Instructional Guide for Producing a Complete and Accurate Air Force Air Emissions Inventory



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# APIMS AIR EMISSIONS INVENTORY PROCEDURE

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# 1. INTRODUCTION

## 1.1 Understanding the Relative Risk in an Air Quality Program

Managing the Air Quality compliance program at an Air Force installation can pose a variety of challenges due to the diversity of missions supported and the limited resources at hand to support the program. Support of the Air Force mission requires the operation of a wide array of emissions sources, and as the Clean Air Act, and its various implementation rules continue to evolve, the impacts to the mission and the strain on program resources will continue to increase. An effectively executed Air Quality program must focus these limited resources on the emissions sources that pose the highest risk to the installation's ability to maintain compliance. Establishing a relative risk for each emissions source type is most easily accomplished by measuring two key contributors:

- 1) The risk rating for each source type increases as emission rates increase. Those sources with the highest emission rates are likely to drive the requirement for an installation to maintain an operating permit, and each operating permit inherently poses compliance risks to the mission at an installation.
- 2) The risk rating for each source type increases as the number of applicable requirements increases. Requirements of the Clean Air Act are not equally burdensome across all emissions source types. The applicability of New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) has significant impacts to the effort required to demonstrate compliance for each source type.

To assist Air Force Air Quality program personnel in focusing their compliance efforts on the most impactful source types, an analysis of emissions and permit data was completed. Emissions sources operating at Air Force installations can be logically grouped into 59 distinct source categories. For each of these source categories, five years of actual emissions data from air emissions inventories published in APIMS were averaged and compiled by pollutant. Additionally, based on permits decomposed in APIMS the percent of permit requirements applicable to each source category was calculated. These two data sets were combined to establish a relative risk for each source type, and the table below presents the data sorted in the order of decreasing risk.

Course Contraction	% of Permit			Percent	of Overall	Air Force Ei	missions		
Source Category	Requirements	со	NOx	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Lead	VOC	Total HAPs
External Combustion	11.5%	47.4%	43.4%	77.3%	26.0%	28.0%	28.6%	17.4%	26.2%
Internal Combustion	18.2%	31.3%	44.8%	13.4%	20.9%	27.0%	11.6%	15.8%	13.3%
Surface Coating	7.4%				0.9%	1.1%	0.0%	6.1%	8.7%
Solvent Operations	6.2%							5.3%	10.1%
Fuel Dispensing	5.6%							11.5%	3.1%
Aboveground Storage Tanks	5.3%							9.5%	1.6%
Fuel Loading	4.8%							1.9%	1.3%
Hazardous Material Use	4.6%				0.1%	0.2%	12.5%	10.0%	13.2%
Underground Storage Tanks	4.2%							6.6%	1.2%
Aircraft Engine Testing	4.1%	15.7%	10.0%	7.7%	8.8%	9.3%	6.2%	8.6%	6.6%
Abrasive Cleaning	4.1%				0.2%	0.2%	0.0%		0.0%
Woodworking	4.0%				1.0%	0.8%			
Welding	2.9%				0.3%	0.2%	0.1%		0.1%
Fire Training	2.6%	0.5%	0.4%	0.2%	0.7%	0.9%	0.2%	0.7%	0.2%
Pesticide/Herbicide Application	2.5%							0.3%	0.1%
Munitions	2.3%	1.9%	0.8%	0.7%	9.3%	9.2%	37.1%	0.8%	1.0%
Open Burn/Open Detonation	1.8%	0.2%	0.2%	0.1%	11.5%	8.8%	3.3%	0.1%	0.7%
All Other Sources	7.9%	3.0%	0.3%	0.6%	20.3%	14.3%	0.4%	5.6%	12.6%

Several key observations are apparent when looking at the information presented in the table.

- As would be expected, sources such as internal and external combustion, which have both NSPS and NESHAP requirements, are shown to pose the most risk in the Air Quality program.
- The 9 highest risk emissions source categories operate at essentially every Air Force installation.
- 4 of the 9 highest risk emissions source categories (fuel dispensing, fuel loading, above ground and underground storage tanks) revolve around the various fuel transfer activities at an installation, emphasizing the importance of an accurate understanding of the manners in which fuel moves from the point of delivery to use.
- 3 of the 9 highest risk emissions source categories (surface coating, solvent operations, and hazardous material use) are potentially impacted by data provided through the EESOH-MIS Interface, underscoring the need to have effective collaboration with the Hazmart and data stewarding personnel.

Air Program resource allocation, including operator personnel efforts to quantify operation, time spent ensuring data accuracy and completeness, and efforts to increase data quality, should be in accordance with the relative risk associated to the emissions source type.

#### **1.2** Basic Principles of Data Quality

All facets of compliance with the Clean Air Act are dependent on the quality of data managed by the Air Program. With the understanding that most data management effort should focus on the high-risk emissions source types, some additional principles and objectives for data quality should be understood.

**Precision:** Often it is difficult to keep in mind that what we calculate are actually emissions estimates and not exact measurements. Similar to the analysis that would be done for determining significant figures, we should evaluate the actual accuracy of each calculation variable we utilize before blindly reporting 8 decimal places of accuracy. As the Air Force we rely primarily on emission factors published in a variety of authoritative sources. What we overlook in these publications is the confidence rating given to each factor. Most emission factor data is

compiled based on a limited number of source tests, with very specific applications. These few measurements are then averaged to provide the published factor that we utilize. Following this procedure results in emission factors that are seldom reliable below the pounds of pollutant range. The precision in measuring usage or throughput used in calculations is a similar situation, often times rounded to the nearest pound or gallon. Given the relative accuracy of these primary variables utilized in calculations, it is therefore ill-advised to report calculation results to the sixth decimal place and beyond, bearing in mind that at the sixth decimal place for a calculation of tons emitted we are quantifying grams of emissions.

<u>Collection Data Close to the Source</u>: The more distance between the point of operation and the point of data collection, the higher the likelihood of data collection errors. Simply put, if the operators utilize a paper log to document source operation, then compile the information from those logs into a spreadsheet once a month to provide to the Air Quality Manager, and finally the Air Quality Manager keys that information into APIMS, that leaves 3 possible points of failure where data inaccuracy can be introduced. As an Air Quality program matures, the efforts invested to improve data quality should include moving the data collection as close to the source as is possible. Ideally, operators responsible for high risk emissions source types should be trained to enter compliance data that they capture directly into APIMS.

**Repeatable Data Sources:** Changing the source or type of data collected for compliance demonstration, inherently carries with it the risk of introducing fluctuation into the program that erodes confidence in the data. As discussed in the AFCEC Source Guides, consistency is pivotal to a compliance program, in particular when it comes to record keeping. A best practice is to work with operators to establish a sustainable set of compliance records they can provide, and when possible find a way to utilize records they are already maintaining for purposes other than Air Quality compliance. As with all compliance activities, it is critical to establish a data source that meets all requirements specified in any operating permit or Federal rule that the installation is subject to.

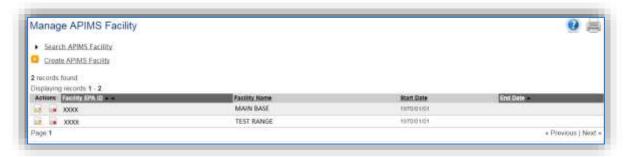
**<u>Relative comparison:</u>** At a minimum, data quality can be improved simply by comparing new data to data previously collected. In particular for high risk emissions source types, part of the emissions inventory effort each year should be to compare operating data (e.g., throughput/usage) to the operating data for the previous 2 emissions inventories, refer to Section 4 for more information. This comparison will allow for quick identification of potential data errors. If large fluctuations in operating levels have occurred, it is incumbent on the Air Quality Manager to establish an understanding of why. Fluctuations are inevitable based on mission and workload changes, but these same changes should then be reflected in the manner in which we calculate potential to emit.

# 2. BASIC DATA SETUP

#### 2.1 Facility

A facility is defined as a contiguous property regulated as a single stationary source. This is usually how your regulatory agency identifies your property. It is important to have the sources within APIMS structured to match your regulatory facility. This is especially critical for installations that have more than one facility. An example would be an installation that has a main base location and a geographically separated unit (GSU) or range.

In APIMS, most facility records are already configured, however it is important to review the data to ensure it reflects current information. To review the data, click on **Air Facility** under the **Setup** tab.



All the facilities for your installation should be displayed here, if they are not, click the Create APIMS

<u>Facility</u> hyperlink. To review the data associated with the facility click the edit icon. Only the pertinent tabs will be addressed. The first tab, *Identification*, provides some basic details about the facility. The next tab, *Compliance Information* provides insight into the regulatory burden of the facility.

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The Criteria Pollutant Status is determined according to the following guidelines:

 Major Source – emits or has the potential to emit 100 tons per year or more of any criteria air pollutant or precursors to ozone (O<sub>3</sub>) for stationary sources. (Carbon Monoxide (CO), Sulfur Oxides (SO<sub>x</sub>), Nitrogen Oxides (NO<sub>x</sub>), Lead, Particulate Matter (PM), Particulate Matter less than 10 microns (PM<sub>10</sub>), Particulate Matter less than 2.5 microns (PM<sub>2.5</sub>), and Volatile Organic Compounds (VOC)). Or emits or has the potential to emit 10 tons per year (tpy) of any individual hazardous air pollutant (HAP) or 25 tons per year of total HAPs. For some of the criteria pollutants, lower thresholds exist for certain nonattainment areas. These lower thresholds include the following:

- 50 tpy of VOC and NO<sub>x</sub> emission in "serious"  $O_3$  nonattainment areas and in  $O_3$  transport regions.
- 25 tpy of VOC and  $NO_x$  emissions in "severe"  $O_3$  nonattainment areas.
- 10 tpy of VOC and NO<sub>x</sub> emissions in "extreme"  $O_3$  nonattainment areas.
- 50 tpy of CO emissions in "serious" CO nonattainment areas.
- 70 tpy of PM<sub>10</sub> emissions in "serious" PM<sub>10</sub> nonattainment areas.
- 70 tpy of PM<sub>2.5</sub> SO<sub>x</sub>, NO<sub>x</sub>, VOC, and Ammonia emissions in "serious" PM<sub>2.5</sub> nonattainment areas.
- Synthetic Minor Source this is a facility that has voluntarily limited its Potential to Emit (PTE) emissions by a federally enforceable order, rule, or permit conditions to ensure it does not exceed 100 tons per year for any criteria air pollutant for stationary sources.
- 3) Minor Source this is a facility that does not have the Potential to Emit (PTE) greater than 100 tons per year of any criteria pollutant for stationary sources.

The HAP status is determined according to the following guidelines:

- 1) Major Source a facility that emits or has the Potential to Emit more than 10 tons per year of any individual hazardous air pollutant (HAP) or 25 tons per year of total HAPs for all stationary sources.
- 2) Area Source (Minor) a facility that does not have the potential to emit more than 10 tons per year of any individual HAP or 25 tons per year of total HAPs for stationary sources.

The Greenhouse Gas status used for reporting requirements is determined according to the following guidelines:

- Major Source a facility emits or has the potential to emit more than 25,000 metric tons per year of carbon dioxide equivalent (CO<sub>2</sub>e) of Greenhouse Gases (GHGs) for stationary sources. (i.e., Carbon Dioxide, Nitrous Oxide, Methane, Hydrofluorocarbons (HFC), Perfluorocarbons (PFC), and Sulfur Hexafluoride)
- 2) Area Source (Minor) a facility does not have the potential to emit more than 25,000 metric tons per year of CO₂e for stationary sources.

It is very important to make sure this data reflects the current facility status. As workloads change the emission and compliance profile can change. It is best to review this data on a yearly basis after the PTE and AEI are completed.

The Title V Permit Status is a very important data element and can change as permits are renewed, modified, or renegotiated with the regulatory agency. This particular data element is frequently used to roll-up to an overall Air Force Regulatory Status and reporting to congress.

The Stationary and GHG Inventories should be accomplished as required by federal, state, and local regulations. However, per AFMAN 32-7002 the frequency should not be greater than 3 years or 5 years for overseas installations.

The next important tab, *Attainment* specifies the National Ambient Air Quality Standard (NAAQS) designation status of the area in which the facility is located. This only applies to facilities that are within the EPA jurisdiction. There can be changes to an area's NAAQS designation, so it is important to review these fields and make sure the data is current. The preferred source for the current NAAQS designation is located on eDASH.

This data is maintained by AFCEC but is a good information source to know where your installation stands. If there are discrepancies between the NAAQS and the data in APIMS contact the Air Quality Subject Matter Expert.

Attain	iment					e
Facility E	EPA ID	Facilit	North:			
(meth)	alan Compliance Information Industrial Attainmen	1 MEDHAW Entrance Reduction Cred	tta Preikin	11.01		
	a Pollutants dis found					
Actions	CHUMME -	Perm Lind Upra	U Linut Source (31) Specific?	Status	Classification	SHP Butget Allocation Nethod (beta()d)
16 B	1-HIO <sub>2</sub> (1997) - DZONE DNE HOUR AVERAGE (1997)	14.000				
10.18	+.Hr02 (2002) - 020NE ONE HOUR #VERWGE (2002)					
10 10	L HIDS - GZONE ONE HOUR AVERAGE			ATTANUENT	-	
10 10	8-Hr03 - 020NE EIGHT HOUR AVERAGE			ATTAINNENT	-	
1. 18	CO - CARBON MONOXED			ATTAINUENT	-	
12 10	HAP - HAZARDOUS AIR POLLUTIWITS			ATTAINIENT	2	1000
2	PD-LEAD			ATTAINMENT	1	1111
12.18	PHILO I PARTICULATE MATTER LESS THAN 10 MICRONG			ATTAINHENT	1	100.00
14.14	PH2.6 - PWITICULATE MATTER LESS THAN 2.5 MICRONIS			ATTAINMENT	-	
1	802 - SULFUR DIOXIDE (all 904)			ATTAINMENT	-	
Criteria 2 recomb	a Pollutant Precursors In Jound					
Actions	t fixibilians	Const Linit Linit Source Sta Clonalyin Specific?	etheli		Glassification	Budget Allocation Method (Senaly))
10.10	NO2 - NITROGEN DIOXIDE (IM NO,)	AT	TAINNENT			
14	VOC - VOLATILE ORGANIC CONFIGUND	AT	DAINGENT			

The next tab, *NESHAP* specifies the National Emission Standards for Hazardous Air Pollutants that are applicable to the facility.

NESHAP			0 =
Facility EPA ID		Facility Name:	
Heriftator Constanting House	Alternet NESHAP Emicor	Relation Calls Profession	
check all NESHAPs that apply			
Aerospace Manufacturing & Rework		dustrial, Commercial, and Institutional Boller and Process Healers (Major Sources)	
老 Bollers (Area Sources)		/C and Copolymens Production	
Chromium Electroplating & Anodizing		condary Alumman Production	
Delense Land Systems and Miscellaneous Equips		ateruary Internal Combustan Engines (RICE)	
Electric Utility Steam Generating Unit	U 0	Det (Spatily)	
Specification of Other			
	Save Cancel		

In addition to a regulatory permit there are also additional federal requirements that are regulated by one or more NESHAPs. Some of the most common NESHAPs that apply to Air Force facilities are as follows:

- Reciprocating Stationary Internal Combustion Engines (RICE) all facilities that have RICE equipment are subject to this NESHAP (40 CFR 63 Subpart ZZZZ).
- Industrial, Commercial, and Institutional Boiler and Process Heaters (Major Sources) all facilities that are designated as a major source for HAP emissions that have boilers or process heaters are subject to this NESHAP. (40 CFR 63 Subpart DDDDD)
- Boilers (Area Sources) all facilities that are designated as a minor source for HAP emissions that have boilers are subject to this NESHAP (40 CFR 63 Subpart JJJJJJ)
- Gasoline Dispensing Facilities all installations that are area sources operating a gasoline dispensing facility are subject to this NESHAP (40 CFR 63 Subpart CCCCCC). To properly document this NESHAP, select the Other radio button and enter GASOLINE DISPENSING FACILITIES in the Specification of Other field.

Additional NESHAPs are specific to process activities conducted at the facility.

#### 2.2 Location

Location data is important for knowing where an emission source physically occurs in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. It can then also relate to the Air Force Geographic Information System (GIS). The Location module of APIMS facilitates a location tree that will allow for varying granularity. It is recommended that the location tree is maintained at the building level of granularity, however if there are very large buildings with several sources it may be best to add another level to specify the area of the building. Additionally, if the installation has Geographically Separated Units (GSUs) these can be set up as separate root or parent locations in the same manner the main facility is configured. This allows the locations at each parent location to be easily discernable from each other.

To view the Location Tree, click on **Location** under the **Setup** tab, then click on the *Location Tree View* hyperlink on the Manage Location page.

Loc	ation Tree View
	ACILITY NAME
	BUILDING 1256 CE STRUCTURES
	AREA SOUTH END WOODWORKING

The *i*con can be used to expand or collapse the location tree. To view or edit a location, click on the location name.

To create a location, navigate to the Manage Location page and click the *Create Location* hyperlink.

Manage Location	
Search Location	
Туре:	Select Value V
Number/Identifier:	
Mission/Purpose:	
	Search
<ul> <li><u>Create Location</u></li> <li><u>Location Tree View</u></li> </ul>	

This will navigate to the Create Location Information page. It is recommended that the highest level of location be the Facility Name. Use this facility location as the **Parent Location** for the subsequent buildings.

BUILDING 1256 CE S	STRUCTURES < Child Location	
AREA SOUTH EN	ND WOODWORKING	
Create Location Information	on	
		and the second
Parent Location	FACILITY NAME	Venfied
Complete Parent Location Name	FACILITY NAME	
Type:"	BUILDING	
Number/Identifier;*	1256	
	CE Structures	
Mission/Purpose		
	1001/01/01	
Mission/Purpose Start Date:* yyyy/mm/dd	1901/01/01	
Start Date:" yyyy/mm/dd End Date:	1901/01/01	
Start Date:" yyyy/mm/dd End Date: yyyy/mm/dd		
Start Date:" /yyy/min/dd End Date:		
Start Date:" /yyy/mm/dd End Date: /yyy/mm/dd		

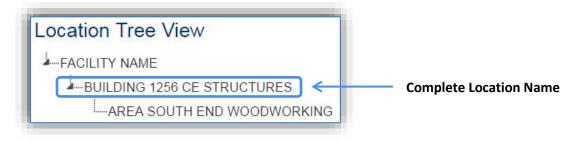
The **Type** field will help generate the complete location name. The Types available are as follows: AREA, BAY, BUILDING, FACILITY, FLOOR, HANGAR, ROOM, SAMPLE POINT, and TANK.

The **Number/Identifier** should be the building number or name the location is known by.

The **Mission/Purpose** should be the main activity or function performed in the building.

The **Start Date** should be the date the location became operational, if this is not known, enter 1901/01/01 as a default start date.

The complete location name will be the Type Number/Identifier Mission/Purpose, for example BUILDING 1256 CE STRUCTURES.



The next tab is the *Coordinates* tab. This tab contains data that can be used to interface with the Air Force GIS. If this data is known, it is good practice to populate this data. Usually only one of the sections is populated, Latitude and Longitude or Projected Coordinates. The Latitude and Longitude fields will adjust according to the coordinate preference selected, Degrees Minutes Seconds or Decimal Degrees.

Collected Coordinates:	Latitude and Lo	gitude •						
Facility Grid Coordinates		Location	On Ste X		Location On Site Y			
Latitude and Longitude DMS	Always Show La	titude and Longitus	de Coordinates ir	t 🕷 Degrees Mi	nutes Seconds 🛛 🛛	Decimal Degre	es	
Latitude:	38	Degrees	53	Minutes	22.4268	Seconds	* N	O S
Longtude	77	Degrees	2	Minutes	6.9894	Seconds	0 E	⊛ w
Projected Coordinates Projection: 18 Zone 3.	UTM 23480	Easting 4306	3490	Northing [F]	- FEET V UQ	M Datum; ]	-Select	Value •
			Select Value		Select Value •			

#### 2.3 Unique Process

The Unique Process area of APIMS is the most central data element to calculating emissions. In order to track usage data and calculate efficiently, some planning into how to set up the Unique Process record is required. Consider the following when setting up Unique Process records.

- How do I track usage for this source or group of sources?
- Is there control equipment?
- How do I need to report my emissions?
- Do I have a specific method required to calculate emissions?

These decisions are often different for each source category; therefore, the proper set up for each scenario is outlined in the specific source category chapter. Some common examples are as follows:

#### External Combustion

**Base A:** All boilers are less than 100 MMBtu/hr natural gas boilers with no controls or specific reporting requirements. Usage is tracked by the total natural gas consumption of the base.

This base should only have 1 Unique Process record for all boilers and the consumption should be the total natural gas usage for the base.

**Base B:** Most boilers are less than 100 MMBtu/hr natural gas boilers with no controls or specific reporting requirements. One building has two greater than 100 MMBtu/hr dual fuel boilers that have a meter at the building to track natural gas usage.

This base should have the following:

- 1 Unique Process record for the natural gas boilers
- 1 Unique Process record for the large dual fuel boilers for natural gas use
- 1 Unique Process record for the large dual fuel boiler for diesel use

The consumption for the smaller natural gas boilers would be the total base natural gas use minus the large boiler natural gas use.

#### Surface Coating

**Base A:** There are no paint booths or regulatory reporting based on surface coating activities. All paints are purchased through EESOH-MIS.

This base should have a separate process for each coating type, brush, aerosol etc. if known. This will allow for a specific transfer efficiency that best matches the activities. If this cannot be determined, then a single Unique Process for all surface coating activities should be configured.

**Base B**: There are 2 paint booths that have monthly reporting requirements and miscellaneous surface coating activities throughout the base. All paints are purchased through EESOH-MIS.

This base should have a separate process for each paint booth. Additionally, a separate process for each coating type (brush, aerosol, HVLP etc.) if known, or a single process for all surface coating activities conducted outside the paint booths.

#### **Degreasers**

Base A: Has a central contract for all solvent degreasers.

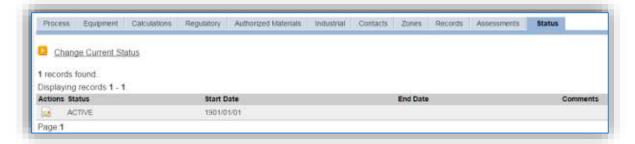
This should have a single Unique Process record that records the total solvent added minus the total solvent removed.

Base B: The solvent degreasers are handled by the shops.

This should have a single Unique Process record for each organization. This will ensure all degreasing operations are accounted for on an annual basis.

#### 2.3.1 Status

If the status of a unit needs to be changed, click the edit 😡 icon next to the process.



Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
Start Date:" /yyy/mm/dd	2016/06/12
	Unit no longer in use.
Comments:	

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 2.4 Equipment

It is important for many source categories to keep an accurate equipment inventory with the pertinent information. This section will walk through the steps to create a complete equipment record. The specific sources that require equipment records will be discussed in detail in the specific source category sections.

Click on **Equipment** under the **Emissions Unit** tab, click the *Create Equipment* hyperlink.

Serial #:"		
Equipment ID:"		
Equipment Description:		
Model #:		(Unverfied)
Model Description		
Start/Install Date:* /yyy/mm/dd		
Manufacture Date: /yyy/mm/dd		
Service Date: /yyy/mm/dd		
Portable?	Yes O No 🖲 Unknown	
Significant Source?	Yes ONO WUNKnown	
Location	(	Unverified)
Complete Location Name:		
Management Group:		(Unverified)
Other Identification:		
Comments		

The **Serial #** field can be used to enter the serial number for the equipment. If the serial number of the equipment is not known, a standard convention can be used to easily identify the equipment.

The **Equipment ID** is intended to be used to easily identify the equipment. This is a locally established number used to identify the source. This field can be populated with the emission unit ID as identified in applicable permits, the building number or a standard convention used to easily identify the equipment.

The **Model #** can be selected from the list of values (LOV) or created within the LOV popup window. Click the folder icon to open the Model Search popup.

Search:		in Model # ▼ Sear	ch
Create Model			
295 records found.			
Displaying recor <mark>ds 1 - 10</mark> .			
Model #	Manufacturer	Description	Action
113RNA048-C	UNKNOWN		2
1357 MBTU/HR	WEIL MCCLAIN		
13ACX03023010	LENNOX		
13ACX-030-230-10	LENNOX	BLDG. 425 DX UNIT, MAIN GATE	
2136 MBH	BURNHAM		
24ABB336A610	CARRIER	18	
2TTA0036A3000AA	TRANE	BLDG 332 DX UNIT 4	
2TTA0072A3000AA	TRANE	BLDG 306 DX UNIT	
2TTA2060A3000AA	TRANE	BLDG 245 AC UNIT 4	
2TTA2060A3000AA CU1	TRANE		2
2TTA2060A3000AA CU1           Page:1 2 3 4 5 6 7 8 9 10   Viev			« Previous   Next »

This screen manages all operations to select, edit or create a model. The search can be used to locate a specific model record. To select the model record, click the corresponding radio button. This will cause the popup window to close and will populate the **Model #** field with the selected record. To edit a model record, click the corresponding edit icon on the right side. This will open the Edit Model popup screen.

