared to the 2020 submitted value. We looked more deeply at 2020 values outside the min/max/20% from mean
- c. Graphed 2017 vs 2020 for the values that got flagged.

Each NEI Nonpoint “sector lead” reviewed QA team findings and reported back for team discussion on follow up and reconciliation.

### 6.6.7 Data Tagging Summary

#### 6.6.7.1 S/L/T emissions tagging

We tagged out 2020 SLT nonpoint emissions for various reasons, including but not limited to the following observations:

- Submittal of VOC HAPs that in sum, exceed submitted VOC
- VOC HAPs submitted with no corresponding VOC, or HAP metals submitted with no corresponding PM (exception for non-combustion mercury sources)
- Apparent submittal of filterable PM as primary PM component.
- Apparent unit of measure issue when comparing to EPA values, or ratio of HAP to associated CAP and EIS HAP Augmentation multiplication factors; for example, benzene being < 0.01% of evaporative VOC
- Double count with point inventory submittal; for example, identical emissions submitted for point and nonpoint railyards
- SLT request with or without EPA solicitation of an identified QA issue
- Unexpected pollutants such as metals in Commercial cooking, VOC in road dust, mercury in composting, etc.
- Apparent submittal of values identical to EPA draft estimates that had later been updated

- Solvent HAPs appeared to be based on old HAP Augmentation profiles
- GHGs submitted for stationary nonpoint sources
- Contradiction with option group assignments. When an agency submits zero emissions, very small emissions, or incomplete emissions for an option set “A” source (e.g., 2104008300: Woodstove: freestanding, general) and more significant emissions for more-specific option set “B” sources (e.g., 21040083xx: certified catalytic freestanding woodstoves, uncertified fireplace inserts, etc...) the EIS Option Group/Option Set rule will only select the “A” SCC, leaving (more) significant SLT-submitted emissions for the option “B” SCCs. In cases like these, we tagged out the lesser/incomplete “A” SCC to allow SLT “B” emissions to make it into the NEI.
- SCCs that should be retired but haven’t (they will before the 2023 NEI). For example, spillage SCCs for portable fuel containers that are covered by the MOVES model.
- SCCs that are sparsely reported and not typically expected for use in modeling. For example, motor vehicle and structure fires, swimming pools, human perspiration, domestic animal waste.

In most cases not involving mass balance (e.g., VOC HAPs > VOC), unexpected pollutants, or obvious errors, we collaborated with SLTs on the observed issue and a recommended course of action. In most cases, SLTs agreed with these recommendations and tags were created. A complete list of all tags applied to the 2020 SLT nonpoint emissions submittals is available in the workbook “2020NEI\_SLT\_Nonpoint\_emissions\_Tags\_25mar2023.xlsx” on the [2020 NEI Supporting Data and Summaries](#) site.

#### 6.6.7.2 S/L Input Template review and Nonpoint Survey tagging

We compared SLT Input Template activity data submittals with EPA default activity and reached out to agencies where we saw significant outliers. In most cases, SLTs were able to resolve the conflict and provide either updated activity data or removed their template to accept EPA default data.

In addition to tagging of emissions, we also tagged Nonpoint Survey responses -reverting the Nonpoint Survey to “Yes -Supplement my data with EPA data”- for select source categories at several S/Ls. The reasons for tagging these Nonpoint Survey sources are provided in Table 6-8 but they often correspond to identified issues with SLT-submitted emissions. In cases where SLTs submitted emissions, they often selected “No” in the Nonpoint Survey, so we sometimes needed to also tag out the Nonpoint Survey to allow EPA estimates to supplement their now nonexistent (tagged out) emissions.

There were also several scenarios where a S/L agency submitted an Input Template, but then selected “No” in the Nonpoint Survey (nor submitted emissions). S/L Input template activity data submittals are loaded into the EPA Wagon Wheel tool, and the estimates generated are therefore considered “EPA”. This was the primary reason for updating the Nonpoint Survey to include a checkbox for SLTs to indicate whether they submitted an Input Template for the category. Regardless of that check box status, if we discovered an S/L input template and a Nonpoint Survey response of “No”, we reconciled this inconsistency in QA by tagging out the Nonpoint Survey response to allow the S/L activity data-based estimates to make it into the NEI.