Edit Model		
Model #:*	13ACX-030-230-10	
Manufacturer	LENNOX	
Model Description	BLDG 425 DX UNIT, MAIN GATE	

To create a new model record, click the <u>Create Model</u> hyperlink. This will open the Create Model popup.

	Create Model	
I	Model #:*	T 4/1
I	Manufacturer:	AIRECON
I		CYCLONE
I	Model Description:	
I		<i>h</i>
		Save Cancel

Enter the actual Model # if known, if the model number is unknown a standard convention to easily identify the equipment can be used, (i.e. CYCLONE, BOOTH FILTER, etc.). Click the **Save** button to close the window.

Serial #:"	667154T	
Equipment ID:"	123-CYL	
Equipment Description:	CYCLONE	
Model #:	T 4/1	(Venfied)
Vodel Description	CYCLONE	
Start/Install Date:" /yyy/mm/dd	1901/01/01	
Manufacture Date: yyyy/mm/dd		
Service Date: /yyy/mm/dd		
Portable?	Yes O No O Unknown	
Significant Source?	Yes O No      Unknown	
Location:	BUILDING 123	(Verilied)
Complete Location Name:	BUILDING 123	
Vanagement Group:		Unverified)
Other Identification		
Comments		

The **Start/Install Date** should be the date the equipment was installed. If that date is not known a default date of 1901/01/01 may be used. This data has significance for regulatory applicability. If the year the source was first used is known, estimation is better than the default date.

The **Location** field is very important for equipment as it can then relate to the Air Force Geographic Information System (GIS).

The *Specifications* sub tab is only important for certain types of equipment. Most control equipment will not have a specific capacity, making data entry in this tab unnecessary. However, equipment that does have a capacity, such as degreasers, should have this data populated. Knowing the size of a particular unit can be very helpful in determining if the usage reported is correct and what impact this equipment will have on overall emissions.

-						
Coosifie	dotails for	most oquipme		he eddroced	in anch course	category section.
SDECITIC	details for	mosi equiome	ini ivdes wii	i de addressed	in each source	Calegory Section.
0000000						

Definition	Specifications			
Capacity:		50		
Rated Capacit	ty:		- UOM: GAL	(Verified)
daximum Cap	bacity:			
.ength:			UOM	Unverified)
Height:		5	UOM:	Unverified)
Diameter:			UOM:	(Unverified)
Nidth:		5	UOM:	Unvenfied)

The *Equipment Type* tab is essential to identify which equipment fall under specific regulatory rules such as the RICE NESHAP and Boiler Maximum Achievable Control Technology (MACT). To designate an Equipment Type, click the <u>Add Equipment Type</u> hyperlink.

quipment IC: 123-CYL		Start Date: 1901/01/01	
enal #: 667154T			
Iodel # T-4/1	Model Description CYCLONE	End Date	
Equipment Bype	Process Regulated Line Group Control Mack Statue		
Add Equipment Type			
Add Equipment Type			
Add.Equilpment.Type			
ecords found.			
	Description	Fuerbional Area	

This will display the **Equipment Type** field, where the equipment type can be selected from the LOV. Below is a list of the values available and the appropriate equipment that should be designated under each type. Click the **Save** button to associate the **Equipment Type**.

Equipment Type(s)		
Your recard was saved successfully.		
Equipment ID: 123-CYL Senai: #: 6671547 Model #: T-4/1	Wodel Description: CYCLONE	Start Date: 1901/01/01
Ecuprent Equipment Type Proteins	Regional Just Group Commit Maxim Matter	
Add Equipment Type		
Equipment Type:"	(Invertied)	
Equipment Type Description		
	Save	
f records found		
Displaying records 1 - 1		
Actions Equipment Type .	Description	Functional Area
GYOLONE:	CYCLONE DUST COLLECTOR	AR QUALITY

Description	Code	Examples of Equipment
	Internal Com	bustion (ICOM)
AIRCRAFT ARRESTING	AAS	This should be used for the engines on an
SYSTEM		aircraft arresting systems retractable hook cable
		system.
FIRE PUMP ENGINE	PUMP	This is for any engine used to support a pump.
		Most common are fire pumps, water pumps,
		engine driven chillers, or lift stations.
NON-EMERGENCY	NON-EMRGN	This is used for stationary generators that are
GENERATOR		not for emergency power such as load bank
		generators.
PORTABLE GENERATORS	PORT_GEN	This is used for emergency or back-up
		generators that are not in a fixed location but
		are portable and can be moved.
STATIONARY EMERGENCY	STAT_GEN	This is used for all stationary generators typically
NON-FIRE PUMP		used to power facilities and key equipment for
GENERATOR		power outages
		bustion (ECOM)
BOILER	BOILER	This is used for external combustion equipment
		that is used to heat water to be used in a central
		heating system or steam engine.
LN_BOILER	LOW NOX	This is used for external combustion equipment
	BOILER	that is used to heat water to be used in a central
		heating system or steam engine with a Low NOx
		burner.
ULN_BOILER	ULTRA LOW	This is used for external combustion equipment
	NOX BOILER	that is used to heat water to be used in a central
		heating system or steam engine with a Low NOx
		burner and flue gas recirculation.

Description	Code	Examples of Equipment
FORCED AIR FURNACE	FURNACE	This is for equipment used to heat air, for
		process or comfort heating. This is different
		from a boiler as it heats air directly.
COMBINATION SYSTEM	HEAT-AC	This is for a combination heating cooling unit.
WITH HEAT AND AC IN ONE		This equipment should be managed through the
UNIT		Refrigerant Compliance module.
INFRARED HEATER	INF_HEAT	This is used for external combustion radiator
		heaters or heaters used for comfort heating.
	Process He	eaters (HEAT)
AIR DRYER	DRYER	This is for air dryers, which are utilized mostly
AIR DITER	DITER	for moisture control operations, such as in a
		paint booth or with refrigeration equipment.
GAS FIRED OVEN	GAS OVEN	This is for gas fired ovens often used in curing or
GAS FIRED OVEN	GAS OVEN	molding operations.
		This should be utilized for external combustion
HEATING UNIT	HEATER	
		equipment that is used for process heating, not
		comfort heating.
INFRARED HEATER	INF_HEAT	This is used for external combustion radiator
		heaters or heaters used for comfort heating.
WATER HEATER	WATER_HTR	This should be for a unit that heats water to be
		used in domestic applications or industrial
		process.
		pating (SURF)
PAINT BOOTH OPERATIONS	PAINTBOOTH	This is the paint booth and associated control
		devices used for spray painting operations.
		rations (DEGR)
COLD DIP TANK	COLD_DIP	This is for degreasing operations that occur in a
		batch loaded, non-heated tank of solvent that
		does not have a spray nozzle.
PARTS WASHER	PARTSWASHER	This should be used for the water-based parts
		washers. All solvent parts washers should be
		classified as Degreasers.
SPRAY GUN CLEANER	SGCLNR	This is for spray gun cleaners, which are similar
		to degreasers and parts washers but specifically
		used for spray gun cleaning.
REMOTE RESEVOIR	R RESERV	This is used for operations where the solvent is
	_	in a tank separate from the operation. Such as a
		degreaser that has a separate tank used to feed
		solvent.
SOLVENT DEGREASER	DEGREASER	This is only used if the degreaser does not fit
		into one of the more specific degreaser
		equipment types.
	Storage Tan	ks (AST & UST)
ABOVE GROUND STORAGE	AST	This is for fuel storage tanks that are above
TANKS		ground.
	I	Bround.

Description	Code	Examples of Equipment
UNDERGROUND STORAGE	UST	This is for fuel storage tanks that are
TANK		underground.
OIL/WATER SEPARATOR	OWS	This is used for devices that separate oil and
		suspended solids from wastewater effluents.
		This equipment is most likely handled by the
		STAR module of APIMS.
	Abrasive Bl	asting (ABCL)
BLAST BOOTH	BLASTBOOTH	This is for the booth that is used for abrasive
		blasting or corrosion control operations.
ABRASIVE BLASTING	GLOVEBOX	This is for the small box used for abrasive
GLOVEBOX		blasting operations.
	Cooling Towers	(COOL & PWCT)
COOLING TOWER	COOL	This is for process or comfort cooling towers.
	Incinerat	ors (INCN)
INCINERATOR	INCIN	This is used for classified waste incinerators,
		medical waste incinerators, and air curtain
		incinerators.
		ting (MPLT)
PROCESS TANKS	PCSTNK	This should be used for metal plating or
		anodizing tanks.
		quipment
BAGHOUSE DUST	BAGHOUSE	This is for baghouse dust collectors commonly
COLLECTOR		found with woodworking and abrasive blasting
		operations.
CYCLONE DUST COLLECTOR	CYCLONE	This is for cyclone dust collectors commonly
		found with woodworking and abrasive blasting
		operations.
STACK EQUIPMENT	STACK	This is for the stack and control equipment used
		to control emissions emitted from a particular
		source.

The next key tab is the *Control* tab and the *Control Efficiencies* subtab.

Equipment ID: 123-CYL		Start Date: 1901/01/01
Serial ¥ 667354T		
Model # T 4/1	Model Description: CYCLONE	Erid Date
Equipment Equipment type Proce	an Regularies Und Group Control Mark Status	
Control Engineers		
Create Control Efficiency		
Frecords farand		
Displaying records 0 - 0		
	Pollulard Name	Control Efficiency (%) Comments
Actions CATE	No records found	

To create a control efficiency for a particular pollutant, click the <u>Create Control Efficiency</u> hyperlink.

Create Control Efficiency			<b>e</b> =
Equipment ID: 123-CYL		Start Eute: 1901/01/01	
white 667154T			
lodel # T4rt	Model Description: CYCLONE	End Date:	
Engineers Engineers Type Process	Requiries U.C. Groun Control Mark Illaine		
Control Efficiencies			
	Canada a secondaria da como de		
A5 # '	PM10 (Vented)		
olutant Name	PARTICULATE MATTER <10UM (PM10)		
ontrol Efficiency (%):*	99		
or marks			
	Save Cancel		

Enter the pollutant CAS # in the **CAS** # field or select the pollutant from the LOV. Next enter the control efficiency for the pollutant in percent in the **Control Efficiency** field. Click the **Save** button to finalize the control efficiency. Repeat this step as needed until all the chemicals controlled by this device are accounted for.

The last significant tab is the *Status* tab.

Status							•	毎
Equipment ID: 123-CYL Senal #: 667154T Model #: T 4/1	Model Description. C1	CLONE			Starf Date: 19 End Date			
Egypnent Egypnent type Process	Regulates Unit Smup	Control	State	Status				
Change Current Status								
t records found.								
Displaying records 1 - 1								
Actions Equipment Status			Start Dati	•	End Date	Commenta		
ACTIVE			1901/01/0	n				
Page 1							<ul> <li>Previous (</li> </ul>	New

The Status tab is critical as it can have an effect on the emissions calculations for a particular source. The statuses available are specific to each installation; however, the most common are as follows: ACTIVE, INACTIVE and REMOVED. The control efficiency will only be applied to the emissions calculations when the equipment is in an ACTIVE status.

#### 2.5 Storage Tank

Storage tanks are managed by the STAR (Storage Tank Accounting & Reporting) module within APIMS. The creation of new tanks is the responsibility of the Storage Tank manager at the installation. All new and existing tank information should be collaborated with the Storage Tank manager. For Air Quality specific tank information, refer to the Above Ground and Under Ground Storage Tank chapters.

#### 2.6 EESOH-MIS Interface

The Enterprise Environmental, Safety & Occupational Health Management Information System (EESOH-MIS) is the Air Force hazardous material management application. EESOH-MIS is the authoritative data source for Safety Data Sheets and usage information for all hazardous materials utilized on an installation. Due to the sheer amount of data required from EESOH-MIS to accurately calculate emissions from chemical use, an interface between APIMS and EESOH-MIS was developed. The EESOH-MIS interface is used to import processes, materials, and usage from EESOH-MIS. This data can then be used for the calculation of emissions from Welding, Pesticide, Laboratory Use, Miscellaneous Chemicals, Non-Destructive Inspection and Surface Coating.

EESOH-MIS and APIMS do not examine data in the same way, for instance EESOH-MIS is configured to have processes based on shops, and purchasing accounts, whereas APIMS configures processes according to sources of emissions. For this reason, APIMS uses a function called Next Higher Process to group processes that have the same emission calculation methodology. By using the Next Higher Process functionality, multiple EESOH-MIS processes can have their usage totaled and used by a single APIMS process. This single APIMS process will then have the algorithms and emissions associated with all the EESOH-MIS subprocesses reported to the single APIMS process. This streamlines data configuration in APIMS as the subprocesses do not need to have any algorithms or calculations assigned. Refer to the individual source category and emission calculation sections on how to associate algorithms and calculations, respectively.

#### 2.6.1 Running the Interface

The EESOH-MIS Interface is initiated from the EESOH-MIS application. For most installations the interface is run on an annual basis. However, depending upon regulatory requirements at each installation it may be required to run more often.

_	ESOH MIS Soft & Decupational Health
	PAgardious Materiale Menage Journeys Inventor Datasilien
Shared A	pplications
0	Administrative Provide F-a specifies is notifier andp, sampelle sampelle sampelle sampelle back-protes and institution specific proteoness. SoftWeller ManageLande France Manage2000/Resemblike: Manage2000/Resemblike: Wend Manage2000/Resemblike: SoftWell Probabilitier ManageLande France Manage2000/Resemblike: Manage2000/Resemblike: Fullies Organization: Epidemic Investing Control France(Hong, Harman) Londow, Comuce and Promose. Technical ManageLander: Technical ManageLander: Manage2000/Resemblike: Manage2000/Resemblike: Fullies, Organization: Epidemic Investing Control France(Hong, Harman) Londow, Comuce and Promose. Hence Release: Hence Release: ManageLander: Manage2000/Resemblike: Manage2000/Release: Manage2000/Resemblike: Manage2000/Release: Manage2000/Resemblike: Stateman)
0	Information Neurologeneert Advection Excentigeneert of Antonia Vertificant AVME Interface Vertificant

Within EESOH-MIS navigate to the APIMS Interface Management screen by clicking the <u>APIMS Interface</u> <u>Management</u> hyperlink under the Interface Management header.

ESDERer Hot Sale South PD. Provent	Paritical/asse?. Mer	sport' Notify'						
Number of Street								141
Tax and Taxable Company of the Age of the Ag								
Installation Preferences (163)								
(WaterLoga)				Last Successful Nov Street		() Result ( and Surgershild Rose Sales	indentes -	(Inspectation
Participation	1.00	Deck Franket	Last Lecconstruction Date		tarriin fim		tarri	in his
ENROY HETERALTIONS, ARPORT	1904	be	2020/01/00 17 20:00		2006/01/04 17:26:00		Tares	
REPORT AND FORMER BANK	ORINA	Min.	INDEPENDENT NUMBER		363071034103635		Sec.	and a

There are two different set ups for the APIMS Interface, Batch Enabled or not. Batch Enabled means that the interface will automatically run every night. The Batch Enabled flag is shown in the third column. To change the Batch Enabled flag, select the row, and click the **Toggle Enabled** button.

If the installation is not Batch Enabled, the interface will need to be manually run. To manually run the interface, select the row for your installation in the grid and click the **Run Interface** button. EESOH-MIS will generate the Interface files, and the automated transfer of the data will be completed at 8 PM Central Time.

#### 2.6.2 Configuring Processes in APIMS

When a new process is inserted into APIMS via the EESOH-MIS interface it is missing many core data elements such as, Facility, Source Category and Mobile Flag. In addition to these required fields, the process needs to be configured to be included or excluded from emission calculations. To include in emission calculations the process should either be associated to a next higher process or have algorithms and emission calculations assigned.

#### 2.6.2.1 Assign Facility

All processes should be assigned to a facility. To assign a facility to the imported process(es), navigate to the Unique Process module in APIMS.



Click the <u>Batch Assign Facility</u> hyperlink to identify the new processes imported from EESOH-MIS.

	sign Facility								9
· Smith ?	Training								
Petrikis	Category	Select Value							
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To make sure only new EESOH-MIS processes are returned in the results grid, use the **Data Source** filter to specify EESOH-MIS Interface Records. Once the grid is filtered, select the "check all" checkbox at the top of the grid. Enter the facility name in the Facility field at the top of the grid and click the **Save** button.

If there is more than one facility within the APIMS installation, as is the case with many joint bases, the facility needs to be assigned accordingly. This is best done by identifying the shops that are under each facility and selecting them in groups using the search criteria.

#### 2.6.2.2 Assign Mobile Flag

All processes that come from EESOH-MIS are considered stationary sources. Return to the Unique Process page and click the <u>Batch Assign Mobile Source Flag</u> hyperlink.



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To make sure only new EESOH-MIS processes are returned in the results grid, use the **Data Source** filter to specify EESOH-MIS Interface Records. Once the grid is filtered, select the "check all" checkbox at the top of the grid. Select the **No** radio button for **Mobile Source?** at the top of the grid and click the **Save** button.

#### 2.6.2.3 Assign Source Category

Before assigning the source category, an understanding of what activities the process captures is required. There are several pieces of information that can help determine the appropriate way to account for the usage from this process. The source categories for the processes that come from EESOH-MIS generally fall into the following source categories.

Source Category	Guidelines
CHEM	This should be all EESOH-MIS processes that do not fit in the other source categories.
LAB	This should be processes associated to analytical, medical, or research and
	development laboratories.
NDI	This should be processes in the Non-Destructive Inspection shop.
PEST	These should be processes for pesticide and herbicide application.
SURF	These should be processes for painting activities (including paint booths). Examples
	are architectural painting, line painting, and miscellaneous aerosol painting.
WELD	These should be processes that only have welding rods authorized. If other chemicals,
	such as welding gasses or solvent are authorized, it should be assigned to CHEM.

One valuable piece of information can be the Process Type field. When assigned correctly it can indicate the process activity as shown in the table on the next page.

dit Pro	cess De	finition						100) 274-44 ms-suppo		
Process	Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Statu
Definition	Mormation	Sull-Proces	ises.							
Process Cat	legory:"			INDUSTRIAL	•					
Process Typ	e:*			COATING/PAINTING	OPERATIO	INS		16	Ventie	ed)

Source Category	Process Type
PEST	PEST CONTROL
LAB	LABORATORY OPERATIONS
SURF	COATING/PAINTING OPERATIONS
WELD	BRAZING/SOLDERING/WELDING/CUTTING
NDI	NON-DESTRUCTIVE INSPECTION/TESTING

This field is also available in the Batch Assign Source Category screen and can be used to filter and assign the source category in bulk as shown below.

Search Piece	1384						
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Another way to determine the proper source category for a process is to look at the materials that are authorized. To do this in the front end of APIMS would be very time consuming, therefore the Program Management Office has published a series of reports to help with the configuration of EESOH-MIS interface data.

The EESOH Data QA report available in Business Objects, in the PMO Reports >> Air Quality >> AEI Quality Assurance folder can be very helpful when configuring the interface. The Unmapped EESOH Processes

report will show a list of all the new processes that were inserted into APIMS via the EESOH-MIS interface. This report will show the process name, and all authorized materials.

	Unmapped EESOH	Processes					
	centes need to be apportated to a filed interest for SOM processes and mapped and no further attorn is						
nig Pes ID	Local Propert Rame	Source Category	Rothertood Madertal Manae	NON-	CAGECO	de   Part Hamb	er Automas Baterial Tradecame
21034	LUBRICANTICLEANER PROTECTANT	CHEM					
21035	ANTENNA COMPOSION PREVENTION						
21046	HIGH LIFT EDREGION PROTECTION						
21085	BATTERES						
21281	ACHERING-BONDNO/SEALING		YOTER BENSOR SAFE ULTRA COPPER SUICE	8530P-A00001208	1PBQ8		1019R SENSOR SAFE UCTRA COPPER SILICOVE
21261	ADVERING/SONDING/SEAUNG		POLYBEAMSEAL PAINTABLE ACRYLIC WITH 1	BEXCPI-Arctitentil	61011	1	POLYSEAMIER, PRIVABLE ADRIVED WITH BUILD
21282	ABROBOL ADHERING BONDING-BEALING		REDDY INSULATION FOAM SEALANT	10307-6000023136	EST1+	a):	REDDY INSULATION FOAR BEALANT
21282	ABROBOLADHERING/BOND/ND/BEALING		TOUCH IN FORM ALL DIRECTION DISPENSIVE	8030PH-M00025136	£971*	1	TOUCH N FOAM ALL-DIRECTION DISPENSING, RS
21285	AEROSOL ELEANING DEGREASING						
21200	LUGRICATING		CHEVRON MOLOY GREASE EF	2150PH400042438	20.053	0.	CHEVRICH MOLLY GREASE EP
21260	LUBRICATINO		CHEVRON MOLY OREASE EP 1.1	\$150P-A00040408	3E015		CHEVROV MOLY GREATE EP 1.1
siste	LUSHICATING		CHEVRON MUCTERN EP	\$150P-4403057779	36585	3	CHEVACIN MULTIFICALEP
21200	LUBRICKTIND		CHEVRON ULTRA-DUTY DREASE EP	\$150PH400050528	30.053	8	CHEVRON ULTRA-DUTY OREASE ER
21260	LUBRICATINO		MULTERN EP 6.1.2	\$150PHA00081TTS	30.055	2.	MULTIFAR EP 0, 1, 2
21288	LIGRICATING		SAUCUNE COMPOUND AND LUBRICANT	\$1509-A0005729	467.22	1	SUCCINE COMPOUND AND LUBRICANT
21280	LUBRICATING		BART704	#150PHA/DODATT28	48722	0	EMITER .
21201	Renting PROCESS		90(820) 415, OLOBS BLACK	1010F5-M000M008	THEAT.	1	0008001418, OLDER BLACK
21281	PANTING PROCESS		COLD SAW	ADTOPH-MODOBING	55581	3	00.2 6459
21.081	PHINTING PROCESS		MRO SLOSS BLACK	sprim-Acchesce	40681		MAC GLOSS BLACK

As shown in the screenshot above, there are several processes that do not have the source category assigned. A few examples will be shown in detail below:

21250 LUBRIGATING	BM7704	0100PEM00007728	40F.22	0	\$47704
21250 LUBRICATINO	SILICONE COMPOUND AND LUBRICANT	U150FHM00057729	48F22	0	SECONE CONFOUND AND LUBRICANT
PI260 ULIBRIGATING	MULTIPAK EP 0, 1, 2	9150PH8/00057779	30.083	0	MULTIFAK DP 0, 1, 2
1260 LUBRICATING	CHEVRON UCTRA-DUTY GREASE EP	9150PHM06050529	36953	0	CHEVRON ULTRA-DUTY GREASE EP
1250 LUBRICATING	CHEVRON MULTIPAKEP	9153PHM00057778	30053		CHESTRON MULTIFAK EP
1250 LUBRIGATING	CHEVRON MOLY GREASE EP 1, 2	9150FHM00042439	36.958	0	CHEVRON MOLY GREASE EP 1, 2
1260 LUBRICATINO	CHEVRON MOLLY ORIEASE EP	9150PHM00042438	36055	0	CHEVRON MOLLY UREASE EP-

In this example, the process name is LUBRICATING, this would indicate that the materials used would all be greases and oils. Next, the authorized materials show this is an accurate process name, as all the materials are greases and lubricants. In this instance this process should have a source category of CHEM and be rolled up to the BASEWIDE MISCELLANEOUS CHEMICAL USE process.

1201 PAINTING PROCESS	0000201415, GLORIS BLACK	1010PHM00069065	59681	0	0008201415, GLOSIS BLACK
1201 PAINTING PROCESS	COLD GALV	8010PHeV000059109	09581	0	COLD GALV
1001 PAINTING PROCESS	MRO GLOSS BLACK	8010714/00068095	69681	0.	MRO GLOSS BLACK

In this example, the process name is PAINTING PROCESS, this would indicate that the materials used would all be paints. The authorized materials confirm this is an accurate process name, as all the materials are paints. In this instance, this process should have a source category of SURF and most likely be rolled up to the BASEWIDE SURFACE COATING process. When surface coating processes are involved there are a few extra data points that need to be examined to make sure the configuration is correct. For instance,

does this occur in a paint booth, are these aerosol paints, are they brush and roller applications? It is recommended to look at the process in APIMS.

Process Equipment Calculations Regul	tory Authorized Materials Industrial Contacts Zones Records Ass	sessments Status
Definition Information Sub-Processes		
Process Category:"	INDUSTRIAL	
Process Type:"	COATING/PAINTING OPERATIONS	(Verified)
Process Name:"	COATING/PAINTING, SPRAY/AEROSOL	(Venhed)
Unique ID	21261	
Base Specific		
Process ID:	ICP120221261-	
Local Process Name:"	PAINTING PROCESS	
Start Date:" yyyy/mmidd	2018/12/26	
End Date wywmiedd		
Air Facility:"		Unverifie
Mobile Source?"	© Yes © No	
Source Category 2	(Unventied)	y.

The Process Definition screen provides some additional key details about this particular process. The Description field states that this process is for coating and painting in the HVAC shop. This would indicate it is mostly small paint jobs. Further details in the Process Name field indicate these paints are most likely aerosol paints. To confirm if these materials are indeed aerosols, the Materials with Ingredients report can be used.

	Material	s with log			Use the d to find the	mate	erial.	These mat common p used in a	ropellants
NSH	Noterful Name	Cape Code	PH	Prop Date	VOC Ansare VOC COM	CAEND	Dam Harre		en et Calegory Godes -
	MRD GLOSE READY	20101	4	201102164	nt 20 WTPCT	106676 109976 109901 109900 119766 1096207	BUTANE 2 PENTANDAE NATION, ISOBUTYL KET 14ET-6000701420124 SCB/TVL ACETATE STLENE		8.25 MTAP.TCONT     MATCONTUNKC     AUSTORIAN AND AND AND AND AND AND AND AND AND A

As shown, this material is indeed an aerosol based on the presence of propellants. Depending upon the installation set up, this material should be rolled up to a surface coating process. Some installations separate the aerosols out into a BASEWIDE AEROSOL PAINTING process, or some just have a BASEWIDE SURFACE COATING PROCESS. For more information about surface coating process configuration, refer to the Surface Coating section of this guide.

Once the appropriate source category and next higher process for each process is determined, the processes need to be properly configured in APIMS. To assign the source category for each process there are two methods. The first method allows multiple processes to be assigned at a time.

latch Assign Source Category							
<ul> <li>Storth Processes</li> </ul>							
Process Category							
Process Type:			ICI/III)				
Policitie Name	[		I THE				
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Return to the Unique Process tab; click the Batch Assign Source Category hyperlink.

To select only new EESOH-MIS processes, use the **Data Source** filter to specify EESOH-MIS Interface Records. The Process Type can also be used to filter processes. Once the grid is filtered, select the checkboxes next to the processes that fall under a specific source category. Select the Source Category from the list of values at the top of the grid and click the **Save** button. Repeat this step until all processes are assigned a source category.

# 2.6.2.4 Assign Next Higher Process

The final step in configuring the new processes for use in calculations is associating each to the appropriate next higher process. Return to the Unique Process page and search for the next higher process. If the naming convention suggested in this guide is followed, searching using a Local Process Name that contains "BASEWIDE" should return the next higher processes. Another way to find the Next Higher Process would be to specify the source category and select the APIMS Entered radio button.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	CHEM X
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 🖲 All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records  APIMS Entered Records  Both
	Search

Click the edit  $\boxed{}$  icon next to the process to associate the new processes as sub processes of the next higher process.

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0	Qest	e Proce	25						
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1.4	4250H	•	University Base Specific	Local Process Name	Source Cat Code	Dida.ftm	20x1.Qabt	End Date	Status
		21	116225	BASEARDE HELDING OPERATIONS	PELD	BASEWIDE	1901/01/01		40110
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Navigate to the *Sub-Processes* sub tab.

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Click the Create Sub-Process Association hyperlink.

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Use the Search Processes criteria to filter the process list to find the processes that should be associated to this next higher process. Select the checkboxes next to the appropriate processes and click the **Save** button to associate the process as a sub process of the next higher process. Repeat this step for each of the next higher processes.

Once all the processes listed on the Unmapped EESOH Processes report are configured, click the refresh button on the report to make sure no processes were missed. When all processes are rolled up to a next higher process this report should not contain any results.

### 2.6.2.5 Exclude EESOH-MIS Usage

EESOH-MIS contains the material usage data for all materials that are considered hazardous materials. This can include items such as fuel, batteries, cylinder gases and other materials that may not be of a concern for emission calculations. In this case the usage data can be eliminated from coming over in the EESOH-MIS interface in future interface runs. This helps to reduce the amount of data that needs to be reviewed and processed in APIMS after each interface run. Another scenario of usage data that would not be needed in APIMS is for paint booths. In EESOH-MIS there are two different methods that are used to track consumption, consume on receipt and manual decrement.

- Manual decrement means that each time the material is used a record of exactly how much is used is logged into EESOH-MIS.
- Consume on receipt means that the entire container is logged as usage when the container is issued from the Hazmart (central storage) to the Shop (location of material use).

Consume on receipt is the most common method used and can show spikes and lulls in the usage of materials. For instance, if a shop has touch up painting to maintain the shop equipment several cans of paint may all be used on the same day, when in reality those materials are used periodically as touchups are needed but the usage all shows up on the same day. These spikes in material usage can also show as spikes in monthly emissions when conducting monthly calculations. For this reason, often the EESOH-MIS usage data cannot be used for calculations and manual logs are required. This most commonly occurs with paint booths. To avoid calculating emissions from the EESOH-MIS material usage records and the manually entered records in APIMS, these usage records can be excluded from the interface.

To exclude consumption from specific processes, select the process record then click on the **Information** tab, under the **Process** tab. Click the **Yes** radio button for **Exclude Consumption records from EESOH-MIS Interface?** 

Process Education Calculate Definition Information Sub-	ions Regulatory Authorized-Materials Industrial Contacts Zones Records Assessments Status monsces
Building No.:2	
Location X	(Unvertied)
Complete Location Name:	
Office Symbol Σ	(Unvertiled)
Unit/Organization:	
Shop.	L0048 (Verified)
Shop Name.	L0048 - PMD MAINTENANCE
Source Type: Σ	Select Value V
Permitted Source?2	O Yes O No
Emission Point	-Select Value V
Next Higher Process:	[IMI1692647336FG1 (Veniled)
Next Higher Process Name:	LAKEHURST - BASEWIDE MISCELLANEOUS CHEMICAL USAGE
EPA Source Class Code:	
EPA Industry Group:	
GHG Scope:	Select Value
Assessment Barcode:	
Exclude Consumption records from EESOH-MIS Interface?	● Yes ○ No
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr
Comments:	
	~
	Save Cancel

To properly identify which processes should have the consumption excluded, the Next Higher Process Roll-up Summary report can be used to view all the materials authorized to a particular process. The first step is to identify processes that may need to be excluded.

Next Higher	Process Roll-up	o Summary					
exaligine If a process has all posticido materia	als authoritised it should be	configured to rail up to the time	south pethods and uses and other mater	pa logot hapfust proc	cent. Additionally, 10 Depotence of typicality	6 report should be used	over roll up to the appropriate read highle process. For the deptility processes that phone the ancients is the dealer should have V is the Exclude EESOH
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The process shown above is called "ANTIFREEZE/COOLANT" and only had antifreeze materials authorized for use. As shown the flag to exclude consumption has not been set to "Y" as it should. Antifreeze should never be included in an air emission calculation because of the way that it is used. Antifreeze is received and stored in a sealed container until it is put into a vehicle which is a closed system, meaning it does not evaporate into the air. When the antifreeze is no longer of use, it is drained from the vehicle and disposed of as hazardous waste. At no time during its lifecycle is it exposed to the air to evaporate; including the EESOH-MIS usage in an emission calculation is the equivalent of pouring the entire container on the ground and letting it sit and evaporate until completely gone.

Other examples of materials, similar to antifreeze that spend their entire lifecycle in closed systems are cylinder gases, motor fuel treatments, hydraulic fluid, brake fluid, and motor oil. All of these materials should not have the usage validated and if possible, process usage should be excluded from coming over in future interface runs.

Seulce Category Code	Uniq Pcs ID	Local Process Name	Exclude EE SON Consumption	-Shop Code	Shop Name	NSN	Authorized Material Name
CHEW	201	MINOR ENGINE MAINTENANCE	. Y	HM061	POWER PRODUCTION	\$350PHM00014178	SEAFOAM MOTOR TREATMENT
CHEM	285	MINOR ENGINE MAINTENANCE		+151001	POWER PRODUCTION	9150013518010	ALL FLEET PLUS MOTOR OIL SAE 10W48
CHEM	201	MINOR ENGINE MAINTENANCE	380	HV061	POWER PRODUCTION	9/150Ph4000020104	NAPA PREM PERF UFIND BAE 10/940 MOTOR OIL
CHEW	288	MINOR ENGINE MAINTENANCE	¥.	10001	POWER PRODUCTION	915079400020104	NP75128, MAPA PREM PERF UPNO SAE 15W40 MOTOR OIL
CHEM	-288	MINOR ENGINE MAINTENANCE		HM051	POWER PRODUCTION	0150PHW00031854	HAVOLINE FORMULA 3 DIESEL BAE 15W-40

However sometimes these materials are not easily excluded. They may be authorized to a process that has other materials that the usage should be accounted for.

Uniq Pia 10	Local Process Name	Exclude EE SOII Consumption	Shop Code	Shop Name	NSN	Authorized Material Name
29184	VEHICLE OPERATIONS		ELSNOOD	53ND CIVE SUPPORT TEAM (WMO) (NG001)	8810213822994-1	(BOPROPANOL
20164	VEHICLE OPERATIONS	14	ELSN0001	62ND CIVIL SUPPORT TEAM (WMD) (N0801)	8830002854768	LIQUEFIED NETROGEN N2
20164	VEHICLE OPERATIONS	N	ELSNGOOT	82ND CIVIL SUPPORT TEAM (WWD) (NG001)	6630002854780	INTROGEN, REFIGERATED LIQUID
20164	VEHICLE OPERATIONS	.14	ELSNGRIT	82ND CIVIL BUPPORT TEAM (WWO) (M0001)	6830PH4V00380287	AMMORIA (10 PMM TO 5%) IN NITROGEN
20184	VEHICLE OPERATIONS		ELSNOOT	SUND CIVE, SUPPORT TEAM (WMD) (N0001)	6830PHW00815323	CHLORINE (1 PPM TO 1000 PPM) IN NITROGEN
20184	VEHICLE OPERATIONS	Ν.	ELSNG881	82ND CIVIL SUPPORT TEAM (WWB) (NG001)	8830PHN00815324	HYDROGEN CYANDE (1 PPM - 200 PPM) IN MITHOGEN
20164	VEHICLE OPERATIONS	- N.	ELSNOOT	SOND CIVIL SUPPORT TEAM (WND) (N0001)	6630PHM00515325	NSNSELPHUS, PHOSPHINE (8.5 PPM TO 8.1%) IN NITROGE
20164	VEHICLE OPERATIONS	34	ELSN0801	BOND CIVIL SUPPORT TEAM (WWD) (NG001)	8850PH000008438	-25F SPLASH WINDSHIELD WASHER FLUID
20164	VEHICLE OPERATIONS	N	ELSNOIDT	82ND CIVIL SUPPORT TEAM (WWD) (N0001)	6850PHW00008438	-25F SPLASH WINDSHIELD WASHER FLUID 6/1 GALLON
29104	VEHICLE OPERATIONS		ELSN0001	SIND CIVE, SUPPORT TEAM (WMD) (NG001)	8850PHW00844882	KODAK LENS CLEANER
20164	VEHICLE OPERATIONS		ELSNODIT	KIND CIVIL SUPPORT TEAM (WWD) (N0001)	E850P1-IN00091937	POLAR ISOPROPYL GASLINE ANTEREEZE & WATER
20164	VEHICLE OPERATIONS	N	ELSNG001	82ND CIVIL SUPPORT TEAM (WMD) (N5001)	7830815819833-1	WHIZ AIRCRAFT CLEANING COMPOUND
20154	VEHICLE OPERATIONS	N	ELSNGBRI	82ND CIVE BUPPORT TEAM (WWO) (WOOD)	\$110P+#V00889953	SPECIT SSPR KPK FLLOR ORANGE
20184	VEHICLE OPERATIONS		ELSNOOT	SUND CIVE, SUPPORT TEAM (WMD) (NG001)	3010PHW00010420	HE VIZ UTILITY VELLOW
20184	VEHICLE OPERATIONS	Ν.	ELSNG801	BIND CIVIL SUPPORT TEAM (WWD) (NG001)	8010PHEN00010428	STREE UTILITY VELLOW
20164	VEHICLE OPERATIONS	34	ELSNOOT	SOND CIVE SUPPORT TEAM (WMD) (N0001)	8010PHW00011265	PRO LSPR 6PK WARK FLUOR GREEN WARKING
20164	VEHICLE OPERATIONS		ELSNOD01	SOND CIVE SUPPORT TEAM (WWD) (NG001)	801099400002/3481	KRYLON FUTION FOR PLASTIC RED PEPPER
20164	VEHICLE OPERATIONS	N	ELSHODET	BOND CIVIL BUPPORT TEAM (WMD) (N0001)	1010PH/00023480	KRVLON FUSION FOR PLASTIC, RED PEPPER
29164	VEHICLE OPERATIONS	79	ELSN0001	52ND CIVIL SUPPORT TEAM (WMD) (N0001)	8010P+6/00852587	ACE RUBT STOP PRIMER, ORAY PRIMER
20164	VEHICLE OPERATIONS	.14	ELSNOUT	KIND CIVIL SUPPORT TEAM (WWD) (N0001)	E010PHN00076772	KRYLON FUSION FOR PLASTIC PATRIOTIC BLUE
20154	VEHICLE OPERATIONS		ELSNORT	82ND CIVIL SUPPORT TEAM (WWD) (NG001)	8010PH6/00876772	KRYLON FUSION FOR PLASTIC, PATRIOTIC BLUE
20164	VEHICLE OPERATIONS	N	ELSNGDIT	82ND CIVIL BUPPORT TEAM (WMD) (M0001)	8150385774241	MIL-PRF-26382C
20184	VEHICLE OPERATIONS		ELSNOOT	SUND CIVE, SUPPORT TEAM (WMD) (N0001)	¥150813534799	NAPA PREM PERF AUTOMATIC TRANSMISSION FLUID
20164	VEHICLE OPERATIONS	Ν.	ELSNG801	EINEL CIVIL SUPPORT TEAM (WME) (NG0(1)	\$150PHR/00004101	LE-SLOCK-EASE

As shown above, this process contains several materials that should be included and several that should be excluded, therefore this process cannot utilize the Exclude EESOH Consumption flag. The usage must be included and excluded by utilizing the validated flag in the Consumption log.

Note: When these types of processes are encountered it is encouraged to discuss changing the process and material authorization structure in EESOH to separate the materials onto different processes that can utilize the Exclude EESOH Consumption Flag functionality in the future.

### 2.6.2.6 Validate Usage

The EESOH-MIS interface transfers over the usage for processes not set to be excluded. These records must be reviewed to validate/unvalidate the processes usage. Validating the correct usages can be complicated. The best way to ensure the correct usages are validated is to review the materials. Also, consider if the usage goes into a closed system such as brake fluid or transmission fluid. These products do not emit pollutants due to how they are used. For example, brake fluid and motor oil are poured into closed systems and are not exposed to the air, eliminating the possibility of evaporation/emission to the atmosphere. The Global Filter capability can be used to identify rows of these products (e.g., antifreeze, brake fluid, engine oils, hydraulic fluids etc.). Once the rows are identified, verify the box is unchecked for these rows, to ensure they are not included in the emissions calculations. Additionally, some general chemical processes do not emit air pollutants such as bagged concrete or cold patch asphalt. Again, once the rows are identified, verify the box is unchecked to not validate these rows, to ensure they are not included in the emissions calculations.

The quickest, easiest, and most thorough way to validate the usage for air emissions is to review the records using the EESOH Consumption report to view all EESOH-MIS consumption for the specified year.

# **APIMS AEI Procedure**

n F	Local Process Name	💌 VOC Emissions (Ibs) 💻 Cer	werted Qr . Convert	er • Validat	nd F NSN	Maturial Name
1287	CONCRETE / ASPHALT REPAIR	0	1,640.0 LBS	Y	5610PHM00000756	C1 PORTLAND CEMENT BASED CONCRETE PRODUCTS
11207	CONCRETE / ASPHALT REPAR	0	1,600.0 LBS	v.	5610PHM00000756	C1: PORTUAND CEMENT BASED CONCRETE PRODUCTS
11287	CONCRETE / ASPHALT REPAIR	0	1,480.0 LBS	Y	5610PHM00009756	C1 PORTLAND CEMENT BASED CONCRETE PRODUCTS
11287	CONCRETE / ASPHALT REPAR	0	1,120.0 LBS	N.	5610PHM00009756	C1 PORTLAND CEMENT BASED CONCRETE PRODUCTS
11662	WATER TREATMENT CHEMICALS		1,000.0 LBS	v	6810PHW00058868	SODIUM BISULFATE, ANHYDROUS, TECHNICAL GRADE
11287	CONCRETE / ASPHALT REPAR		900 D LBS	¥	5610PHM00054890	FIVE STAR HIGHWAY PATCH / FIVE STAR HIGHWAY PATCH FR
10200	BPILL CLEANUP		750.0 LBS	Y	8135013242664	VERMICULITE, ALL GRADES- ULINE GRADES, GRADE 4, GRADE 3, GRADE 2, GRADE 1
10208	SPILL CLEANUP		750.0 LBS	Y	8135013242064	VERMICULITE. ALL GRADES- ULINE GRADES. GRADE 4, GRADE 3, GRADE 2, GRADE 1
10209	SPILL CLEANUP		750.0 LBS	Y	8135013242664	VERMICULITE, ALL GRADES- ULINE GRADES: GRADE 4, GRADE 3, GRADE 2, GRADE 1
10209	SPILL CLEANUP		750.0 LBS	Y.	8135013242664	VERMICULITE, ALL GRADES- ULINE GRADES: GRADE 4, GRADE 3, GRADE 2, GRADE 1
11592	WATER TREATMENT CHEMICALS		500.0 LBS	Ŷ	6810PHM00106237	SODIUM BICARBONATE
11552	WATER TREATMENT CHEMICALS		330.478 LBS	Y	6850PHM00104482	UNITED 756 LIFT-ZYME
11652	WATER TREATMENT CHEMICALS		330.478 LBS	Y	0650PHW00104482	UNITED 756 LFT-ZWE
11552	WATER TREATMENT CHEMICALS		330.0 LBS	v.	6850PHW00315607	CALCIUM HYPOCHLORITE TABLETS
11652	WATER TREATMENT CHEMICALS		275.0 LBS	Y	6850PHM00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		220.0 LBS	Y	6850PHM00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		220.0 LBS	Y	6850PHM00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		220.0 LB5	Y	0850PHM00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		220.0 LBS	Y	6850PHM00315807	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		196.952 LBS	Ŷ	6850P94M00047493	INSTANT POOL WATER CONDITIONER
11552	WATER TREATMENT CHEMICALS		165.239 LB9	Y	6850PHW001D4482	UNITED 756 LIFT-ZYME
11552	WATER TREATMENT CHEMICALS		165.239 LBS	Y	6850PHM00104482	UNITED 756 LIFT-ZYME
11552	WATER TREATMENT CHEMICALS		955.0 LBS	'Y	6850PHW00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		185.0 LBS	.v	6850PHM00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		\$65.0 LBS	V.	6850PHM00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		165.0 LBS	Y	6850PHM00315607	CALCIUM HYPOCHLORITE TABLETS
11552	WATER TREATMENT CHEMICALS		147.7134 LBS	Y	6850PHM00318557	PINCH A PENNY LIQUID CHLORINATING PRODUCT (4KA SUNCOAST LIQUID GOLD)
11052	WATER TREATMENT CHEMICALS		110.0 LBS	Y	6850PHM00315607	CALCIUM HYPOCHLORITE TABLETS

In the example above, <u>all records</u> should be unvalidated as these materials do not emit pollutants based on how they are used. Navigate to the Consumption module and search for these records using the material NSN, usage year, and select both the Validated Records and EESOH-MIS Interface radio buttons.

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Creations Actions Contents Con	A Consumine At all the recent forme Local Process Rame WATER TREATMENT CHEM WATER TREATMENT CHEM	CHEM CHEM CHEM CHEM CHEM CHEM CHEM CHEM	2019/09/19 1759 2019/06/19 1759 2019/06/19 1759 2019/07/31 1659 2019/07/31 1659 2019/07/31 1659 2019/07/31 1659 2019/07/31 1659 2019/07/17 1241 2019/06/19 1449 2019/06/19 1449	2010/00/13 1753 2010/00/13 1753 2010/00/13 1753 2010/01/3 1753 2010/01/3 1753 2010/01/3 1753 2010/01/3 1753 2010/01/7 1241 2010/01/7 1241 2010/01/7 1241 2010/01/2 1449 2010/00/12 1449	Waterial Name CALCIUM HYPOCHLORITE TABLETS CALCIUM HYPOCHLORITE TABLETS	55 50 50 50 50 50 50 50 50 50 50 50 50 5	LBS LDS LDS LDS LDS LDS LDS LDS LDS LDS LD	20030425140 20030425144 20030425146 20030425136 20030425136 20030425136 20030425136 20030425136 20030425130 20030425130	5 (48) 5 (49) 6 (49) 5 (49) 5 (49) 6 (49) 5 (49) 5 (49) 5 (49) 6 (49) 6 (49) 6 (49) 5 (49) 5 (49) 6 (49)

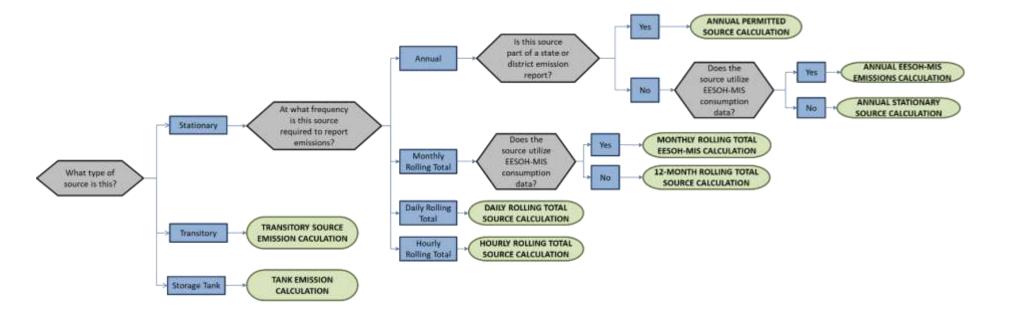
Uncheck the **Validate** box at the top of the search results grid. Then click save. Repeat this step until all materials are validated or unvalidated according to their use type.

# 2.7 Emissions Calculations

The Emission Calculation module in APIMS is used to calculate emissions from all sources except storage Tanks. Storage tank emission calculations are calculated using the Tank Emission Calculation module.

### 2.7.1 Calculation Configuration

To properly configure the stationary emission calculations for an installation several factors must be considered for each source. The flow chart on the next page can be used to determine the correct calculation for each source.



# APIMS AEI Procedure

As this flowchart is used, there will potentially be several calculations recommended for the various sources. Only the calculations that apply to the specific sources at your installation should be configured in the Emission Calculation module. For instance, if your installation is a minor source of emissions, usually only the ANNUAL EESOH-MIS EMISSIONS CALCULATION and ANNUAL STATIONARY SOURCE CALCULATION need to be configured. However, installations that have more stringent reporting requirements will have a more complex configuration. By utilizing this flow chart and logically grouping sources, the Air Force and regulatory agency reporting requirements should be met with a minimal amount of data to maintain.

The unique combination of source, time interval and pollutant must be unique to avoid the duplication of emissions for a source. Avoid associating a process to more than one calculation if at all possible.

To configure an annual stationary source emission calculation, navigate to the Emission Calculation homepage by clicking on **Emission Calculation** under the **Calculations** tab.

earch Emission Calculation		
alculation Name:	[	
alculation Type:	Select Value V	
acility:		
rocess ID:		) <b></b> ×
	Search	

To view the existing calculation configuration, click the Search button.

Search	n Results	
D Creat	te Emission Calculation Definition	
4 records	found.	
Displaying	records 1 - 4.	
Actions	Calculation Name	Calculation Type
	MOBILE EMISSIONS	Air Emissions Inventory
	MONTHLY EESOH CALCULATION	Air Emissions Inventory
	MONTHLY STATIONARY CALCULATION	Air Emissions Inventory
2 ×	TRANSITORY SOURCE EMISSIONS	Air Emissions Inventory
Page:1		

The existing emissions calculations will be displayed in the results grid. The results shown above are configured in accordance with the flowchart specified above. As new sources are configured, they only need to be associated to one of the existing calculations. However, if the search results grid appears like the example below, a data clean up and reconfiguration should be completed to streamline the emission calculations from year to year.