**Table 6-8:** S/L Nonpoint Survey responses tagged with rationale provided

Agency	EPA Tool Estimate Category	Reason for Tagging
Alaska Department of Environmental Conservation	ICI Fuel Combustion – C/I LPG	Missing significant CAPs: VOC and NH3
Alaska Department of Environmental Conservation	Road Dust Tool: unpaved roads	Outlier values
Alaska Department of Environmental Conservation	Solvent Tool: Industrial Surface Coating, Degreasing, Non-	Outlier values

Agency	EPA Tool Estimate Category	Reason for Tagging
	Industrial Consumer & Commercial	
California Air Resources Board	Ag Burning Estimates: all SCCs	NH3 missing
California Air Resources Board	Ag Fertilizer Tool	NH3 missing
California Air Resources Board	Biogenics Estimates	Using BEIS for entire country, only 2 agencies submitted direct emissions
California Air Resources Board	Composting Tool	NH3 missing
California Air Resources Board	ICI Fuel Combustion – all SCCs	NH3 missing
California Air Resources Board	Livestock Waste Estimates: all SCCs	NH3 missing
California Air Resources Board	POTW Tool	NH3 missing
California Air Resources Board	Residential Non-Wood Combustion Tool: all SCCs	NH3 missing
California Air Resources Board	Residential Wood Combustion Tool: all SCCs	NH3 missing
Idaho Department of Environmental Quality	Commercial Cooking Tool: deep fat frying	Outlier VOC value
Idaho Department of Environmental Quality	Livestock Waste Estimates: all SCCs	Agreed to use EPA estimates
Maricopa County Air Quality Department	Biogenics Estimates	Using BEIS for entire country, only 2 agencies submitted direct emissions
Maricopa County Air Quality Department	Commercial Cooking Tool: clamshell griddle frying	Outlier PM value
Memphis and Shelby County Health Department - Pollution Control	Solvent Tool: Lighter fluid	No emissions submitted
West Virginia Division of Air Quality	Road Dust Tool: both unpaved and paved	Outlier values

#### 6.6.8 Final Review of EPA-generated tool data

1. **Completeness – confirm everything made it into EIS**
  - a. Review contractor QA checklists
  - b. Compare to expected list of EPA Tool SCCs (pulled from Nonpoint Survey and tools into the Expected Pollutants List)
  - c. Compare tool pollutant outputs to Expected Pollutants List (run through iterative QA)
  - d. Inform contractor of any missing SCCs or pollutants
2. **Check input template submission compared to Nonpoint Survey “Y/N” checkbox**
  - a. Review from Contractor QA Checklist
  - b. Nonpoint Survey detailed report comparison to list of input templates

#### 6.6.9 Final Nonpoint Selection review

A final review of the nonpoint data category includes:

1. Confirming tagged out data did not make it into the NEI selection
  - a. Confirmed “Exclude tagged values” set to “yes” in EIS selection
  - b. Run EIS tagging report to confirm all submitted tagged records are included

2. Pollutant Completeness
  - a. Check against Expected Pollutants List
  - b. Find explanation for causes of any missing data
  - c. Have rationale for any remaining “unexpected” pollutants
3. SCC/Sector Completeness
  - a. Not every county should have a value for every SCC/Sector, but ensure there is an explanation
  - b. Compare to previous (2017) NEI, look for:
    - i. Whether S/L/T submitted in past vs current NEI: is it SLT vs SLT, EPA vs SLT for example
    - ii. County or SCC changes since last NEI
4. Non-EPA SCCs in NEI
  - a. What SCCs are S/L/Ts reporting that are not in EPA tools/estimates? We tagged some of these out if they were not reported anywhere else (e.g., human perspiration, motor vehicle fires) to avoid some inconsistencies across states.
  - b. Is there any potential overlap with SCCs not included in the Option Group/Option Set assignments (possible double-counting issue)?
  - c. Does OGOS unintentionally drop S/L/T emissions? This happened in draft versions of the selection as noted in “Contradiction with option group assignments” in Section 6.6.7.1.
5. Accuracy
  - a. Final magnitude check comparing relative rankings at sector and state level to previous NEI. Did the relative ranking change significantly for a given state/sector?
  - b. Review where there are zero emissions for entire agency/SCC
6. HAPs
  - a. Compare to expected pollutants list
  - b. Ensure backfilled via augmentation
  - c. Check HAP-VOC vs VOC and correct/tag if necessary.
7. Ensure all data exclusion rules properly reflected
  - a. Nonpoint Survey: SLT data supersedes EPA data where appropriate
  - b. Pollutant Groupings: each county/SCC should only have one group level between different datasets
  - c. OGOS: review selection SCCs to confirm correct application
8. PM speciation mass balance: sum of PM species equals PM2.5



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