Do not create a new calculation for each source category or reporting period. This only leads to clutter and confusion in the database and makes emission reporting exponentially more difficult.

Sea	arch	n Results
	Crea	te Emission Calculation Definition
<b>61</b> re	cord	is found.
Displ	aying	g records 1 - 61.
Acti	ons	Calculation Name
	×	1999 ASPHALT PAVING
	*	1999 DEGREASING OPERATIONS
		1999 EXTERNAL COMBUSTION
	×	1999 FIRE TRAINING
		1999 FUEL DISPENSING
	×	1999 INTERNAL COMBUSTION
		1999 SURFACE COATING
	*	1999 WOODWORKING OPERATIONS
		2000 ASPHALT PAVING
	*	2000 - DEGREASING OPERATIONS
		2000 - EXT COMBUSTION
	×	2000 FIRE TRAINING
		2000 FUEL DISPENSING
	×	2000 - INTERNAL COMBUSTION
		2000 - SURFACE COATING
		2000 - WELDING

### Example of incorrectly configured calculations

If your installation has a configuration like this, it is recommended to delete the calculations that are greater than 5 years old as they are no longer required for regulatory purposes. This way no emission results will be lost and the database can slowly be decluttered without any regulatory risk to the installation. As each new year is calculated it should utilize the recommended model.

To delete a calculation, click the delete icon next to the record. This will prompt a pop-up window that displays the records that will be deleted.

Deleting the selected Emission Calculation Setup will also delete at least the child records listed below:
1 Calculation Runs 14 Emission Results
Delete currently selected record(s)? Prevent this page from creating additional dialogs.
<b>OK</b> Cancel

This message states that there are 14 emission results (7 criteria pollutants for 2 processes) and 1 calculation run (time period) that will be deleted. Click the **OK** button to complete the deletion.

# 2.7.1.1 New Calculation

If based on the flowchart logic and a review of the existing calculations a new calculation needs to be configured, click the Create Emission Calculation Definition hyperlink on the Manage Emission Calculation screen.

Search Emission Calcu	liation	
Calculation Name:		
Calculation Type:	Select Value	
Facility:		
Process ID:		
	Search	

This will navigate you to the Create Emission Calculation Definition page. It is important to configure this data correctly prior to saving. Once the record is saved, many of these fields cannot be edited.

alculation Name:"	ANNUAL STATIONARY SOURCE EMISS	SION CALCULATIC
acility:*	AIR FORCE BASE	Verified
otal Emissions By:*	SOURCE CATEGORY V	
this is a rolling total, please enter the	interval at which it will be run.	
Rolling Total Interval:	Select Value *	1
otal Sub-Processes?	🔍 Yes 🖲 No	
uppress Zeros for Non-Constituents?	Yes ONO	
erform Regulatory Comparison?	Yes No	
clude Permitted Processes Only?	🔍 Yes 💌 No	
alculation Type:	Air Emissions Inventory V	12.
omments:		

The **Calculation Name** should identify the frequency of the calculation and the group of sources included in the calculation. For example:

- o ANNUAL STATIONARY SOURCES
- ANNUAL EESOH-MIS SOURCES
- o ANNUAL PERMITTED SOURCES
- MONTHLY ROLLING TOTAL SOURCES
- o DAILY ROLLING TOTAL SOURCES
- o HOURLY ROLLING TOTAL SOURCES
- HOURLY PAINT BOOTH ROLLING TOTALS
- TRANSITORY SOURCES

The **Facility** needs to be specified. If there are multiple facilities they will each need their own set of emission calculations. Only the Unique Process records with the specified facility will be able to be associated to the calculation.

The **Total Emissions By** field is used to identify the groups of processes that are part of this calculation. These groupings can be based on source type, building number, location etc. It is recommended to select SOURCE CATEGORY in this field.

If the process is for a rolling total type calcuation, then the **Rolling Total Interval** fields must be configured. If the calculation is a 12-month rolling total calculation, the calculation will be run monthly and the rolling totals will be for the calculated month and previous 11 months of emission results (November 2015 to October 2016). To configure this type of calculation properly, enter 12 in the **Rolling total Interval** field and Month in the frequency field.

daily rolling totals it shou	Ild be as follows		
If this is a rolling total, ple	ease enter the int	erval at which it will be ru	ın.
Rolling Total Interval:	1	Day	V
Rolling Iotal Interval:	1	Day	
8 hour rolling totals:			

The **Total Sub-Processes?** should only be selected as "Yes" for EESOH-MIS source calculations. This allows the consumption records for the processes inserted by the interface to be rolled-up to the Next Higher Process that groups the processes together.

The Air Emissions Inventory item should be selected in the **Calculation Type** field.

Click the **Save** button to create the calculation. The next tab is the *Emissions By* tab

changing me selected one	nices on this screen may clear values (	on subsequent tabs.		
Emissions By:	Ace ACPS ACPS AST DICE NRDE PPWR UST VEHE CHEM	Add >> << Remov	ABCL CELL ICOM JET ODC SURF WOOD WWT DEGR ECOM FDSP FLD	

This screen is used to select the type of processes that will show up on the Processes tab to be associated to the calculation.

To select a source category, click on the row to highlight it. Next, click the **Add>>** button to move the record from the left box to the right box.

Only the processes that are in the source categories selected will be available to associate to the calculation.

To remove an item from the right box, click on the row and highlight it. Next, click the **<<Remove** button to move the record back to the left box.

Click the **Save** button to save the selections. Once the save has completed the *Processes* tab will become activated.

The *Processes* tab is used to select the processes that should be included in this emission calculation.

Emission Calculation Definiti	on Emission By Searce California Processes Chemical Runs
Add Processes	
Removing a Process from definition if recalculated. 0 records found.	the Emission Calculation Definition may change results for Emission Calculations that have been created based on t
Save	
Include Source Cat Code .	Process ID Base Specific Local Process Name Permit Flag Status Code Source Type Process Start Date Process End Date
	No records found
Save	

Click the <u>Add Processes</u> hyperlink to associate processes to the calculation.

• 5	earch Processes									
	Process ID:		(	, <b>*</b> (X						
- 8	Status:		Select	Value •						
- 8	Source Type:		Select Value •							
Permitted Processes Only?		🕖 Yes 🖷 No								
			Television in							
			Search	Clear Search						
86 mic	orths found									
Save	Cancel									
includ	Source Cat Code	Process.ID	Base Specific	Local Process Name	Eemit ENI	Atatwa Code	Source Type	Process Start Date	Process End Da	
8	ABCL	ICR1012628350		BABEWIDE - ENCLOSED - ABRABIVE BLABTING	N:	ACT	POINT	19010101		
10	CEU.	IPO14804081549		BASEWIDE - FUEL CELL REPAIR	10	ACT	PONT	190101/01		
16	Dena	ICE11309679619127-PW-	327-PW-	PW-127-W5-4 - FIRSTWASHER - 6251014312267	N	ALT	POINT	2015/0/01/01		
8	DEDR	IC01302628282		BASEWIDE - DEGREASING - DOLD DIF TANK	N:	ACT	POINT	1901/01/01		
98	DEGR	ICD1308679681124-00-	124-0C-	OC-124-CS-1 - BOCLAR - SAFETY KLEEN PREMIUM	19.	ACT	PÓINT	2005/01/01		
10	DEGR	ICD1309679628127.PW	ICT-PW	PW-127-W6-5 - PWRTWABHER - 6610PHM00012790	14	ACT	POINT	1998/01/01		
10	ECOM .	IPU1210626265		BASEWIDE - BOILER - NATURAL GAS - <0.3 MILISTUME	14	ACT.	POINT	10101/01		
10	ECON	PU1218628265		BASEWDE - BOILER - NATURAL GAS - ILS 10 IMMITURE	N	ALT.	POINT	1981/01/01		
0	FDSP	IFU1354828341		BASEWIDE - GASOLINE - GROUND FUEL TO VEHICLES	Ň	ACT		1901/01/01		
63	PLD .	(FU1364620307		BAREWIDE - JET A - REPUBLIERS TO ARCRAFT	N	ACT	POINT	190101/01		
8	PLD .	IFU1304626309		BABEWIDE - DIESEL - PPRO BOWBER TO GENERATORS	N.	ACT		1901/01/01		
ΪΪ.	FLD	IP5/1364628303		DASEWICE - DIESEL - GROUND FLIEL TWIK TO VEHICLES	N	ACT	PONT	190101/01		
- 63	ŕi,0	(FU1364620398		BADEWIDE - JET A - ARCRAFT DEFUELING TO REFUELERS	N	ACT	POINT	10/10/101		
U	FLD	IFU1354628336		SAREWOE - JET A - POL TANKS TO REFLIELERS	N.	ACT	POINT	1901/01/01		
	icon	IPU1008520268P004	P004	101 - GENERATOR - DIESES, + 63 XW	N.	ACT	POINT	1001/01/01		

The <u>Search Processes</u> hyperlink can be used to expose the search fields.

Click the check boxes next to the processes that should be associated to this calculation. Click the **Save** button at the top of the grid.

Be careful to only associate stationary sources to the stationary calculation. Some sources in the Internal Combustion (ICOM), Fuel Loading (FLD) and Fuel Dispensing (FDSP) source categories may be mobile sources and should not be included in stationary source calculations.

	d Processes							
	1800 C C C C C C C C C C C C C C C C C C	Emission Calculat	ion Definition m	ay change results for Emission Calculations that	t have been c	reated based	on this defini	tion if recalculated
recon	ds found							
Save								
- -	Source Cat Code	Process ID	Base Specific	Local Process Name	Permit Flag	Status Code	Source Type	Process Start Dat
2	CHEM	BA1692669520		BASEWIDE MISCELLANEOUS CHEMICAL USAGE	No	ACT	AREA	1901/01/01
2	PEST	IP01772669923		BASEWICE PEST CONTROL	No	ACT	AREA	1901/01/01
	SURF	ICP110666961908	38	SURFACE COATING - 18M PAINT BOOTH	NO	ACT .	POINT	1994/02/01
ю.	Or Market							

For EESOH-MIS calculations, only associate the Next Higher Processes to the calculation. Also do not include any surface coating processes that use manual logs to the EESOH-MIS calculation.

0 1	ad Processes							
		the Emission Calculation	Definition ma	ry change results for Emission Calculations that have	bien create	d based on	this definition	r it reconstiated
a rec Save	ords tound							
club	P	Process ID	Base Specific	Local Process Name	Permit Plag	Status Code	Source Type	Process Start Date Process Brid Du
*	ABCL	ICR1012626350		BASEVIDE - ENCLOSED - ABRASIVE BLASTING	No:	AGT.	FONT	1901/01/01
10	CELL	19171400026340		BASEVICE - PUEL CELL REPAIR	No	ACT	PIXINT	1901/01/01
*	066A	ICD1000079631124-DC-	124-00-	GC-124-CE-1 - SOCLNR - SAFETY KLEEN PREWUM	No	ACT	POINT	2005/01/01
10	DEGR	ICD1009679626127-PW-	127-PW	PW-127-W5-3 - PARTWARHER - 6810PHM00012790	NO	ACT	POINT	1998/01/01
2	DEGR	10D1302628282		BANEWIDE - DEGREANING - COLD DIP TWNK	140	ACT	POINT	1901/01/01
8	DEGA	ICD1309679629121-PW-	127-PW	PW-127-WS-1 - PWRTWASHER - 5850014012267	140	ACT	POINT	2010/01/01
8	TOON	1PU4210628266		SASEVIDE - BOILER - NATURAL GAS - 0.3-10 MURTURE	No.	ACT	POINT	1901/07/01
*	EDON	IPUT210828266		BASEWIDE - BOLER - NATURAL GAS KES MARTUHR	No	ACT	POINT	1901/01/01
8	#LD	IFU1354828330		BASEWIDE - DIESEL - PPRO BOWSER TO GENERATORS	NO	A05		1901/01/03
*	ICOM	(FU1208628282P025	P025	155 - FIRE PUMP GENERATOR - DIESEL - 82 KW	Aut .	ACT	PCENT	1901/01/01
8	1008	IPU1209528258P004	2004	101 - GENERATOR - DIESEL - 60 XW	No	AGT .	POINT	1901/01/01
8	XCOM	1FUH2H76857H4		150 - GENERATOR CE CT - GASOLINE - SKW	No	ACT		2013/01/01
10	HOOM	IPUT2 TREDID ROPTER	P024	HOL- GENERATOR - NATURAL GAS - 150 HW	Aug.	ACT.	POINT	1901/01/01

The processes that are associated to the calculation will now appear on the *Processes* tab. To remove a process, unclick the checkbox and click **Save**. The process will remain in the list without the checkbox selected and will not be part of future calculation runs.

Next, navigate to the Chemicals tab.

Emission Calculation Definition	Emissions By	Source Categories	Processes	Chemicals	Runs
Add Chemicals					
0 records found.					
Save					
Include CAS#			Po	ollutant Name	
				No re	ecords found
Save					

To specify which chemicals/pollutants will be calculated for in the emissions results, click the <u>Add</u> <u>Chemicals</u> hyperlink.

Search C	hemicals	
CAS#		
Pollutant Nam	NE:	
Polutart Categories		Add >>     Sweeched Poliumic Calegorith- CALIFORNIA AR TOXIC NEW YORK DEPARTMENT OF ENVIRONMENT OREGON AIR TOXIC SANTA BARBARA APCD RULE 202 TOXIC AIR CONTAMINANT UTAH DAG REPORTABLE CHEMICAL VERMONT MAZARDOUS AIR CONTAMINANT    Sweeched Poliumic Calegorith- CREERIA POLLUTANT OREGON AIR TOXIC SANTA BARBARA APCD RULE 202 TOXIC AIR CONTAMINANT       Add >>
		Search Clear Search
115 records	found.	Search   Clear Search
15 records Save Car		Search Clear Search
		Search Clear Search Pollutant Name
Save Car Addition	ic el	
Save Car Addition	CAS	Pollutant Name
Save Car Addition	CAS.X 140056	Pollutant Name METHOXYTRIGLYCOL
Save Car Addition X	CAS X - 140056 140294	Pollutant Name METHOXYTRIGLYCOL BENZENEACETONITRILE
Save Car Addition	CAS.X CAS.X 140055 140294 151564	Pollutant Name METHOXYTRIGLYCOL BENZENEACETON/TRILE AZIRIOINE
Save Car Addition	CASIX - 140005 140294 151564 15821637	Pollutant Name METHOXYTRIGLYCOL BENZENEACETONITRILE AZIRIDINE PROPYLENE GLYCOL N-BUTYL ETHER (NOT VERIFIED)
Save Car Addition 20 20 20 20 20 20 20 20 20 20 20 20 20	CAS X - 140056 140294 151564 15821657 1634044	Pollutant Name METHOXYTRIGLYCOL BENZENEACETONITRILE AZIRIDINE PROPYLENE GLYCOL N-BUTYL ETHER (NOT VERIFIED) METHYL TERT-BUTYL ETHER

The Search fields can be used to filter the grid below. However to ensure that all pollutants are accounted for, it is recommended to select all available pollutants even if the pollutants are not required by the Air Force or regulatory agency. The pollutants that are reported can be more easily excluded from reports than they can be added to calculations so it is better to calculate for more than necessary.

It is easier to execute the calculation for more pollutants than are required for reporting and filter the reports than it is to go back and add the pollutant to the calculation.

Once all pollutants have been selected, click the **Save** button.

Emiss	ion Calculation Definition	Emissions By	Source Categories	Processes	Chemicals	Runs		
Ac	dd Chemicals							
<b>251</b> re	cords found.							
Save								
Include	<u>CAS #</u>	Pollutant	Name					
	100027	PHENOL,	PHENOL, 4-NITRO-					
	10024972	NITROUS	NITROUS OXIDE					
	1002671	DIETHYLE	ENE GLYCOL METHYL	ETHYL ETHER				
	100414	ETHYLBE	NZENE					
	100425	STYRENE						
	100447	BENZYL C	HLORIDE					
	10137969	ETHYLEN	EGLYCOL MONO-2-M	ETHYLPENTYL	ETHER			
	10137981	ETHYLEN	EGLYCOLMONO-2,6,8	-TRIMETHYL-4-	NONYL ET			
	10143530	ETHENE,	[2-(2-ETHOXYETHOXY	()ETHOXY]-				
	10143541	DIETHYLE	ENE GLYCOL MONO-2	-CYANOETHYL	ETHER			

The last tab is the *Runs* tab, used to run the calculation for specific time periods.

Search Calculation Runs			
Create Calculation Run			
records found			
isplaying records 0 - 0			
		10000000	C+ 0.799
ictions Start Cone Time -	End Date/Time All-resords faund	Controlled?	Batus

Click the Create Calculation Run hyperlink.

Emission Calculation Definition	Emissions By	Source Categories	Processes	Chemicals	Runs
Start Date/Time:* yyyy/mm/dd hhmm		2016/01/01 0000		•	
End Date/Time:* yyyy/mm/dd hhmm		2016/12/31 2359		T	
Would you like to calculate con emissions?*	uld you like to calculate controlled issions?*				
Comments:					
		Save & Calculate	Cancel		

Enter the calculation time period start date and time in the **Start Date/Time** field.

For ANNUAL calculations this is usually the first day of the calendar year 2016/01/01 0000.

For MONTHLY calculations this is the first day of the month 2016/06/01 0000.

For HOURLY calculations this is the first hour of the calculation period 2016/06/01 0800.

Enter the calculation time period end date and time in the **End Date/Time** field.

For ANNUAL calculations this is usually the last day of the calendar year 2016/12/31 2359.

For MONTHLY calculations this is the last day of the month 2016/06/30 2359.

For HOURLY calculations this is the last hour of the calculation period 2016/06/01 2359.

Make sure to calculate to the last minute of the time period to ensure that all the emissions for that time period are accounted for.

Usually daily and hourly calculations are only run at a set frequency. To run multiple calculation runs at once, enter the start date of the first run and the end date of the last run. APIMS will automatically generate the correct number of runs based on the calculation configuration in the Rolling Interval fields on the Emission Calculation Definition tab.

The **Would you like to calculate controlled emissions?** field is used to determine whether control efficiencies will be applied to the emissions. The control efficiencies that are configured and maintained in the equipment record associated to the process are the specific efficiencies that are applied by selecting this radio button. If the control efficiency is configured as a parameter on the Unique Process record it

will not be affected by this selection. It is recommended that the **Yes** radio button be selected for all calculation runs.

Click the **Save & Calculate** button to que up the emissions calculations. The calculation runs in APIMS sometimes take time to run depending upon the number of sources and pollutants that need to be processed.

Create	Calculation Run				
A records t	ound				
	U111111				
	records 1 - 4				
					1
			Controlled?	Status	
Actions	Start Date/Time	End Date/Time		de altre anti-cie anti-	
Actions	Start Date/Time 2016/01/001 0000	2019/12/01 2369	Yes	PENDING	
	Research and a second		Yes.	REPORTED 4	
	2016/01/01 0000	2010/12/01 2369	Yes Yes Yes		

The status of the calculation will initially show PENDING. Click the refresh 🥝 icon at the top of the grid to update the status.

# 2.7.1.2 Existing Calculation

If the calculations are configured according to the recommended model, the year to year procedure is outlined in the steps below. To run the calculations for a new time period, click the edit  $\bowtie$  icon next to the appropriate calculation.

Search	n Results	
D Crea	te Emission Calculation Definition	
4 records	found.	
Displayin	g records <b>1 - 4</b> .	
Actions	Calculation Name	Calculation Type
	ANNUAL EESOH-MIS EMISSION CALCULATION	Air Emissions Inventory
2 🗙	ANNUAL MOBILE EMISSIONS CALCULATION	Air Emissions Inventory
	ANNUAL STATIONARY EMISSION CALCULATION	Air Emissions Inventory
2	JET ENGINE TESTING ROLLING TOTAL EMISSIONS	Air Emissions Inventory
Page:1		

This will navigate to the Edit Emission Calculation Definition screen.

Edit Emission Calcula	tion Defir	ition			
Emission Calculation Definition	Emissions By	Source Categories	Processes	Chemicals	Runs
Calculation Name:* Facility:* Total Emissions By:* Rolling Total Interval: Total Sub-Processes? Suppress Zeros for Non-Constituen Perform Regulatory Comparison? Include Permitted Processes Only? Calculation Type:	180 SOL ents?	NUAL STATIONAR TH FIGHTER WIN JRCE CATEGORY Yes No Yes No Yes No Yes No	G - TOLEDO		
Commonds.	Sa	ve Cancel			

To add a new process to the calculation, click the *Processes* tab.

Remov	ing a Process from	n the Emission Calc	ulation Del	inition may change results for Emission Calculation	s that hav	e been on	eated based	d on this definitio	on if recalculated.
	ords found.			A 5					
Save									
include	Source Cat Code	Process.ID	Base Specific	Local Process Name	Permit Flag	Status Code	Source Type	Process Start Date	Process End Da
98	ABCI,	ICR1012878350		BASEWIDE - ENCLOSED - ABRASIVE BLASTING	No	ACT	PONT	1901/01/01	
	CEL	FU1402828348		BASEWIDE - FUEL CELL REPAIR	No	ACT	POINT	1901/01/01	
2	DEGR	ICI0 1308679628127+ PW-	127-1944	PW-127-WS-3 - PARTWASHER - 6810PHM00012790	No	ACT	POINT	1966/01/01	
	DEGR	KCD113028080402		BASEWIDE - DEGREASING - COLD DIP TANK	No	ACT	POINT	1901/01/01	
2	DEGR	KCD1300079629127- PW-	127-PW-	PW-127-WS-4 - PARTWASHER - 6850014312267	No	ACT	POINT	2010/01/01	
10	DEGR	ICD1308079631134- GC-	124-00-	IIC-124-CS-1 - SOCLNR - SAFETY KLEEN PREMIUM	80	ACT	PONT	2005/01/01	
	ECOM	IF01210628285		BASEWIDE - BOILER - NATURAL GAS - <0.3 MMBTUHR	Ne	ACT	POINT	1901/01/01	
	ECOM	IFU1210828288		BASEWIDE - BOILER - NATURAL GAS - 0:3-10 MMBTUHR	No	ACT	POINT	1001/05/01	

This tab will list all the processes that have ever been associated to this calculation. If the checkbox on the left side is checked it means the process is currently associated to the calculation and the emissions will be calculated for this process for all calculation runs. If the checkbox is not checked it means the process was part of previous calculation runs but will not be included in any future calculation runs.

To associate a new process, click the Add Processes hyperlink.

• 56	earch Processes								
1	Process ID:		<u> </u>	X					
	Status		Séle	ct Value •					
	Source Type:		Sele	ct Value *					
Ĩ	Permitted Processes	Only?	· Ves	# No					
			Search	Clear Search					
	ords found.		Search	Clear Search					
Save	Cancel	Process ID		Clear Search	Bermit Flag	Status Code	Source Type	Process Start Date	Process End Oat
Save	Cancel	Process ID (FU1200708146	Base Specific		Exemit Flag	Status Code	Source Type	Process Start Date 2010/06/15	Process End Dat
Save	Cancel Source Cat Code • •	2422.002	Base Specific	Local Process Name		SEA DEALER	Source Type	*Keeling and a second second	Process End Dat
Save notude	Cancel SourceCat Code = =	IFU1208708146	Base Specific	Lecel Process Name RECIPROCATING - DIESEL FUEL - 16 HP	N N	ACT		2010/06/15	Process End Oat
Save	Cancol Source Git Code • • ICOM JET	FU1206708145 ET1504620307	Base Specific	Local Process Name RECIPROCATING - DIESEL FUEL - 36 HP 313 - JET - FIND-PW-229 - INSTALLED	N N	ACT ACT		2010/06/15 1901/01/01	Process, End Dat
Save	Cancel Source Cat Code • • ICOM JET SURF	FL1208708146 ET1584828307 ICP1188829438	Base Specific	Lecal Process Name RECIPROCATING - DIESEL FUEL - 36 HP 3153 - JET - F100-PW-229 - INSTALLED BASEWIDE - SURFACE COATING OPERATIONS	N N N	ACT ACT ACT	MOB	2010/06/15 1901/01/01 1901/01/01	Process End Dat

The Search Processes hyperlink can be used to expand the screen to include the search fields that can be used to filter the results. This results grid will show all the processes that are not already associated to the calculation. If the process you are searching for does not appear, it may be because it is part of a source category that was not selected on the *Emissions By* tab.

To add the process to the calculation, select the checkbox next to the process or processes. Click the Save button to complete the association.

Remov	id Processes ing a Process ords found.		alculation C	Definition may change results for Emission Calculation	ons that ha	ve been cri	eated based	l on this definition	1 if recalculate
Save									
Include	Source Cat Code	Process ID	Base Specific	Local Process Name +	Permit Flag	Status Code	Source Type	Process Start Date	Process End Date
ы	ICOM	IFU/1208708145		RECIPROCATING - DIESEL FUEL - 36 HP	No	ACT		2010/06/15	
	DEGR	ICD 1309679629127- PW-	127-PW-	PW-127-WS-4 - PARTWASHER - 8850014012267	No	ACT	POINT	2010/01/01	
8	DEOR	ICD1309679628127- PW-	127-PW-	PW-127-WS-3 - PARTWASHER - 1810PHM00012790	No	ACT	PONT	1996/01/01	
.90	SURF	ICP1190645549		PAINT BOOTH	No	AC1	POINT	2012/05/01	
.92	DEGR	IC01309670631124- GC-	124-6C-	GC-124-CS-1 - SGCLNR - SAFETY RLEEN PREMIUM	No	AC1	POINT	2005/01/01	
	WOOD	IWD2145626352		BASEWIDE - WOODWORKING - MULTIPLE OPERATIONS	No	AUT	PONT	101/01/01	
2	opc	IHV1050081248		BASEWDE REFRIGERANT MODULE NET LOSS	No	ACT		1801/01/01	

The process or processes should now appear in the grid with the check box selected.

The next tab is the *Chemicals* tab. Add additional chemicals/pollutants to the calculation, click the <u>Add</u> <u>Chemicals</u> hyperlink.

This is an important step to complete every year as there are always new hazardous materials imported from EESOH-MIS that may have ingredients that are were not included previously.

Search C	hemicals	
DAS#	licinicala	
Pollutant Nam	w:	
Polutant Cate		Available Pollutant Categories
		CALIFORNIA AIR TOXIC NEW YORK DEPARTMENT OF ENVIRONMENT ORIEGON AIR TOXIC SANTA BARBARA APCD RULE 202 TOXIC AIR CONSMINANT UTAH DAG REPORTABLE CHEMICAL VERMONT MAZARDOUS AIR CONTAMINANT Search Clear Search
115 records	found.	
15 records Save Car		
		Pollutant.Name
Save Car Addition	cel	Pollutant Name METHOXYTRIBLYCOL
Save Car Addition	CAS #	
Save Car Addition	CAS.X 140055	METHOXYTRISLYCOL
Save Car Addition X	CAS / - 140005 140294	METHOXYTRIGLYCOL BENZENEAGETONITRILE
Save Car Addition 9 9 9 9	140056 140294 151564	METHOXYTRIGLYCOL BENZENEACETONITIBLE AZIRIDINE
Addition Y K Y X Y	CASX - 140055 140294 151564 18821637	METHOXYTRIGLYCOL BENZENEACETONITRILE AZIRIDINE PROPYLENE GLYCOL N-BUTYL ETHER (NOT VERIFIED)
Save Car Addition 20 20 20 20 20 20 20 20 20 20 20 20 20	CASX - 140056 140294 151564 15821637 1634044	METHOXYTRIGLYCOL BENZENEACETONITRILE AZIRIDINE PROPYLENE GLYCOL N-BUTYL ETHER (NOT VERIFIED) METHYL TERT-BUTYL ETHER

The Search fields can be used to filter the grid below. However to ensure that all pollutants are accounted for, it is recommended to select all available pollutants even if the pollutants are not required by the Air Force or regulatory agency. The pollutants that are reported can be more easily excluded from reports than they can be added to calculations so it is better to calculate for more than necessary.

It is easier to execute the calculation for more pollutants than required for reporting and filter the reports than it is to go back and add the pollutant to the calculation.

Once all pollutants have been selected, click the **Save** button.

Next, click the Runs tab.

	ch Ca	lculation Runs				
	sate C	alculation Run				
a record	ds fou	nd.				
Naplayi	ing rea	cords 1 - 3.				
			End Date/Time	Controlled?	Status	1
Actio	211	Start Date/Time	Data Later Hitte			
Actio	ans.	Start Date Time - 2014-01/01 0000	2014/12/31 2350	Yes	REPORTED 9	
	1	The second by the second water water and the	A CONTRACTOR OF A CONTRACTOR O		ALCONTRACTOR AND A STREET	

This tab will show all the previous calculation runs. The Status column will show if the calculation has been reported as part of an AEI Submittal. If a calculation run is in a Reported status, it cannot be edited; however, the results and details can be viewed by clicking on the is icon.

nowever, the results and details can be viewed by cheking on the second

To create a new calculation run, click the Create Calculation Run hyperlink.

Emission Calculation Definition	Emissions By	Source Categories	Processes	Chemicals	Runs
Start Date/Time:* yyyy/mm/dd hhmm		2016/01/01 0000			
End Date/Time:* yyyy/mm/dd hhmm		2016/12/31 2359	-		
Would you like to calculate c emissions?*	ontrolled	● Yes ○ No			
Comments:					
		Save & Calculate	Cancel		

Enter the calculation time period start date and time in the **Start Date/Time** field.

For ANNUAL calculations this is usually the first day of the calendar year 2016/01/01 0000.

For MONTHLY calculations this is the first day of the month 2016/06/01 0000.

For HOURLY calculations this is the first hour of the calculation period 2016/06/01 0800.

Enter the calculation time period end date and time in the **End Date/Time** field.

For ANNUAL calculations this is usually the last day of the calendar year 2016/12/31 2359.

For MONTHLY calculations this is the last day of the month 2016/06/30 2359.

For HOURLY calculations this is the last hour of the calculation period 2016/06/01 2359.

Make sure to calculate to the last minute of the time period to ensure that all the emissions for that time period are accounted for.

Usually daily and hourly calculations are only run at a set frequency. To run multiple calculation runs at once, enter the start date of the first run and the end date of the last run. APIMS will automatically generate the correct number of runs based on the calculation configuration in the Rolling Interval fields on the Emission Calculation Definition tab.

The **Would you like to calculate controlled emissions?** field is used to determine whether control efficiencies will be applied to the emissions. These control efficiencies are configured in the equipment record associated to the process. It is recommended that the **Yes** radio button be selected for all calculation runs.

Click the **Save & Calculate** button to que up the emissions calculations. The calculation runs in APIMS sometimes take time to run depending upon the number of sources and pollutants that need to be processed.

	ch.Ca	alculation.Runs.				
Cre	ate C	alculation Run				
4 record	ds fou	nd				
		cords 1 - 4				
						1
Actio	ans	Start Date Time	End Date/Time	Controlled?	Status	
		2016/01/01 0000	2010/12/01 2059	Yes	PENDING	
	15	2014/01/01 0000	2014/12/91 2359	Yes	REPORTED	
24	100	2012/01/01 0000	2012/12/31 2359	Yes	REPORTED	
68	- AL-		2009/12/91 2359	Yes	REPORTED	
		2009/01/01 0000	4000 1400 14000	1997	DESCRIPTION OF	

The status of the calculation will initially show PENDING. Click the refresh <sup>C</sup> icon at the top of the grid to update the status.

# 2.7.1.3 Calculation Results

To view the results of the calculations, navigate to the Runs tab and click the edit <sup>24</sup> icon next to the specific time frame. Make sure the status is Complete or Reported before viewing the results; all other statuses may not show complete results.

Neplaying		100 <b>0</b> 0					1
Acti	ons	Start Date Time		End Date(Time	Controlled?	Status	
-	8	2016/01/01 0000		2010/12/01 2368	Yes	COMPLETE	
ad .	15	2014/01/01 0000		2014/12/31 2358	Yes	REPORTED	
1	1	2012/01/01 0000		2012/12/31 2358	Yes	REPORTED 🤧	
iğ	1	2009/01/01 0000		2009/12/31 2350	Yes	REPORTED 🤔	
age:1							< Previous   Next
		ulation Definition		Sterre Categories	Processes Chemic	als Runs	Messages
	ion Calc	ulation Definition Process Totals			Processes Chemic	als Runs	Messages
Calco	ulation	Process Totals		Totals Materials Used	Processes Chemic	als Runs	Messages
	ulation ate/Tir	Process Totals			Processes Chemic	ais Runs	Messages
Calco Start D yyyy/m End Da	ate/Tim m/dd I	Process Totals		Totals Materials Used	Processes Chemic	als Runs	Messages
Calco Start D /yyy/m End Da /yyy/m	ate/Tin m/dd i ate/Tim m/dd i you li¥	Process Totals	Calculation	Totals Materials Used	Processes Chemic	als Runs	Messages

The Calculation tab shows the calculation properties, the next tabs are used to review the results of the calculation run. Click the *Process Totals* tab to view the individual process emissions.

	alculation Definition Emission By		xesses Chemicale Runs	
Calut	Process Totals Carolation Total	in Materials Uned	Maxapis	
30 records	found.			
Displaying	records 1 - 10.			
Actions	Processium - Processio	Base Specific	Local Process Name	Source Category Cod
4	628285 IFU1218628265		BASEWIDE - BOILER - NATURAL GAS - +0.3 MMBTUIHR	ECOM
8	628266 IFU1218628266		BASEWIDE - BOILER - NATURAL (SAS - 0.3-10 MMBTU/HR	ECOM
18	625267 IFU1208628267P005	P001	650 - GENERATOR - DIESEL - 60 KW	ICOM
(i).	628268 JFU1208528268P004	P004	101 - GENERATOR - DIESEL - 50 KW	100M
14	625259 1FU1209125209P005	P005	151 - GENERATOR - DIESEL - 10 KW	ICOM.
10.	\$25270 IF01200528270P008	P008	138 - GENERATOR - DIESEL - 80 KW	ICOM
14	628271 IPU1208628271P032	P032	120 - GENERATOR - DIESEL - 100 KW	ICOM

Click the view  ${}^{\fbox}$  icon next to the specific process to view the results.

Caluation	Process Totals Calculation Titles Manuals Uned	Messages		
33 records for	und.			
Displaying rec	ords 1 - 10.			
				Done
CAS	Polistant Name	Emission Tons	Emission Lbs Algorithm Code	
10024972	NITROUS ONDE	0.000001	0.0023 ICION-04	
106990	1.3-BUTADIENE	0	0.0001 ICON-01	
107028	ACROLEIN	0	0.0002 ICOM-01	
106883	TOLUENE	0	0.0007 (COM-01	
120127	ANTHRACENE	0	0 ICOM-01	
124388	CARBON DIOXOE	0.125444	242.6886 30004.01	
129000	PYRENE	ŭ	0 ICOM-01	
1330207	XYLENE	0	0.0005 ICOM-01	
191242	BENZOKRAPERYLENE	0	0 ICOM-01	
100005	INDENO[1,2,3-CD]PYRENE	0	0.30036-01	

This tab can be used to help trouble shoot any unexpected emission results. It will show all the pollutants that were calculated, the total tons, total pounds and the algorithm used to calculate the emissions.

The next tab, *Calculation Totals* shows the total amount of each pollutant emitted for all the processes included in the calculation.

Caluation (1)	ocens Totals Calculation Totals Manmails Used	Manages	
74 records found	1		
Displaying recon	ds 1 - 10.		
CAS	Pollutant Name	Emission Tons	Emission L
10024972	NITROUS OXIDE	0.004365	8.70
100414	ETHYLBENZENE	0.000412	0.82
100425	STYRENE	00	0.00
106467	P-DICHLOROBENZENE	0.000007	0.01
100834	ETHYLENE DIBROMIDE	0.0	0.00
105990	1,3-BUTADIENE	0.000012	0.02
107026	ACROLEN	0.000058	0.11
1070/02	ETHYLENE DICHLORIDE	0.0	0.00
108101	METHOR, ISOBUTYL KETONE	0.000302	0.60
108683	TOLUENE	0.000368	0.57

Once again, this tab can be used to review the results and look for any unexpected emissions.

The *Materials Used* tab is the next tab that can be used to troubleshoot any unexpected emissions.

Catulater	Process Titula Casulation Titula Materials Used	100	Altapate.				
THE PARTY OF	Contraction of the second s						
Validate U	sage Revision Dates						
56 records fou	nd.						
Displaying rec	ords 1 - 10.						
Process ID	Item Used	NSN	CAGE Code	PNI	Frep Date	Total Qty	Converted Oty
CP11(66)4(54)	00X0NE 00X0BRCAT MIL-PRF-B5285D TYPE I, FLAT CLEAR	8010014415943	33461	-817	2009/09/10	148 FL OZ	1.1582 GAL
CP1136645549	D3R064CAT 11136, CAT.MIL-PRF-85285C, 11136, TY 1	8010012559154	33461	2	1997/10/14	48 FL OZ	0.3594 GAL
CP1190645549	02Y04GA & 02Y04GACAT MIL-PRF-250773 (MILPRF23077H	8010014183556	33461	KIT	2012/05/29	1211 FL. OZ	9.401 GAL
CP1190045549	MILPRE-85285E, TYPE LOLASS H. ORDNANCE POLYURET	0010PHW00086823	54636	2.	2015/03/24	640 FL OZ	5 GAL
CP1190545548	03R056CAT, MIL-FRF-86298D-LH-11136 CATALYST	8010012009104	33461	2	2009/09/21	32 FL-02	0.25 GAL
CP1100642549	B00W1253, PRÖ INDUSTRIAL DTM ACRYLIC EG-SHEL DEEP	8010PHW00304128	54638	A	2015/10/17	480 FL C/2	3 75 GAL
CP1100045549	03R073, 03R073CAT MIL PRE-85280 TVPE FCLASS H-31	0010013801758	33401	KIT	2012/02/00	30 FL 02	0.2343 GAL
CP1196645549	10X011. DEFTHANE ELT CLEAR ROT	0010015204057	33461	0	2008/02/13	32 FL OZ	8-25-GAL
CP1196645549	03/4147 & 03/4147CAT, MIL-PRF-85395D, 07875, TY1 & C.	0010013973982	33461	817	2006/10/20	24 FL 0Z	0.1875 GAL
	W\$29052 (2) TYPE 1 POLYURETHANE AND MIL-PRF-\$5265D	0010012853035	33401	:017	2007/05/10	24 FL 02	0.1875-GAL

As shown this tab provides a summary of all the materials used in the emissions calculations. This tab is especially useful to identify any data entry errors in the consumption log that may cause erroneous emission results.

The *Rolling Totals* tab is only available for calculations configured as rolling total calculations.

Company Process View	Constitute Totale Horeman (	Rollin	g Totals			
View Toris						
122 records found.						
Displaying records 1 - 10 Interval Stat Date Time	Interval End Date/Time	CASE	Pollutant Name	Time Period Total	Rolling Total	Rolling Avera
2016/12/01 0000	2016/13/31 2259	PM2 8	DARTICULATE MATTER <2 SUM (PMC IS)	575.000	\$75.555	\$75.5
3016/12/01 0000	2016/12/31 2308	15070	ACIETALDEHYDE	13.307	13.937	13.0
2016/12/01 0000	2016/12/01 2209	75014	VINYL CHLORIDE	0.101	0.101	0.1
2016/12/01 0000	2016/12/01 2309	76470±0	HYDROCHLORIC ACID	0.153	0.153	(E 1
1016/12/01 0000	2016/12/01 2305	7782492	SELENUM	0.001	0.001	0.0
2016/12/01 0000	2016/12/01 2008	1746016	2.5.7.8-TETRACHLORODIBENZO-P-DIOXIN	0	0	
2016/12/01 0000	2016/12/01 2305	7664393	HYDROGEN FLUORIDE	2.001	0.001	0.0
2016/12/01 0000	2016/12/01 2309	117817	DK2 ETHYLHEXYL) FHTHALATE	10.182	10.182	10.1
2016/12/01 0000	2016/12/01 2909	107104	TETRACHLOROETHYLENE	0.395	0.096	0.0
2016/12/01 0000	2016/12/01 2209	74884	METHYL ICOIDE	0		

This tab will display the time period specific emissions, the rolling total emissions and the rolling average emissions for all pollutants and sources.

The most important step is to review the calculation results and error messages.

The final tab is the *Messages* tab. This tab will identify any discrepancies APIMS encountered when calculating emissions.

	sion Calculation Definition	21011122.00		Processes	Chenicale	Runs	Internet and the second s	
Cit	ulation Process Trails	Calcutation Totals	Materials Oxed				Messages	
t. me	ords found							
	Message							Instances
K NO ALGORITHMS ASSIGNED								
8	NO DATA FOUND FOR IPCT SOUDS (MAT_CON CONT_AMO) ZERO USED							30
10	NO DATA FOUND FOR VOC CONTENT (MAT_CON CONT_AMD) ZERO USED							1
14	NO USAGE RECORDS FOUND							16
14	NO VALUE FOUND ZERO USED FOR (PRODCHEM PCT_A/G)							17
100	NO VALUE FOUND, ZERO USED FOR DENSITY (MAT_PROD BULK_GEN).							12

The number of times each error occurred is detailed in the column on the right side. To view the specific errors, click the icon.

Some of the common errors and how to fix them are detailed in the following section.

- NO ALGORITHMS ASSIGNED
  - Problem There is no Algorithm or Emission Factor set specified in the Calculations tab of the Unique Process record.
  - Solution Go to the Unique Process record, Calculations tab and assign an Algorithm and Emission factor set. Re-run the emission calculation run.
- NO USAGE RECORDS FOUND
  - Problem There are no usage records entered for this process and algorithm combination for the time period specified by the calculation.
  - Solution This does not always require a fix, sometimes this error can be used to confirm processes that should not have any use during the time period. One way to resolve this error for these processes is to document that there was not supposed to be any usage. Navigate to the appropriate consumption log for the process and enter a usage record that has a usage of 0. Re-run the emission calculation run.
- NO DATA FOUND FOR:
  - Problem A Material Product record is used in the emission calculation and a specific value is not configured. This is usually for the PCT SOLIDS, INGREDIENT PCT or VOC CONTENT on the Pollutant Content tab of the material product record.
  - Solution This error may or may not need to be resolved for every material. The list of materials should be reviewed. If the material is one that contains VOCs or solids, the Material Product record should be found and an effort to populate the correct data should be made. If the material was input by the EESOH-MIS interface, the EESOH-MIS Data Stewards should be contacted for the correction of the data in EESOH-MIS. If the material is not one that would be expected to have VOCs or solids this error requires no additional action.
- NO VALUE FOUND, ZERO USED FOR:
  - Problem This error means that a Material Product record is missing either the density or the ingredient percent.

- Solution If the error is for a missing density, the Material Product record should be edited to include the density. This is usually available from the SDS for the material. If the error is for the ingredient percent, this only needs to be resolved for materials that are HAPS. This information is also available from the SDS or manufacturer.
- ORA-00143
  - Problem This is a generic error that is commonly caused by a JET process that does not have an afterburner mode. The algorithm is looking for a fuel flow rate and a time in mode that is not needed.
  - Solution No action is required for this type of error.

## 2.8 Emission Inventory Submittals

The Emission Inventory Submittals module is used to generate and submit an AEI to AFCEC. The module can generate several types of AEIs, Comprehensive Stationary, GHG, MRR or Permitted Source AEI. This module is used to fulfill the requirements outlined in the Air Force Manual (AFMAN) 32-7002 Environmental Compliance and Pollution Prevention (Feb 2020) as shown below.

## 4.5. Air Quality Compliance - Implementation and Operation.

4.5.1. Air Emissions Inventory (AEI). The Installation Environmental Element must prepare and periodically update an AEI, using APIMS, for all installation stationary air emission sources in accordance with applicable state or local requirements promulgated per 40 CFR Part 51, Subpart A and current AF AEI guidance from AFCEC/CZ. (T-0).

4.5.1.1. Regulatory-required stationary AEIs are completed at the frequency specified by federal, state and local regulations.

4.5.1.2. Comprehensive stationary AEIs (applicable to all installations, including overseas) include all emissions sources (i.e., both permitted and non-permitted sources). The Installation Environmental Element will annually review/validate APIMS to ensure currency of the AEI (i.e., sources and consumption data is representative of the current base conditions). (T-1). A comprehensive review of all sources and associated consumption data for the AEI will be conducted at least every three years (five years for overseas and remotely located facilities) to accurately reflect current emissions. (T-1).

4.5.1.3. Stationary source AEIs include all criteria pollutants, Hazardous Air Pollutants, and greenhouse gases and reflect the installation's current actual and PTE emissions. Annual regulatory emissions reports, a subset of the comprehensive AEI, are provided to federal, state and local (including Metropolitan Planning Organization or other regional) regulatory agencies as required. Greenhouse gas reporting mandated by E.O. 13834, is accomplished by SAF/IEE in conjunction with the Annual Energy Management and Resilience reporting process.

4.5.1.4. For installations that exceed the greenhouse gas reporting threshold, the Installation Environmental Element shall accomplish greenhouse gas reporting mandated by 40 CFR **Part 98. (T-0)**. Recommend other installations within 10% of the greenhouse gas reporting threshold accomplish greenhouse gas estimates in accordance with the nondirective *Guide to the Mandatory Greenhouse Gas Reporting Rule and Greenhouse Gas Tailoring Rule*, issued by AFCEC/CZ. Results will be reported to AFCEC/CZ via APIMS. **(T-1)**. Greenhouse gas reporting mandated by E.O. 13834 is accomplished by SAF/IEE in conjunction with the Annual Energy Management and Resilience reporting processes.

Once an AEI is submitted via this module it will automatically be reported to AFCEC in fulfillment of the requirement specified above. Additionally, this module can assist in the generation of an AEI to state or local regulators. If the Permitted Source AEI is generated it can then be used to generate reports that contain the data used to submit to state or local regulator.

Navigate to the Emission Inventory Submittal module of APIMS by clicking on **Emissions Inventory Submittals** under the **Calculations** tab.

Create Emissi	on Inventory Submittal			
9 records found.				
Displaying records	1.9			
Actions	Report Vest + Report Type	Facility	Calculation Count	Tank Count Status
100	2016 PMT	AR FORCE BABE	1	0 PUBLISHE
63	2015 AD	AR FORCE BASE	1.8	1 FUBLISHE
14	2015 MDB	AR FORCE BASE	1	0 PUBLISHE
12	2015 PMT	AR FORCE BASE	ů.	0 PUBLISHE
6	2014 A01	AR PORCE BASE	1.81	0 FUBLISHE
2	2019 AEI	ALR FORCE BASE	2	1 PUBLISHE
<b>A</b>	2013 MOB	AR FORCE BASE		0 PUBLISHE
12	2012 AB	AR FORCE BASE	2.27	D FUBLISHES
12	2010 AEI	AR FORCE BASE	1	1 PUBLISHE

The previous AEIs will be displayed in the grid. To create a new AEI, click the <u>Create Emission Inventory</u> <u>Submittal</u> hyperlink.

Report Type:"	AEI - COMPREHENSIVE STATIONARY AEI	
Facility:*	AIR FORCE BASE	Verified
Date From:* yyyy/mm/dd	2016/01/01	
Date To:" yyyy/mm/dd	2016/12/31	

Select the appropriate **Report Type** from the drop-down. The most common type is AEI – COMPREHENSIVE STATIONARY AEI. However, if the installation has a subset of sources that must be reported to the regulatory agency this module can be used to generate that report PMT – PERMITTED SOURCE AEI.

The **Facility** should be the facility that is reporting the emissions, for most bases there will be only one option. If the installation has multiple facilities a separate submittal will need to be generated for each facility.

The **Date From** and **Date To** fields are most commonly the first and last day of the calendar year. The only exception to this is if the Report Type is Permitted and the regulatory agency has a different reporting year, for example July to June.

Click the **Save** button to complete the inventory submittal.

This will take you to the *Calculations to Include* tab.

Calculation Name		Emission Type	Total #	# Selected
ANNUAL EESOH MIS	EMISSION CALCULATION	A	4	0 (1
ANNUAL MOBILE EM	ISSIONS CALCULATION	A	. 1	0
annual Stationar	Y EMISSION CALCULATION	A	.1	0 (1
IET ENGINE TESTIN	G ROLLING TOTAL EMISSIONS	A	12	0 (12

This tab will display all the emission calculations that have a calculation run during the time period specified for the inventory submittal. It is important to only include the calculations that should be part of this submittal. For example, do not include a mobile source calculation in a stationary inventory.

Click the **Save** button to complete the association. Once the calculations have been associated, they will appear with a green highlight.

	alculations to Include Tank Calculations to Include Pollutants View Sum	mory		
t re	cords found.			
	Calculation Name	Emission Type	<u>Total #</u>	# Selected
Ð.	ANNUAL EESCH-MIS EMISSION GALCULATION	A	t	1
6	ANNUAL MOBILE EMISSIONS CALCULATION	A	1	o
•	ANNUAL STATIONARY EMISSION GALCULATION	A	1	1
4	JET ENGINE TESTING ROLLING TOTAL EMISSIONS	A	012	12

Once the calculation for the specified time period is associated to an emission inventory submittal, the emission calculation run cannot be modified unless it is disassociated from the submittal. To disassociate a calculation from the submittal, uncheck the box and click the Save button. This will then allow the errors to be corrected and the calculation rerun for the specified time period.

The next tab is the Tank Calculations to Include.

Calculations to Include	Tank Calculations to Include	Pollutante	View Summery			
Add Calculations						
records found.						
	States and the second se			Year	Months Selected	
tions Tank Calculation	Teletine .					

To add a tank calculation to the inventory, click the <u>Add Calculations</u> hyperlink.

Tank Calculation:*	ANNUAL TANK EMISSIONS	Verified
Year:	2016	
Months to Include:"	All	
January	🖉 July	
February	August	
March	September	
April 😒	Cctober	
🗷 May	November	
🗷 June	December	

Use the Tank Calculation field to search for the name of the tank calculation. Once the calculation name has been verified, the months to include will either automatically select or will need to be selected based on the type of tank calculation. For comprehensive stationary AEIs all the months should be selected.

The next tab is the *Pollutants* tab. This tab is read only and displays the pollutants that will be included in the inventory.

67 records CASE	Found . PoButant Name	Reported As
100414	ETHYLBENZENE	Ethylbenzone
100425	STYRENE	Styrene
108487	P-DICHLOROBENZENE	1,4-Dichlorobenzene
108834	ETHYLENE DIBROMIDE	Ethylene Dibromide
100990	1,3-BUTADIENE	1,3-Butadiene
107028	ACROLEIN	Acrolem
107062	ETHYLENE DICHLORIDE	Ethylene Dictrioride
108101	METHYL ISOBUTYL KETONE	Methyl Isobutyl Ketone
108883	TOLUENE	Toloene
108907	CHLOROBENZENE	Chlorobenzene
110543	N-HEXANE	Hexane
112072	ETHYLENE GLYCOL MONOBUTYL ETHER ACETATE	Glycol Ethen
120127	ANTHRAGENE	Polycyclic Organic Matter
124174	DIETHYLENE GLYCOL MONOBUTYL ETHER ACETATE	Glycol Ethers

One item to note is that the individual chemicals that are pollutants due to the pollutant group will have a different name they are reported as. For example, 112072 ETHYLENE GLYCOL MONOBUTYL ETHER ACETATE is reported as a Glycol Ether.

The final tab is the *View Summary* tab.

Calculations to Include T	ank Calculations to Include Pollutants View Summary
Staging Action:	Stage
AEI Report:	Data must be staged before previewing. 这
Publish Action:	Publish

The next step to complete the inventory is to Stage the AEI. Once the **Stage** button is clicked the AEI Report will generate. This step often takes several minutes. The refresh  $\bigcirc$  icon can be clicked to update the status of the AEI Report.

Calculations to Include Tank C	Calculations to Include Pollutant	s View Summary
Staging Action: AEI Report: Process Detail Report:	Stage	
Publish Action:	Publish	
Redo Setup:	Unstage/Unpublish	

Once the results have been verified to be accurate, click the **Publish** button to finalize the inventory. If after the inventory has been Staged or Published and corrections need to be made, the **Unstage/Unpublish** button can be used.

Click the 🗖 icon to open the AEI Report Selection window.

AEI Report Selection		
Select AEI Report(s)		
Criteria Pollutant Summary		
HAP Summary		
Process Calculation Summary		
Pollutant Summary		
Calculation Data Reference Information		
Material Reference Information		
	Generate Report(s)	Cancel

Several reports are available to view the results of the inventory. To run the report, check the box or boxes and click the **Generate Report(s)** button. See below for examples of the reports. The Criteria Pollutant Summary report can be very useful to conduct a quick review.

A best practice is to compare the current years report to previous years reports to look for any major changes in emissions or usage. This could be due to a problem with the data used for the inventory.

### **Criteria Pollutant Summary**

AIRFO	RCE BASE	2016 CRITERIA I	POLLUTANT E	MISSIONS	Re	port Type: COMP	REHENSIVE STA	TIONARY AE
	Source Category	-	-	T	ons Emitted			
Code	Nama	CO	NOx	PM 10	PM 2.5	SOX	Tetal VOC ]	Total HAP
ABCL	ABRASIVE CLEANING		-	0.002172	0.001995			-
AST	ABOVE GROUND STORAGE TANKS		-				1.104565	0.0348
CHEM	MISC CHEMICAL USAGE		-		-	1.4	0.805185	0.0239
ECOM	EXTERNAL COMBUSTION	1.90456	9.429688	0.392912	0.098228	2.789675	0.078582	0.50670
FIRE	FIRE TRAINING	0.00104	0.000385	0.000641	0.000641	0.000001	0.00162	0.00004
FLD	FUEL LOADING RACKS	-	-	-	-	-	0.32594	0.0128
ICOM	INTERNAL COMBUSTION	1.444717	5.870363	0,289349	0.289349	0.180012	0.302582	0.0038
INCN	INCINERATOR	0.001387	0.001673	0.001429	0.000949	0.00102	0.000141	0.0159
JET	JET ENGINE TESTING	0.468265	0.264851	0.05723	0.027754	0.032487	0.004158	0.0032
MUN	MUNITIONS	0.10066	0.005311	0.002721	0.002002			0.00203
0800	OPEN BURN/OPEN DETONATION	0.000982	0.00035	0.006236	0.001768	0.000262	0.000114	0.002B
SPHL	SPILLSRELEASE		-			( + ) ;	0.299315	0.0043
SURF	SURFACE COATING			0.062996	0.060697		0.59757	0.0505
UST	UNDERGROUND STORAGE TANK		-	-	-		0.246025	0.0095
WOOD	WOODWORKING	+	- 1	0.033254	0.025235		-	
_	Ta	1.981811	15.572821	0.84894	0.508618	3.003457	1,765607	0.63058

#### **HAP Summary**

Inorganic HAPs	Pollutant Name	Pounds Emitted	
Cas Number 7647-01-0	Hydrochloric Acid	177.894	Tons Emitted 0.088947
/64/-01-0		6.754	
	Chromium Compounds	4.238	0.003377
-	and the second	3.064	0.002115
-	Nickei Compaunds	2.534	0.001532
	Manganese Compounds		
	Selenium Compounds	1.73	0.000865
	Mercury Compounds	1.672	0.000836
	Arsenic Compounds	1.26	0.00063
	Cadmium Compounds	1.184	0.000592
	Antimony Compounds	0.994	0.000497
7664-39-3	Hydrogen Fluoride	0.14	0.00007
7782-50-5	Chlorine	0.098	0.000049
	Cobalt Compounds	0.04	0.00002
7723-14-0	Phosphorus	0.008	0.000004
2	Beryllium Compounds	0	C
	Sub-Total	201.61	0.100805

## Process Calculation Summary

	AL GUARD BASE		21			CULATION SUMMARY © DEC-16 Report Typ	e comprehensive	STATIONARY A
Process ID: 1WD Process Name	2145176253 571 - WOODWORKING OP	Base Spec	ific N	A	Source	Category: WOODWORKING		1
Tons Emitted	60				NOx	PMID		PM2.5
			_		-	0.002624		0.001991
	50x				VOCs	inorganic HAPs		Organic HAPs
								-
Annual Usage						1.1		
MAT PROD ID	NSN		and the second second	Prep Date		sal Name	Amount Used	
999000710464	SAWDUST	EWC:	A	1901/01/01		DUST GENERATED FROM WOODWORKING VATIONS	220.56 LBS	
Algorithms Assi	aned		-					
	Algorithm Formula							1
	(WASTE COLLECTED/(1-0	CONTROL EFF)	WAST	E COLLECTED/1	EF			
Emission Factor								
Emission Factor	ID Emission Factor Crite	ria		CAS#	19	Themical Nome	Emission Factor	UOM
1407	GENERAL WOODWOR			PM10		WRTICULATE MATTER <10UM (PM10)		LBS/LB
1407	GENERAL WOODWOR	RKING		PM2.5	18	ARTICULATE MATTER <2.5UM (PM2.5)	0.343	LBS/LB

### Pollutant Summary

	2016 POLLUTANT SUMMARY	
CODING	JAN-16 to DEC-16	
- CHAILIE	Report Type: COMPREHENS	SIVE STATIONARY AEI
AIR FORCE BASE		
CAS#: 100414	Pollutant Name: Ethylbenzene	
Pollutant Categories		AIR CONTAMINANT;
	TEXAS CONTAMINANT; VERMONT HAZARDOUS AIR CONTAMINANT	
Process Totals		
Unique ID	Process Name	Tons Emitted
772	FUEL LOADING - JP-8	0.000848
723	SURF - SURFACE COATING - CORROSION CONTROL	0.000583
630108	CHEM - MISCELLANEOUS CHEMICAL USAGE - BASEWIDE	0.000512
701	FUEL SPILL - JP-8 - BASEWIDE	0.000238
630299	SURF - SURFACE COATING - AEROSOL	0.000182
680150	FUEL STORAGE - NORTH STORAGE	0.00013
680155	FUEL STORAGE - NORTH STORAGE	0.00013
774	FUEL LOADING - GASOLINE	0.000097
742	EXTERNAL COMBUSTION BASEWIDE	0.000075
680156	FUEL STORAGE - NORTH STORAGE	0.000075
711	FUEL STORAGE - UST - MOGAS - AAFES-10000GAL 92 OCT	0.000065
712	FUEL STORAGE - UST - MOGAS - AAFES-10000GAL 94 OCT	0.000065
680157	FUEL STORAGE - NORTH STORAGE	0.00004
764	JET - JET ENGINE TESTING IN HUSH HOUSE	0.000036
702	FUEL SPILL - DIESEL - BASEWIDE	0.000019
706	FUEL STORAGE - AST - DIESEL - BASEWIDE 2500 GAL	0.00001
707	FUEL STORAGE - GOV FILLING STATION - TANK 8	0.00000
680160	FUEL STORAGE - GOV FILLING STATION - TANK 9	0.00000
773	FUEL LOADING - DIESEL	0.00000
	Pollutant Total	0.00312

## **Calculation Data Reference Information**

AR	MS	2016 CALCULATION DATA REFER		RY AB
Source	Calegory Claim: ABCL	Solarce Calegory Name: ABRASIVE CLEAN	ING -	
poritive				
D	Algorithm Code	Algorithm Name	Algorithm Formula	
001	ABCL-02	CALCULATES PARTICULATE EMISSIONS BASED ON WASTE COLLECTED	(WASTE COLLECTED/(1-CONTROL EFF))-WASTE COLLECTED/ EF	
Reference AIR EMISS	IONS GUIDE FOR AIR	FORCE STATIONARY SOURCES; JULY 2016; EQ 7-2		20
	IONS GUIDE FOR AIR			
mission F	IONS GUIDE FOR AIR		ENCLOSED BLASTING / ANY MEDIA / ANY CONTROLS	
mission F	IONS GUIDE FOR AIR		ENCLOSED BLASTING / ANY MEDIA / ANY CONTROLS	2
mission F	actor on Factor Set Id. 11 IAS #	14 Emission Factor Orienta		
mission F	actor actor on Factor Set Id. 10 (AS # 1010	14 Emusion Factor Crisma Chomical Name	Emission Factor UOM	
mission F Energy	actor on Factor Set Id. M M10 CEC STATIONARY, JU	14 Emission Factor Grianal Chemical Name PARTICULATE MATTER <10UM (PM10) References	Emission Factor UOM	

## **Material Reference Information**

API	15	JAN-16 to DEC-16		ype: COMPREHENS!	VE STATIONARY A
NSN. 8010	014416030	CAGE Code: 33461	PNII	Prep Date	2016/02/06
Pollutant C	ontent				
Material Co	ntent		11	Content Amount	Content UOM
MATERIAL	VOLATILE ORGANIC COMPOUND	ONTENT		20.5194033	WT PCT
NONE		Reference	24		
NONE	5	Reference	<u>.</u>		
	s Chemical Name		orcent Max	Calculated Avg	Actual Av
Constituent	5		orcent Max	Calculated Avg 0.55	
Constituent	Chemical Name	Percent Min P	ercent Max		Actual Av 0.5 0.5
Constituent CAS# 100414	Chemical Name ETHYLBENZENE	Percent Min P	orcent Max	0.55	0.5
Constituent CAS# 100414 10294403	Chemical Name ETHYLBENZENE BARIUM CHROMATE	Percent Min P 0.1 0.1	1	0.55	0.5 0.5
Constituent CAS# 100414 10294403 108101	Chemical Name ETHYLBENZENE BARIUM CHROMATE METHYL ISOBUTYL KETONE	Percent Min P 0.1 0.1 1.7	1 1 3.8	0.55 0.55 2.75	0.5 0.5 2.7

# 3. SOURCE CATEGORIES

# 3.1 Internal Combustion (ICOM)

## 3.1.1 Source Types

Internal Combustion (ICOM) engines typically found at an Air Force base include generators, pumps, aircraft arresting systems, gate barrier engines and compressors. ICOM engines are broken up into two categories: reciprocating and gas turbine. Reciprocating engines have a piston that moves inside a cylinder to compress an air/fuel mixture. The air/fuel mixture combusts and expands, pushing the piston through the cylinder. The piston returns, pushing out the exhaust gases, and the cycle is repeated. For gas turbine engines, ambient air is pressurized with a compressor. Fuel is introduced to this compressed air and is ignited. The high temperature and high-pressure air flows through a turbine where it expands, producing shaft energy that is used to drive both the compressor and the electric generator.

Reciprocating engines can also be either compression ignition (CI) or spark ignition (SI). In a compression ignition engine, the air is first compressed by the piston in the cylinder, which causes the temperature of the air to rise. Fuel is added to the heated air and combusts due to the fact that the temperature of the air is above the auto-ignition temperature of the fuel. These engines run solely on diesel fuel. In a spark ignition engine, a spark is used to light the fuel/air mixture. These engines run on gasoline or natural gas.

The size of the reciprocating engine is related to its displacement per cylinder, which is a measure of the area of the cylinder multiplied by the stroke. The stroke is the length of the linear movement of the piston in each cylinder. Additionally, a spark ignited engine may be classified as either a 4-stroke or 2-stroke. For a 4-stroke engine, the combustion cycle involves two revolutions of the crankshaft, and the cycle consists of four stages: induction stroke, compression stroke, power stroke and exhaust stroke. For a 2-stroke engine there is only one revolution of the crankshaft because the induction stroke and exhaust stroke occur concurrently.

Four and two stroke engines can also be either Lean-burn or Rich-burn. Lean-burn refers to the burning of fuel with an excess of air with a ratio ranging from 20:1 to 50:1 and are typically higher than 24:1. Richburn refers to engines that operate at near-stoichiometric combustion where the air/fuel ratio is nearly 16:1.

Stationary internal combustion engines are regulated by one of the following depending upon the manufacture year and type of engine.

- 40 CFR 60 Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR 60 Subpart JJJJ Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
- 40 CFR 63 Subpart ZZZZ National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

- 40 CFR 63 Subpart YYYY National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines
- 40 CFR 60 Subpart GG Standards of Performance for Stationary Gas Turbines
- 40 CFR 60 Subpart KKKK Standards of Performance for Stationary Combustion Turbines

### 3.1.2 Potential Data Sources

Internal combustion equipment is usually scattered across the installation to provide emergency power to various buildings and operations. This equipment is usually managed by the Power Pro shop which is part of the Civil Engineering Unit. The Power Pro shop should have an equipment inventory list that can provide all the necessary data. Additionally, it may be necessary to contact the hospital/clinic, Base Exchange/Commissary and tenant or contractor-maintained areas. These entities may have internal combustion equipment that is not maintained by the Power Pro shop. The shops listed below are the most common shops with information regarding internal combustion equipment:

- Power Production (CEOFP)
- Hospital/Clinic
- BX/Commissary
- Tenant/Contractor
- Bioenvironmental Engineering
- Fire Department (CEF)
- Security Forces
- Design and Construction Engineering

The data elements that are needed are as follows:

- Model Number
- Serial Number
- Date Ordered
- Install Date
- Manufacturer Name
- Manufactured Date
- Portable Y/N
- Asset Type (Real Property Installed Equipment (RPIE) or Equipment Authorized Inventory Data (EAID)
- Rated Horsepower
- Fuel Type Utilized
- Designed Load Percent
- # of cylinders

- Engine Displacement
- Crankcase ventilation
- Manufacturer Certified Level of Conformity
- Emission controls
- Fuel tank configuration (Separate, Integral or both)
- Total hours operated for testing and maintenance purposes
- Total hours operated for emergency purposes
- Total hours operated for nonemergency purposes (not including testing/maintenance)

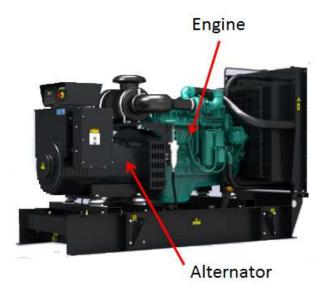
This data should be available from the personnel maintaining the engine or the manufacturer specification sheet.

The generator set, shown below, consists of the engine and the alternator. Each component, the generator set (gen set), the engine, and the alternator can all have different ratings, name plates and manufacturers.



**Generator Set** 

**Generator Set Nameplate** 





Engine



#### **Engine Plate**

The engine plate often has the engine serial number, engine model number, manufacturer, manufacture date, EPA engine family, RPM, rated horsepower, and engine displacement.

The specification sheet often has additional data required.

Base Engine	Cummins, Inc Model QSM11-G4, 1	urbocharged, EGR, and C.	AC, diesel-fueled		
Displacement in <sup>3</sup> (L)	661.0 (10.8)				
Overspeed Limit, rpm	2100 ±50				
Regenerative Power, kW	30.6				
Cylinder Block Configuration	Cast iron, In-line 6 cylinder				
Battery Capacity	550 amps at ambient temperature	of 32°F (-0°C) and above			
Battery Charging Alternator	70 amps				
Starting Voltage	24-volt, negative ground				
Lube Oil Filter Types	Single spin-on, combination full flow and bypass filters				
Standard Cooling System	125°F (52°C) ambient radiator				
Power Output		Standby	Prime		
Gross Engine Power Output, bhp	(kWm)	470 (350)	427 (318)		
BMEP at Rated Load, psi (kPa)		314 (2165)	285 (1965)		
Bore, in. (mm)		4.92 (125)	4.92 (125)		
Stroke, in. (mm)		5.79 (147.1)	5.79 (147.1)		
Piston Speed, ft/min (m/s)		17.37 (0.88)	17.37 (0.88)		
Compression Ratio		17:1	17:1		
Lube Oil Capacity, qt. (L)		38.8 (36.72)	38.8 (36.72)		
Fuel Flow					
Fuel Flow at Rated Load, US Gal/	nr (L/hr)	75 (284)	75 (284)		
Maximum Inlet Restriction, in. Hg	(mm Hg)	8 (204)	8 (204)		
Maximum Return Restriction, in. H	g (mm Hg)	8 (204)	8 (204)		
Air Cleaner					
Maximum Air Cleaner Restriction,	in. H <sub>2</sub> O (kPa)	25.0 (6.2)	25.0 (6.2)		
Exhaust					
Exhaust Flow at Rated Load. cfm	(m <sup>3</sup> /min)	2345 (66 4)	2135 (60.46)		
Exhaust Temperature, °F (°C)		1011 (543.8)	955 (513)		
Max Back Pressure, in. H <sub>2</sub> O (kPa)		40.8 (10.15)	34.0 (8.46)		

Due to the complexity of internal combustion engines, it is a best practice to go to the location of the generator set and examine the nameplates for the gen set, engine, and alternator. It is also a good practice to look at the fuel tank and the transfer switch to gather all the necessary data. Often, once the engine is located, the specification sheets can be obtained from the shop or from the manufacturer. There is no single source of data that will provide all the information required.

## 3.1.3 Standard Source Identification/Characterization

### 3.1.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	○ Yes ○ No ○ Unsure ● All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	◎ EESOH-MIS Interface Records ○ APIMS Entered Records ● Both
	Search

In the **Source Category** search field, type "ICOM" then select the row for INTERNAL COMBUSTION from the dropdown results. Click the **Search** button.

	Creat	te Pro	cess						
		ds fou a reco	nd. ds 1 - 302						
100	letion		Unique ID Base Specific	Local Process Name	Surge Cat Cude	Into No.	Start Date	End.Date	Slates
10	in.	UB:	<u>4104</u> 4104	1030-EMERGENCY GENERATOR-DEBEL-322HP-113654	ICOM	1038	2010/11/08	2012/12/31	NACTIVE
1	10	12	<u>678637</u> 639837	10314 EVERGENCY GENERATOR DIESEL 145 HP 386044	ICOM	10914	2014/02/02		ACTIVE
1	-	1	4102 4102	1032-EMERGENCY DENERATOR-DIESEL-2010HP-113552	ICOM	1832	2010/11/06	2012/12/31	PLACTING
100		- 531	4102 4100	1012-EMERGENCY DENERATOR-DEDEL-603HP-113653	ICOM	1032	2010/11/06	2011/12/01	NACTIVE
100	-	5	70567± 706879	10125-EVERGENCY GENERATOR-DIESEL-025HP-390424	ICOW	10625	2917:01:04		ACTIVE
		4	697 667	10525 ENERGENCY GENERATOR DIESEL-375HP-107003	ICOM	10625	10090404	20150564	NACTINE
12	-	12	589 569	10579-ENERGENCY GENERATOR-DIEBEL-750HP-107038	ICOM.	10578	10050101		ACTIVE
100	10	4	222 404	10HEG-EMERICIENCY CENERATOR-DIDDEL-BRHP 107004	TCOM	10663	100501/01		ACTIVE
15		1	3328 3328	10711-COMPRESSOR-GASOLINE-20HP - PERP	ICOM	10713	199401001	2013/04/01	NACTINE
10		12	702 762	10711-GENERATOR-DIESEL 32.5HP	ICO M	10711	1901/01/01		ACTIVE
10		3	4224 4294	10715-EMERGENCY GENERATOR-DIESEL-80HP PERP 157631	TCOM	10715	2012/04/10		ACTI/E
		44	2002 2002	10715-TILL-COMPRESSOR-CIEREL-70-0P	ICOM	50715	100.00101		ACTIVE
1	ix.	1	(28) (28)	10715-TSE-DIESEL ICE-50HP	ICOM	10715	2011/01/01		ACTIVE.
10		3	703412 703412	10715-TRE-DESEL-ICE-SWEEPER AUX-110HP	ICOM	10715	2010/04/22		ACTIVE
12	1	120	3697 3697	10717-786- COMPRESSOR (DESEL 76HP	ICOM	96717	10010101		ACTIVE.

The search results grid will now display all the internal combustion processes currently in APIMS.

#### 3.1.3.1.1 Status

If the status of a process needs to be changed, click the edit 🐱 icon next to the process.

Proces	s Equipment Calc	ulations Regulatory	Authorized Materials	Industrial	Contacts Zon	es Records	Assessments	Status	
Chi Chi	ange Current Status								
1 record	ás found								
Displayi	ing records 1 - 1								
Actions	Status	Start	Date		End	Date		Com	ments
12	ACTIVE	1901/	1001						

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
Start Date:" /yyy/mm/dd	2016/06/12
Comments	Unit no longer in use.

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year the emissions will only be calculated for the part of the year the source was active.

#### 3.1.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No .: 2	10525	
Location X	BUILDING 10525 COMM CONTROL	(Venfied)
Complete Location Name:	AIR FORCE BASE \ BUILDING 10525 COMM CONTROL	
Office Symbol 2		Unverified)
Unit/Organization		
Shop	646OX (Ventied)	
Shop Name	6460X-30 CES POWER PRODUCTION	
Source Type D	POINT .	
Permitted Source?2	Yes O No	
Emission Point:	STACK ·	
Usage Interval	MONTHLY .	
Next Higher Process:	(Unverified)	
Next Higher Process Name:		
EPA Source Class Code:		
EPA Industry Group		
GHG Scope:	1 *	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	🕷 Yes 🔘 No	
Operating Schedule	Hrs/Day, Day(s)Wk, Wks/Yr	
Comments		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop Name** field can be used to specify the shop that manages and is responsible for the maintenance of the engine. This is especially important for installations that have generators that are not managed by the facility power shop.

Internal combustion operations are categorized as POINT source in the **Source Type**.

The **Emission Point** for internal combustion equipment is usually STACK.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

# APIMS AEI Procedure

The **Usage Interval** should be designated. This source is usually documented on a MONTHLY basis. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.1.3.1.3 Sub-Processes

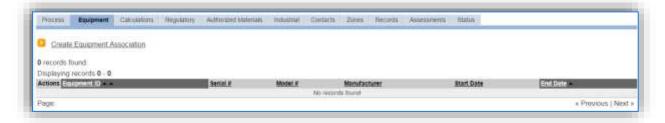
This source does not utilize this functionality.

#### 3.1.3.1.4 Equipment

The next tab is the *Equipment* tab, to link the equipment to the process the equipment must already be entered in APIMS. If the equipment does not exist in APIMS it is recommended that the New Source Wizard module be used to create the equipment and process records. If the Facility Power shop is using the Facility Power module in APIMS, contact them for entry into the Facility Power module.

There should always be a single piece of equipment associated to each process for internal combustion. Each internal combustion unit should have its own process and equipment

The following screens should only be used to associate an existing piece of equipment to an existing process.



To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Process Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
Equipment ID:*			678837			(Verified	I)		
Serial #:			73821004						
Model #:			QSB5-G3 NR3						
Manufacturer:			CUMMINS						
Description:									
Equipment Start Date: yyyy/mm/dd			2015/02/01						
Equipment End Date: yyyy/mm/dd									
Start Date:* yyyy/mm/dd			2015/02/01	-					
End Date: yyyy/mm/dd				-					
Comments:						/			
			Save & Create Ar	nother Sa	ve & Finish	Cancel			

Search for the **Equipment ID** in the list of values, enter the **Start Date** and click the **Save & Finish** button.

The association start date should match the equipment start date.

#### 3.1.3.1.5 Calculations

The next tab is the *Calculations* tab.

rocess Algorithm Assignn	nent		
Create Process Algorithm Assig			
records found.			

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Process	Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
Algorithm	Code:*			ICOM-01	1			(Verified)	)		
Formula:	ooue.				*EF/1000				, ,		
	Start Date:			1901/01/							
-	End Date:			1001/01/	01						
Emission Factor Characteristic:*				ENGINE	TYPE / FUE	L / SIZE / D		(Verified)	)		
Emission	Factor Criteria	-		RECIPR	OCATING /	DIESEL /	<=600 HF		ER CYLINDEF	R / >= 2007	
Emission	Factor Set ID:			2116							
Emission	Factor Set Sta	rt Date:		1901/01/	1901/01/01						
Emission	Factor Set End	d Date:									
Start Date yyyy/mm/				2013/01/	/08						
End Date: yyyy/mm/dd											
				Save &	Create Anot	her Save	e & Finish	Cancel			

Select the **Algorithm Code** from the list of values that matches the correct scenario. Next select the correct **Emission Factor Characteristic**. Enter the **Start Date** to match the start date of the process. Click the **Save & Finish** button to save and return to the Calculations tab or the **Save & Create Another** button to include more equipment.

Use the tables on the next page to identify the correct Algorithm Code and Emission Factor Characteristic ID.

# 3.1.3.1.5.1 ICOM-01

Calculations Based On Hours Of Operation			Stationary Reciprocating Engines	Gasoline Fuel	
		Both NS	SPS Compliant and Not Required		
All			ICOM - 01 STATIONARY RECIPROCATING	S SI / GASOLINE / ALL /	
Displacement	All HP Any Manufacture Da		ALL / ALL / ALL		

Calculations Based On Hours Of Operation				Stationary Reciprocating Engines Natural Gas		
	Both NSP			PS Compliant and Not Required		
				ICOM - 01 STATIONARY RECIPROCATING	G SI / NATRUAL GAS /	
	2-Stroke Lean Burn	Any Manufacture Date		ALL / 2-STROKE LEAN BURN / ALL / ALL		
All	4-Stroke Lean Burn	Any Manufacture Date		ICOM - 01 STATIONARY RECIPROCATING	G SI / NATRUAL GAS /	
Displacement				ALL / 4-STROKE LEAN BURN /	' ALL / ALL	
		Any Manufacture Date		ICOM - 01 STATIONARY RECIPROCATING	G SI / NATRUAL GAS /	
	4-Stroke Rich Burn			ALL / 4-STROKE RICH BURN /	' ALL / ALL	

Calculations Based On Hours Of Operation			Stationary Turbine Engine Natrual Ga		
		Both NS	ISPS Compliant and Not Required		
		Any Manufacture Da	ICOM - 01 STATIONARY TURBINE SI / NA	TURAL GAS / ALL / LEAN	
All	Lean Premix	Any Manufacture Da	PREMIX / ALL / ALL		
	Uncontrolled	Any Manufacture Da	ICOM - 01 STATIONARY TURBINE SI / I	NATRUAL GAS / ALL /	
Displacement	Uncontrolled	Any Manufacture Da	UNCONTROLLED / ALL,		
	Water-Steam	Any Manufacture Da	ICOM - 01 STATIONARY TURBINE SI / I	NATRUAL GAS / ALL /	
	Injection	Any Manufacture Da	WATER-STEAM INJECTION / ALL / ALL		

Calculations Based On Hours Of Operation				Stationary Turbine Engine Diesel		
		Both N	SPS Cor	S Compliant and Not Required		
	Uncontrolled			ICOM - 01 STATIONARY TURBINE CI / DIESEL / ALL /		
All		Any Manufacture Date		UNCONTROLLED / ALL / ALL		
Displacement	Water-Steam			ICOM - 01 STATIONARY TURBINE CI / D	IESEL / ALL / WATER-	
	Injection	Any Manufacture D	ite	STEAM INJECTION / ALL / ALL		

Calculatio	ons Based On Hours	Of Operation	Stationary Turbine Engine Landfill Gas		
		Both N	ISPS Compliant and Not Required		
All			ICOM - 01 STATIONARY TURBINE SI / LAN	IDFILL GAS / ALL / ALL /	
Displacement	All HP	Any Manufacture D	ate ALL / ALL		

Calculatio	ons Based On Hours	Of Operation	Stationary Turbine Engine Digester Gas			
		Both N	NSPS Compliant and Not Required			
All			ICOM - 01 STATIONARY TURBINE SI / DIG	GESTER GAS / ALL / ALL		
Displacement	All HP	Any Manufacture D	ate / ALL / ALL			

Calculation	s Based On Hours	s Of Operation	Sta	tionary Em	ergency Fire Pump Engine	Diesel Fuel	
					S Compliant		
		Manufacture Date B		ICOM - 01 STATIONARY EMERGENCY FIRE PUMP CI / DIESEL /			
		2011		<pre>&lt;11 HP / ALL / NSPS / &lt; 2011</pre>			
	< 11 HP	Manufacture Date		ICOM - 01 STATIONARY EMERGENCY FIRE PUMP CI / DIESEL /			
		On/After 2011		<11  HP / ALL / NSPS / >= 2011			
		,			STATIONARY EMERGENCY FIF		
		Manufacture Date B	erore				
	11 ≤ HP < 25	2011 Manufacture Da	to		11 <= HP < 25 / ALL / NSPS STATIONARY EMERGENCY FIF		
		On/After 2011			11 <= HP < 25 / ALL / NSPS /		
		Manufacture Date B	efore	ICOM - 01	STATIONARY EMERGENCY FIF		
	25 ≤ HP < 50	2011			25 <= HP < 50 / ALL / NSPS		
	25 2111 350	Manufacture Da		ICOM - 01	STATIONARY EMERGENCY FIF		
		On/After 2011			25 <= HP < 50 / ALL / NSPS ,		
		Manufacture Date B	efore	ICOM - 01	STATIONARY EMERGENCY FIF	RE PUMP CI / DIESEL /	
	50 (110 . 100	2011		50 <= HP < 100 / ALL / NSPS / < 2011			
	50 ≤ HP < 100	Manufacture Date		ICOM - 01	STATIONARY EMERGENCY FIF	RE PUMP CI / DIESEL /	
		On/After 2011			50 <= HP < 100 / ALL / NSPS	/ >= 2011	
	100 ≤ HP < 175	Manufacture Date Before		ICOM - 01	STATIONARY EMERGENCY FIF	RE PUMP CI / DIESEL /	
All		2010			100 <= HP < 175 / ALL / NSP		
placement		Manufacture Date		ICOM - 01	STATIONARY EMERGENCY FIF		
		On/After 2010			100 <= HP < 175 / ALL / NSPS	S/>= 2010	
		Manufacture Date Before		ICOM - 01	STATIONARY EMERGENCY FIR	RE PUMP CI / DIESEL /	
		2009			175 <= HP < 600 / ALL / NSP	S/<2009	
1	175 ≤ HP < 600	Manufacture Da	te	ICOM - 01	STATIONARY EMERGENCY FIF	RE PUMP CI / DIESEL /	
		On/After 2009			175 <= HP < 600 / ALL / NSPS	S / >= 2009	
		Manufacture Date B	efore	ICOM - 01	STATIONARY EMERGENCY FIF	RE PUMP CI / DIESEL /	
		2009			600 <= HP <= 750 / ALL / NSP		
6	$600 \le HP \le 750$	Manufacture Da	te	ICOM - 01	STATIONARY EMERGENCY FIF	RE PUMP CI / DIESEL /	
		On/After 2009			600 <= HP <= 750 / ALL / NSP	S / >= 2009	
		;					
						, ,	
	>750 HP	Manufacture Da	te	ICOM - 01			
		On/After 2008			> 750 HP / ALL / NSPS / >	= 2008	
				uired to Co			
						RE PUMP CI / DIESEL /	
	≤ 600 HP	Any Manufacture I	Date				
				ICOM - 01		-	
	>600 HP	Any Manufacture I	Date				
	> 750 HP ≤ 600 HP	On/After 2009 Manufacture Date B 2008 Manufacture Da On/After 2008 Is N Any Manufacture I	Before te lot Requ Date	ICOM - 01 ICOM - 01 uired to Co ICOM - 01	STATIONARY EMERGENCY FIF 600 <= HP <= 750 / ALL / NSP STATIONARY EMERGENCY FIF > 750 HP / ALL / NSPS / < STATIONARY EMERGENCY FIF > 750 HP / ALL / NSPS / > nform to NSPS STATIONARY EMERGENCY FIF <= 600 HP / ALL / NON-NSP STATIONARY EMERGENCY FIF > 600 HP / ALL / NON-NSP	RE PUMP ( S / >= 200 RE PUMP ( < 2008 RE PUMP ( = 2008 RE PUMP RE PUMP RE PUMP	

Calculat	ions Based On Hour	s Of Operation Sta	tionary Emergency Non-Fire Pump Engine Diesel Fuel
			ired to be NSPS Compliant
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL / <
		2007	11 HP / < 10 L / NSPS / < 2007
	< 11 HP	Manufacture Date During	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL / <
	< 11 HP	2007	11 HP / < 10 L / NSPS / = 2007
		Manufacture Date On/After	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL / <
		2008	11 HP / < 10 L / NSPS / >= 2008
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	11 <= HP < 25 / < 10 L / NSPS / < 2007
	11 ≤ HP < 25	Manufacture Date During	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
	112111 (25	2007	11 <= HP < 25 / < 10 L / NSPS / = 2007
		Manufacture Date On/After	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2008	11 <= HP < 25 / < 10 L / NSPS / >= 2008
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	25 <= HP < 50 / < 10 L / NSPS / < 2007
	25 ≤ HP < 50	Manufacture Date During	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
	25 2111 350	2007	25 <= HP < 50 / < 10 L / NSPS / = 2007
		Manufacture Date On/After	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2008	25 <= HP < 50 / < 10 L / NSPS / >= 2008
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
	50 ≤ HP < 100	2007	50 <= HP < 100 / < 10 L / NSPS / < 2007
		Manufacture Date During	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	50 <= HP < 100 / < 10 L / NSPS / = 2007
		Manufacture Date On/After 2008	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
Displacement			50 <= HP < 100 / < 10 L / NSPS / >= 2008
< 10L	100 ≤ HP < 175	Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
< 10L		2007 Manufacture Date On/After	100 <= HP < 175 / < 10 L / NSPS / < 2007 ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	100 <= HP < 175 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	175 <= HP < 600 / < 10 L / NSPS / < 2007
	175 ≤ HP < 600	Manufacture Date On/After	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	175 <= HP < 600 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	600 <= HP < 750 / < 10 L / NSPS / < 2007
	600 ≤ HP < 750	Manufacture Date On/After	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	600 <= HP < 750 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
	750 ≤ HP ≤ 3000	2007	750 <= HP <= 3000 / < 10 L / NSPS / < 2007
		Manufacture Date On/After	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /
		2007	750 <= HP <= 3000 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL />
		2007 Manufacture Date Between	3000 HP / < 10 L / NSPS / < 2007
	> 3000 HP	2007 & 2010	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL / > 3000 HP / < 10 L / NSPS / 2007 - 2010
		Manufacture Date On/After	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL />
		2011	3000 HP / < 10 L / NSPS / >= 2011
			Required to Conform to NSPS
			ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL / <=
	≤ 600 HP	Any Manufacture Date	600 HP / < 10 L / NON-NSPS / ALL
			ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL / >
	>600 HP	Any Manufacture Date	600 HP / < 10 L / NON-NSPS / ALL

Calculat	Calculations Based On Hours Of Operation Static			ionary Emergency Non-Fire Pump Engine	Diesel Fuel			
			Requi	red to be NSPS Compliant				
		Manufacture Date Before		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /				
		2007		<= 600 HP / 10 <= L < 15 / NSP	S / < 2007			
	≤ 600 HP	Manufacture Date Bet	tween	ICOM - 01 STATIONARY EMERGENCY NON-F	FIRE PUMP CI / DIESEL /			
	2000 HP	2007 & 2012		<= 600 HP / 10 <= L < 15 / NSPS /	2007 - 2012			
		Manufacture Dat	e	ICOM - 01 STATIONARY EMERGENCY NON-F				
		On/After 2013		<= 600 HP / 10 <= L < 15 / NSPS	5 / >= 2013			
		Manufacture Date Before		ICOM - 01 STATIONARY EMERGENCY NON-F	FIRE PUMP CI / DIESEL /			
	> 600 HP	2007		> 600 HP / 10 <= L < 15 / NSPS / < 2007				
Displacement		Manufacture Date Between						
10 ≤ L < 15		2007 & 2012		> 600 HP / 10 <= L < 15 / NSPS / 2007 - 2012				
	600 < HP < 4958	Manufacture Date		ICOM - 01 STATIONARY EMERGENCY NON-I	FIRE PUMP CI / DIESEL /			
	000 < HP < 4958	On/After 2013		600 < HP < 4958 / 10 <= L < 15 / N	VSPS/ >= 2013			
	≥ 4958 HP	Manufacture Dat	e	ICOM - 01 STATIONARY EMERGENCY NON-I	FIRE PUMP CI / DIESEL /			
	24958 HP	On/After 2013		>= 4958 HP / 10 <= L < 15 / NSF	PS/ >= 2013			
		ls	Not Re	Required to Conform to NSPS				
	≤ 600 HP	Any Manufacture D	ato	ICOM - 01 STATIONARY EMERGENCY NON-I				
	2 000 HP	Any Manufacture D	ale	<= 600 HP / 10 <= L < 15 / NON	-			
	> 000 UD	Any Manufacture D	ato	ICOM - 01 STATIONARY EMERGENCY NON-I				
	>600 HP	Any Manufacture D	ale	> 600 HP / 10 <= L < 15 / NON-	-NSPS / ALL			

Calculat	ions Based On Hour	rs Of Operation	ionary Emergency Non-Fire Pump Engine Diesel Fuel				
		R	Requir	ired to be NSPS Compliant			
		Manufacture Date Before		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /			
		2007		<= 600 HP / 15 <= L < 20 / NSPS / < 2007			
	≤ 600 HP	Manufacture Date Betw	veen	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL			
	≤ 000 HP	2007 & 2013		<= 600 HP / 15 <= L < 20 / NSPS / 2007 - 2013			
		Manufacture Date		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL			
		On/After 2014		<= 600 HP / 15 <= L < 20 / NSPS / >= 2014			
		Manufacture Date Before		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL /			
	> 600 HP	2007		> 600 HP / 15 <= L < 20 / NSPS / < 2007			
Displacement		Manufacture Date Between					
15 ≤ L < 20		2007 & 2013		> 600 HP / 15 <= L < 20 / NSPS / 2007 - 2013			
		Manufacture Date		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL			
	600 < HP < 2682	On/After 2014		600< HP < 2682 / 15 <= L < 20/ NSPS / >= 2014			
	≥2682 HP	Manufacture Date		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL			
	2 2002 HP	On/After 2014		>= 2682 HP / 15 <= L < 20/ NSPS / >= 2014			
		ls N	lot Re	Required to Conform to NSPS			
	≤ 600 HP	Any Manufacture Dat	to	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL			
	2000 11	Any Manufacture Da	ie	<= 600 HP / 15 <= L < 20 / NON-NSPS / ALL			
	> 600 HP	Any Manufacture Dat	to	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI / DIESEL			
	> 000 TIF	Any Manufacture Da	ie	> 600 HP / 15 <= L < 20 / NON-NSPS / ALL			

Calculations Based On Hours Of Operation Station				nary Emergency Non-Fire Pump Engine	Diesel Fuel	
		R	Require	ed to be NSPS Compliant		
		Manufacture Date B	Before	ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		2007		DIESEL / <= 600 HP / 20 <= L < 25 / NSPS / < 2007		
	≤ 600 HP	Manufacture Da	te	ICOM - 01 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
	2000 HP	Between 2007 & 2		DIESEL / <= 600 HP / 20 <= L < 25 / NS		
		Manufacture Da	te	ICOM - 01 STATIONARY EMERGENCY NO		
		On/After 2014		DIESEL / <= 600 HP / 20 <= L < 25 /	NSPS / >= 2014	
		Manufacture Date Before		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
	> 600 HP	2007		DIESEL / > 600 HP / 20 <= L < 25 / NSPS / < 2007		
Displacement		Manufacture Date		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
20 ≤ L < 25		Between 2007 & 2013		DIESEL / > 600 HP / 20 <= L < 25 / NSPS / 2007 - 2013		
	600 < HP < 2682	Manufacture Date		ICOM - 01 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
	600 < HP < 2682	On/After 2014		DIESEL / 600 < HP < 2682 / 20 <= L < 25/ NSPS / >= 2014		
		Manufacture Da	te	ICOM - 01 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
	≥2682 HP	On/After 2014		DIESEL / >= 2682 HP / 20 <= L < 25/	NSPS / >= 2014	
		ls N	lot Req	uired to Conform to NSPS		
				ICOM - 01 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
	≤ 600 HP	Any Manufacture	Date	DIESEL / <= 600 HP / 20 <= L < 25 / M	NON-NSPS / ALL	
				ICOM - 01 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
	> 600 HP	Any Manufacture	Date	DIESEL / > 600 HP / 20 <= L < 25 / N	ON-NSPS / ALL	

Calculatio	ons Based On Hours	Of Operation	Statio	nary Emergency Non-Fire Pump Engine Dies	sel Fuel	
		Required to be NSPS Compliant				
		Manufacture Date Be	efore	ICOM - 01 STATIONARY EMERGENCY NON-FIRE	PUMP CI /	
		2007		DIESEL / <= 600 HP / 25 <= L < 30 / NSPS / <	< 2007	
		Manufacture Date	e	ICOM - 01 STATIONARY EMERGENCY NON-FIRE	PUMP CI /	
	≤ 600 HP	Between 2007 & 20	13	DIESEL / <= 600 HP / 25 <= L < 30 / NSPS / 200	07 - 2013	
		Manufacture Date	e	ICOM - 01 STATIONARY EMERGENCY NON-FIRE	PUMP CI /	
		On/After 2014		DIESEL / <= 600 HP / 25 <= L < 30 / NSPS / >	= 2014	
		Manufacture Date Be	efore	ICOM - 01 STATIONARY EMERGENCY NON-FIRE	PUMP CI /	
	> 600 HP	2007		DIESEL / > 600 HP / 25 <= L < 30 / NSPS / <	2007	
Displacement		Manufacture Date	e	ICOM - 01 STATIONARY EMERGENCY NON-FIRE	PUMP CI /	
25 ≤ L < 30		Between 2007 & 20	13	DIESEL / > 600 HP / 25 <= L < 30 / NSPS / 200	7 - 2013	
		Manufacture Date	e	ICOM - 01 STATIONARY EMERGENCY NON-FIRE	PUMP CI /	
	600 < HP < 2682	On/After 2014		DIESEL / 600 < HP < 2682 / 25 <= L < 30/ NSPS ,	/ >= 2014	
	> 2602 UD	Manufacture Date	e	ICOM - 01 STATIONARY EMERGENCY NON-FIRE	PUMP CI /	
	≥2682 HP	On/After 2014		DIESEL / >= 2682 HP / 25 <= L < 30/ NSPS / >	= 2014	
	Is Not Required to Conform to NSPS					
	≤ 600 HP	Any Manufacture D	ato	ICOM - 01 STATIONARY EMERGENCY NON-FIRE		
	≤ 000 HP		ate	DIESEL / <= 600 HP / 25 <= L < 30 / NON-NSP		
	> 600 HP	Any Manufacture D	ato	ICOM - 01 STATIONARY EMERGENCY NON-FIRE		
	> 000 HP	Any Manufacture D	ate	DIESEL / > 600 HP / 25 <= L < 30 / NON-NSP	S / ALL	

Calculatio	ns Based On Hours	Of Operation	Stationary Non-Emergency Engine Diesel Fuel
		Requir	ed to be NSPS Compliant
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / < 11
		Before 2007	HP / < 10 L / NSPS / < 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / < 11
	< 11 HP	During 2007	HP / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / < 11
		On/After 2008	HP / < 10 L / NSPS / >= 2008
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 11 <=
		Before 2007	HP < 25 / < 10 L / NSPS / < 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 11 <=
	11 ≤ HP < 25	During 2007	HP < 25 / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 11 <=
		On/After 2008	HP < 25 / < 10 L / NSPS / >= 2008
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 25 <=
		Before 2007	HP < 50 / < 10 L / NSPS / < 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 25 <=
		During 2007	HP < 50 / < 10 L / NSPS / = 2007
	25 ≤ HP < 50	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 25 <=
		Between 2008 & 2012	HP < 50 / < 10 L / NSPS / 2008 - 2012
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 25 <=
		On/After 2013	HP < 50 / < 10 L / NSPS / >= 2013
F	50 ≤ HP < 75	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 50 <=
		Before 2007	HP < 75 / < 10 L / NSPS / < 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 50 <=
Displacement		During 2007	HP < 75 / < 10 L / NSPS / = 2007
< 10L		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 50 <=
		Between 2008 & 2012	HP < 75 / < 10 L / NSPS / 2008 - 2012
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 50 <=
		On/After 2013	HP < 75 / < 10 L / NSPS / >= 2013
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 75 <=
		Before 2007	HP < 100 / < 10 L / NSPS / < 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 75 <=
		During 2007	HP < 100 / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 75 <=
	75 ≤ HP < 100	Between 2008 & 2011	HP < 100 / < 10 L / NSPS / 2008 - 2011
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 75 <=
		Between 2012 & 2013	HP < 100 / < 10 L / NSPS / 2012 - 2013
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 75 <=
		On/After 2014	HP < 100 / < 10 L / NSPS / >= 2014
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 100
		Before 2007	<= HP < 175 / < 10 L / NSPS / < 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 100
		During 2007	<= HP < 175 / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 100
	100 ≤ HP < 175	Between 2008 & 2011	HP < 175 / < 10 L / NSPS / 2008 - 2011
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 100
		Between 2012 & 2013	<pre>&lt;= HP &lt; 175 / &lt; 10 L / NSPS / 2012 - 2013</pre>
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 100
		On/After 2014	<= HP < 175 / < 10 L / NSPS / >= 2014

ns Based On Hours	of Operation S	tationary Non-Emergency Engine Diesel Fuel
		to be NSPS Compliant
	Manufacture Date Before	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	2007	175 <= HP <= 600 / < 10 L / NSPS / < 2007
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Between 2007 & 2010	175 <= HP <= 600 / < 10 L / NSPS / 2007 - 2010
$1/5 \le HP \le 600$	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Between 2011 & 2013	175 <= HP <= 600 / < 10 L / NSPS / 2011 - 2013
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	On/After 2014	175 <= HP <= 600 / < 10 L / NSPS / >= 2014
	Manufacture Date Before	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	2007	600 < HP < 750 / < 10 L / NSPS / < 2007
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
600 JUD 1750	Between 2007 & 2010	600 < HP < 750 / < 10 L / NSPS / 2007 - 2010
600 < HP < 750	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Between 2011 & 2013	600 < HP < 750 / < 10 L / NSPS / 2011 - 2013
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	On/After 2014	600 < HP < 750 / < 10 L / NSPS / >= 2014
	Manufacture Date Before	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	2007	750 <= HP <= 1200 / < 10 L / NSPS / < 2007
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
750 ≤ HP ≤ 1200	Between 2007 & 2010	750 <= HP <= 1200 / < 10 L / NSPS / 2007 - 2010
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Between 2011 & 2014	750 <= HP <= 1200 / < 10 L / NSPS / 2011 - 2014
	Generator Manufacture	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 750
	Date On/After 2015	<= HP <= 1200 / < 10 L / NSPS / >= 2015 GENERATORS
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 750
	On/After 2015	<= HP <= 1200 / < 10 L / NSPS / >= 2015 NON-GENERATORS
	Manufacture Date Before	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	2007	1200 < HP <= 3000 HP / < 10 L / NSPS / < 2007
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Between 2007 & 2010	1200 < HP <= 3000 HP / < 10 L / NSPS / 2007 - 2010
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Between 2011 & 2014	1200 < HP <= 3000 HP / < 10 L / NSPS / 2011 - 2014
$1200 < HP \le 3000$	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Between 2011 & 2014	1200 < HP <= 3000 HP / < 10 L / NSPS / 2011 - 2014 NON-
	Generator Manufacture	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	Date On/After 2015	1200 < HP <= 3000 HP / < 10 L / NSPS / >= 2015
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /
	On/After 2015	1200 < HP <= 3000 HP / < 10 L / NSPS / >= 2015 NON-
	Manufacture Date Before	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >
	2007	3000 HP / < 10 L / NSPS / < 2007
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >
	Between 2007 & 2010	3000 HP / < 10 L / NSPS / 2007 - 2010
	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >
	Between 2011 & 2014	3000 HP / < 10 L / NSPS / 2011 - 2014 GENERATORS
> 3000 HP	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >
	Between 2011 & 2014	3000 HP / < 10 L / NSPS / 2011 - 2014 NON-GENERATORS
	Companyation Manager	
	Generator Manufacture	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >
	Date On/After 2015	3000 HP / < 10 L / NSPS / >= 2015 GENERATORS
	175 ≤ HP ≤ 600 600 < HP < 750	Requirec           Manufacture Date Before           2007           Manufacture Date           Between 2007 & 2010           Manufacture Date           Between 2011 & 2013           Manufacture Date           Between 2011 & 2013           Manufacture Date           Between 2014           Manufacture Date           Between 2017 & 2010           Manufacture Date           Between 2007 & 2010           Manufacture Date           Between 2007 & 2010           Manufacture Date           Between 2007 & 2010           Manufacture Date           Between 2011 & 2013           Manufacture Date           Between 2011 & 2014           Manufacture Date           Between 2011 & 2014           Manufacture Date           Between 2011 & 2014           Generator Manufacture           Date On/After 2015           Manufacture Date           Between 2011 & 2014           Generator Manufacture Date           Between 2011 & 2014           Manufacture Date           Between 2011 & 2014           Manufacture Date           Between 2011 & 2014           Manufacture Date

# APIMS AEI Procedure

Calculations Based On Hours Of Operation		Of Operation	Stationary Non-Emergency Engine Diesel Fuel
		Is Not	Required to Conform to NSPS
			ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / <=
Displacement	≤ 600 HP	Any Manufacture Da	600 HP / < 10 L / NON-NSPS / ALL
< 10L			ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >
	> 600 HP	Any Manufacture Da	600 HP / < 10 L / NON-NSPS / ALL

Calculatio	ons Based On Hours	Of Operation	Stationary Non-Emergency Engine	Diesel Fuel		
	Required to be NSPS Compliant					
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=		
		Before 2007	600 HP / 10 <= L < 15 / NSP	S / < 2007		
	≤ 600 HP	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=		
	2000 HP	Between 2007 & 2012	2 600 HP / 10 <= L < 15 / NSPS / 2007 - 2012 ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 600 HP / 10 <= L < 15 / NSPS / >= 2013 ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 600 HP / 10 <= L < 15 / NSPS / < 2007 ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL /			
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=		
		On/After 2013	600 HP / 10 <= L < 15 / NSPS	5/>=2013		
	> 600 HP	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >			
		Before 2007	600 HP / 10 <= L < 15 / NSPS / < 2007			
Displacement		Manufacture Date	ICOM - 01 STATIONARY NON-EMERG	ENCY CI / DIESEL / >		
10 ≤ L < 15		Between 2007 & 2012	600 HP / 10 <= L < 15 / NSPS / 2007 - 2012			
	600 < HP < 4958	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / 600		
	000 < HP < 4958	On/After 2013	< HP < 4958 / 10 <= L < 15 / NS	SPS/ >= 2013		
	≥ 4958 HP	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	ENCY CI / DIESEL / >=		
	2 4938 HF	On/After 2013	4958 HP / 10 <= L < 15 / NSP	PS/ >= 2013		
	Is Not Required to Conform to NSPS					
	≤ 600 HP	Any Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE			
	2000 11	Any Manufacture Date	600 HP / 10 <= L < 15 / NON	1		
	> 600 HP	Any Manufacture Date	ICOM - 01 STATIONARY NON-EMERG			
	> 000 TIF		600 HP / 10 <= L < 15 / NON-	-NSPS / ALL		

Calculatio	ons Based On Hours	Of Operation	Stationary Non-Emergency Engine	Diesel Fuel		
		Required to be NSPS Compliant				
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=		
		Before 2007	600 HP / 15 <= L < 20 / NSP	S / < 2007		
	≤ 600 HP	Manufacture Date				
	2000111	Between 2007 & 2013				
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=		
		On/After 2014	600 HP / 15 <= L < 20 / NSPS	/ >= 2014		
	> 600 HP	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGI	ENCY CI / DIESEL / >		
	2 000 HP	Before 2007	Required to be NSPS Compliant         Date       ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / <			
	600 < HP < 2682	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGEN	NCY CI / DIESEL / 600		
Displacement		Between 2007 & 2013	< HP < 2682/ 15 <= L < 20 / NSPS	/ 2007 - 2013		
15 ≤ L < 20		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / 600		
		On/After 2014	< HP < 2682 / 15 <= L < 20/ NS	PS / >= 2014		
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGEN	ICY CI / DIESEL / 2682		
	2682 ≤ HP < 4425	On/After 2007	<= HP < 4425 HP / 15 <= L < 20/	NSPS / >= 2007		
	> 4425 UD	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	ENCY CI / DIESEL / >=		
	≥4425 HP	On/After 2007	4425 HP / 15 <= L < 20/ NSP	S / >= 2007		
	Is Not Required to Conform to NSPS					
	≤ 600 HP	Any Manufacture Data	ICOM - 01 STATIONARY NON-EMERGE	ENCY CI / DIESEL / <=		
	≥ 000 HP	Any Manufacture Date	600 HP / 15 <= L < 20 / NON-	-NSPS / ALL		
	> 000 UD	Any Manufacture Data	ICOM - 01 STATIONARY NON-EMERG	ENCY CI / DIESEL / >		
	>600 HP	Any Manufacture Date	600 HP / 15 <= L < 20 / NON-	-NSPS / ALL		

Calculatio	ns Based On Hours	Of Operation	Stationary Non-Emergency Engine	Diesel Fuel	
	Required to be NSPS Compliant				
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=	
		Before 2007	600 HP / 20 <= L < 25 / NSPS	s / < 2007	
	≤ 600 HP	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=	
	≤ 000 HP	Between 2007 & 2013	icom - 01       STATIONARY NON-EMERGENCY CI / DIESEL / <=		
		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGE	NCY CI / DIESEL / <=	
		On/After 2014	600 HP / 20 <= L < 25 / NSPS	/>=2014	
	> 600 HP	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >		
		Before 2007	600 HP / 20 <= L < 25 / NSPS / < 2007		
Displacement		Manufacture Date	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >		
20 ≤ L < 25		Between 2007 & 2013			
	600 JUD 3600	Manufacture Date	ICOM - 01 STATIONARY NON-EMERGEN	ICY CI / DIESEL / 600	
	600 < HP < 2682	On/After 2014	< HP < 2682 / 20 <= L < 25/ NSF	PS / >= 2014	
		Manufacture Date			
	≥2682 HP	On/After 2014	2682 HP / 20 <= L < 25/ NSPS	/>=2014	
		Is Not Re	quired to Conform to NSPS		
	≤ 600 HP	Any Manufacture Date			
	200011				
	> 600 HP	Any Manufacture Date			
	2000 FF	Any Manufacture Date	600 HP / 20 <= L < 25 / NON-	NSPS / ALL	

Calculatio	ons Based On Hours	of Operation	Stationary Non-Emergency Engine Diesel Fuel			
	Required to be NSPS Compliant					
		Manufacture Date	te ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / <=			
		Before 2007	600 HP / 25 <= L < 30 / NSPS / < 2007			
		Manufacture Date	te ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / <=			
	≤ 600 HP	Between 2007 & 202	ICOM - 01         STATIONARY NON-EMERGENCY CI / DIESEL / <           600 HP / 25 <= L < 30 / NSPS / >= 2014           ICOM - 01         STATIONARY NON-EMERGENCY CI / DIESEL /           600 HP / 25 <= L < 30 / NSPS / < 2007			
		Manufacture Date	te ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / <=			
		On/After 2014	600 HP / 25 <= L < 30 / NSPS / >= 2014			
		Manufacture Date	te ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >			
	600.00	Before 2007	600 HP / 25 <= L < 30 / NSPS / < 2007			
Displacement	> 600 HP	Manufacture Date	te ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >			
25 ≤ L < 30		Between 2007 & 202	013 600 HP / 25 <= L < 30 / NSPS / 2007 - 2013			
		Manufacture Date	te ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / 600			
	600 < HP < 2682	On/After 2014	< HP < 2682 / 25 <= L < 30/ NSPS / >= 2014			
	≥2682 HP	Manufacture Date	te ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >=			
		On/After 2014	2682 HP / 25 <= L < 30/ NSPS / >= 2014			
		Is Not Required to Conform to NSPS				
		Anna Manaufa atuma Da	ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / <=			
	≤ 600 HP	Any Manufacture Da	ICOM - 01         STATIONARY NON-EMERGENCY CI / DIESEL / <           13         600 HP / 25 <= L < 30 / NSPS / 2007 - 2013			
			ICOM - 01 STATIONARY NON-EMERGENCY CI / DIESEL / >			
	> 600 HP	Any Manufacture Da	600 HP / 25 <= L < 30 / NON-NSPS / ALL			

Calculations Based On Hours Of Operation			Stationary Non-Emergency Engine	Dual Fuel
A11		Both NSPS Compliant and Not Required		
All			ICOM - 01 STATIONARY NON-EMERGEN	NCY CI / DUAL FUEL /
Displacement	All HP	Any Manufacture Da	ALL / ALL / ALL / ALL / ALL	

# 3.1.3.1.5.2 ICOM-02

3.1.3.1.5.2		iquid Fuel Consumed Sta	tionary Reciprocating Engines	Gasoline Fuel	
			npliant and Not Required	Gasonne ruei	
All		BUTH NSP3 COIL	ICOM - 02 STATIONARY RECIPROCATI		
Displacement	All HP	Any Manufacture Date	/ ALL / ALL / ALL / ALL		
				-	
Calculations Bas	ed on Gallons of L	iquid Fuel Consumed	Stationary Turbine Engine	Diesel	
		Both NSPS Con	pliant and Not Required	<u> </u>	
All	Uncontrolled	Any Manufacture Date	ICOM - 02 STATIONARY TURBINE UNCONTROLLED / AL		
Displacement	Water-Steam		ICOM - 02 STATIONARY TURBINE CI /	,	
	Injection	Any Manufacture Date	STEAM INJECTION / A	LL / ALL	
			•		
alculations Bas	ed On Gallons of L	-	nary Emergency Fire Pump Engine	Diesel Fuel	
		Required t	o be NSPS Compliant		
		Manufacture Date Before 2011	ICOM - 02 STATIONARY EMERGENCY F		
	< 11 HP		< 11 HP / ALL / NSPS /		
	<b>11</b> 11	Manufacture Date On/After	ICOM - 02 STATIONARY EMERGENCY F		
		2011	< 11 HP / ALL / NSPS / >		
		Manufacture Date Before 2011	ICOM - 02 STATIONARY EMERGENCY F		
	11 ≤ HP < 25		11 <= HP < 25 / ALL / NSP		
	11 - 11 (25	Manufacture Date On/After	ICOM - 02 STATIONARY EMERGENCY F		
		2011	11 <= HP < 25 / ALL / NSPS / >= 2011		
	25 ≤ HP < 50	Manufacture Date Before 2011	ICOM - 02 STATIONARY EMERGENCY F		
		Manufactura Data On (Aftar	25 <= HP < 50 / ALL / NSPS / < 2011 ICOM - 02 STATIONARY EMERGENCY FIRE PUMP CI / DIESEL		
		Manufacture Date On/After 2011			
		2011	25 <= HP < 50 / ALL / NSPS		
		Manufacture Date Before 2011	ICOM - 02 STATIONARY EMERGENCY F		
	50 ≤ HP < 100	Manufacture Date On/After	50 <= HP < 100 / ALL / NSF ICOM - 02 STATIONARY EMERGENCY F	$\frac{75}{2011}$	
		2011	50 <= HP < 100 / ALL / NSP		
		2011			
All		Manufacture Date Before 2010	ICOM - 02 STATIONARY EMERGENCY F		
AII Displacement	100 ≤ HP < 175	Manufacture Date On/After	100 <= HP < 175 / ALL / NS ICOM - 02 STATIONARY EMERGENCY F		
Displacement		2010	100 <= HP < 175 / ALL / NSF		
		2010	ICOM - 02 STATIONARY EMERGENCY F	•	
		Manufacture Date Before 2009	175 <= HP < 600 / ALL / NS		
	175 ≤ HP < 600	Manufacture Date On/After	ICOM - 02 STATIONARY EMERGENCY F		
		2009	175 <= HP < 600 / ALL / NSF		
			ICOM - 02 STATIONARY EMERGENCY F		
		Manufacture Date Before 2009	600 <= HP <= 750 / ALL / NS		
	600 ≤ HP ≤ 750	Manufacture Date On/After	ICOM - 02 STATIONARY EMERGENCY F		
		2009	600 <= HP <= 750 / ALL / NS		
			ICOM - 02 STATIONARY EMERGENCY F		
		Manufacture Date Before 2008	> 750 HP / ALL / NSPS /	/ - /	
	>750 HP	Manufacture Date On/After	ICOM - 02 STATIONARY EMERGENCY F		
		2008	> 750 HP / ALL / NSPS /	>= 2008	
		Is Not Reaui	red to Conform to NSPS		
			ICOM - 02 STATIONARY EMERGENCY F	IRE PUMP CI / DIESEL /	
	≤ 600 HP	Any Manufacture Date	<= 600 HP / ALL / NON-N	ISPS / ALL	
			ICOM - 02 STATIONARY EMERGENCY F	IRE PUMP CI / DIESEL /	
	>600 HP	Any Manufacture Date	> 600 HP / ALL / NON-N	SPS / ALL	

Calculations Ba	sed On Gallons of L	iquid Fuel Consumed Station	onary Emergency Non-Fire Pump Engine Diesel Fuel
			d to be NSPS Compliant
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		2007	DIESEL / < 11 HP / < 10 L / NSPS / < 2007
	44.05	Manufacture Date During	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	< 11 HP	2007	DIESEL / < 11 HP / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2008	DIESEL / < 11 HP / < 10 L / NSPS / >= 2008
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		2007	DIESEL / 11 <= HP < 25 / < 10 L / NSPS / < 2007
		Manufacture Date During	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	11 ≤ HP < 25	2007	DIESEL / 11 <= HP < 25 / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2008	DIESEL / 11 <= HP < 25 / < 10 L / NSPS / >= 2008
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		2007	DIESEL / 25 <= HP < 50 / < 10 L / NSPS / < 2007
		Manufacture Date During	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	25 ≤ HP < 50	2007	DIESEL / 25 <= HP < 50 / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2008	DIESEL / 25 <= HP < 50 / < 10 L / NSPS / >= 2008
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		2007	DIESEL / 50 <= HP < 100 / < 10 L / NSPS / < 2007
		Manufacture Date During	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	50 ≤ HP < 100	2007	DIESEL / 50 <= HP < 100 / < 10 L / NSPS / = 2007
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2008	DIESEL / 50 <= HP < 100 / < 10 L / NSPS / >= 2008
Displacement <		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
10L	100 ≤ HP < 175	2007	DIESEL / 100 <= HP < 175 / < 10 L / NSPS / < 2007
101		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2007	DIESEL / 100 <= HP < 175 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		2007	DIESEL / 175 <= HP < 600 / < 10 L / NSPS / < 2007
	175 ≤ HP < 600	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2007	DIESEL / 175 <= HP < 600 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		2007	DIESEL / 600 <= HP < 750 / < 10 L / NSPS / < 2007
	600 ≤ HP < 750	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2007	DIESEL / 600 <= HP < 750 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	750 (110 (2000	2007	DIESEL / 750 <= HP <= 3000 / < 10 L / NSPS / < 2007
	750 ≤ HP ≤ 3000	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2007	DIESEL / 750 <= HP <= 3000 / < 10 L / NSPS / >= 2007
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		2007	DIESEL / > 3000 HP / < 10 L / NSPS / < 2007
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	> 3000 HP	Between 2007 & 2010	DIESEL / > 3000 HP / < 10 L / NSPS / 2007 - 2010
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
		On/After 2011	DIESEL / > 3000 HP / < 10 L / NSPS / >= 2011
		Is Not Requ	uired to Conform to NSPS
			ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	≤ 600 HP	Any Manufacture Date	DIESEL / <= 600 HP / < 10 L / NON-NSPS / ALL
	> 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /
	2000 FF	Any Manufacture Date	DIESEL / > 600 HP / < 10 L / NON-NSPS / ALL

Calculations Bas	alculations Based On Gallons of Liquid Fuel Consumed Stationary Emergency Non-Fire Pump Engine Diesel Fuel				
		Requir	ed to be NSPS Compliant		
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	N-FIRE PUMP CI /	
		Before 2007	DIESEL / <= 600 HP / 10 <= L < 15 /	NSPS / < 2007	
	≤ 600 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	N-FIRE PUMP CI /	
	2000 HP	Between 2007 & 2012	DIESEL / <= 600 HP / 10 <= L < 15 / NS	PS / 2007 - 2012	
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	DN-FIRE PUMP CI /	
		On/After 2013	DIESEL / <= 600 HP / 10 <= L < 15 / M	NSPS / >= 2013	
	> 600 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	N-FIRE PUMP CI /	
		Before 2007	DIESEL / > 600 HP / 10 <= L < 15 / M		
Displacement		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	DN-FIRE PUMP CI /	
10 ≤ L < 15		Between 2007 & 2012	DIESEL / > 600 HP / 10 <= L < 15 / NSF	PS / 2007 - 2012	
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	-	
	600 < HP < 4958	On/After 2013	DIESEL / 600 < HP < 4958 / 10 <= L < 15	/ NSPS/ >= 2013	
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	N-FIRE PUMP CI /	
	≥4958 HP	On/After 2013	DIESEL / >= 4958 HP / 10 <= L < 15 /	NSPS/ >= 2013	
	Is Not Required to Conform to NSPS				
	≤ 600 HP	N-FIRE PUMP CI /			
	200011	Any Manufacture Date	DIESEL / <= 600 HP / 10 <= L < 15 / N	-	
	> 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO		
	2000 HP	Any Manulacture Date	DIESEL / > 600 HP / 10 <= L < 15 / N	ON-NSPS / ALL	

Calculations Based On Gallons of Liquid Fuel Consumed Stationary Emergency Non-Fire Pump Engine Diesel Fuel					
	Required to be NSPS Compliant				
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		Before 2007	DIESEL / <= 600 HP / 15 <= L < 20 / NSPS / < 2007		
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
	≤ 600 HP	Between 2007 & 2013	DIESEL / <= 600 HP / 15 <= L < 20 / NSPS / 2007 - 2013		
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		On/After 2014	DIESEL / <= 600 HP / 15 <= L < 20 / NSPS / >= 2014		
	>600 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		Before 2007	DIESEL / > 600 HP / 15 <= L < 20 / NSPS / < 2007		
Displacement		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
15 ≤ L < 20		Between 2007 & 2013	DIESEL / > 600 HP / 15 <= L < 20 / NSPS / 2007 - 2013		
	600 < HP < 2682	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		On/After 2014	DIESEL / 600 < HP < 2682 / 15 <= L < 20/ NSPS / >= 2014		
	≥2682 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		On/After 2014	DIESEL / >= 2682 HP / 15 <= L < 20/ NSPS / >= 2014		
	Is Not Required to Conform to NSPS				
	≤ 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
			DIESEL / <= 600 HP / 15 <= L < 20 / NON-NSPS / ALL		
		Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
	>600 HP	Any Manufacture Date	DIESEL / > 600 HP / 15 <= L < 20 / NON-NSPS / ALL		

Calculations Bas	ations Based On Gallons of Liquid Fuel Consumed Stationary Emergency Non-Fire Pump Engine Diesel Fuel				
	Required to be NSPS Compliant				
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		2007	DIESEL / <= 600 HP / 20 <= L < 25 / NSPS / < 2007		
	≤ 600 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
	≤ 000 HP	Between 2007 & 2013	DIESEL / <= 600 HP / 20 <= L < 25 / NSPS / 2007 - 2013		
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	DN-FIRE PUMP CI /	
		On/After 2014	DIESEL / <= 600 HP / 20 <= L < 25 / 1	NSPS / >= 2014	
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
	> 600 HP	2007	DIESEL / > 600 HP / 20 <= L < 25 / NSPS / < 2007		
Displacement		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
20≤L<25		Between 2007 & 2013	DIESEL / > 600 HP / 20 <= L < 25 / NSPS / 2007 - 2013		
	600 < HP < 2682	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
		On/After 2014	DIESEL / 600 < HP < 2682 / 20 <= L < 25	5/ NSPS / >= 2014	
	≥2682 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	ON-FIRE PUMP CI /	
		On/After 2014	DIESEL / >= 2682 HP / 20 <= L < 25/	NSPS / >= 2014	
	Is Not Required to Conform to NSPS				
	≤ 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	-	
			DIESEL / <= 600 HP / 20 <= L < 25 / N	-	
	> 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NO	-	
	2000 HP	Any Manufacture Date	DIESEL / > 600 HP / 20 <= L < 25 / N	ON-NSPS / ALL	

Calculations Bas	Iculations Based On Gallons of Liquid Fuel Consumed Stationary Emergency Non-Fire Pump Engine Diesel Fuel				
	Required to be NSPS Compliant				
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
		2007	DIESEL / <= 600 HP / 25 <= L < 30 / NSPS / < 2007		
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
	≤ 600 HP	Between 2007 & 2013	DIESEL / <= 600 HP / 25 <= L < 30 / NSPS / 2007 - 2013		
		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY N	ON-FIRE PUMP CI /	
		On/After 2014	DIESEL / <= 600 HP / 25 <= L < 30 /	NSPS / >= 2014	
		Manufacture Date Before	ICOM - 02 STATIONARY EMERGENCY N	ON-FIRE PUMP CI /	
	> 600 HP	2007	DIESEL / > 600 HP / 25 <= L < 30 / NSPS / < 2007		
Displacement		Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
25 ≤ L < 30		Between 2007 & 2013	DIESEL / > 600 HP / 25 <= L < 30 / NSPS / 2007 - 2013		
	600 < HP < 2682	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY N	ON-FIRE PUMP CI /	
		On/After 2014	DIESEL / 600 < HP < 2682 / 25 <= L < 3	0/ NSPS / >= 2014	
	≥2682 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY N	ON-FIRE PUMP CI /	
		On/After 2014	DIESEL / >= 2682 HP / 25 <= L < 30/	NSPS / >= 2014	
	Is Not Required to Conform to NSPS				
	≤ 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY N		
			DIESEL / <= 600 HP / 25 <= L < 30 / I	•	
	> 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY EMERGENCY N	-	
	2000 HF	Any Manufacture Date	DIESEL / > 600 HP / 25 <= L < 30 / N	ION-NSPS / ALL	

Calculations Bas	ed On Gallons of L	iquid Fuel Consumed	Stationary Non-Emergency Engine Diesel Fuel	
		Require	d to be NSPS Compliant	
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / < 12	
		2007	HP / < 10 L / NSPS / < 2007	
		Manufacture Date During		
	<11 HP	2007	HP / < 10 L / NSPS / = 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / < 1	
		On/After 2008	HP / < 10 L / NSPS / >= 2008	
-				
		Manufacture Date Before		
		2007	HP < 25 / < 10 L / NSPS / < 2007	
	11 ≤ HP < 25	•	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 11 ·	
	112111 (25	2007	HP < 25 / < 10 L / NSPS / = 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 11 <	
		On/After 2008	HP < 25 / < 10 L / NSPS / >= 2008	
ſ		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 25 <	
		2007	HP < 50 / < 10 L / NSPS / < 2007	
		Manufacture Date During	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 25 <	
		2007	HP < 50 / < 10 L / NSPS / = 2007	
	25 ≤ HP < 50	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 25 ·	
		Between 2008 & 2012	HP < 50 / < 10 L / NSPS / 2008 - 2012	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 25 ·	
		On/After 2013	HP < 50 / < 10 L / NSPS / >= 2013	
-				
			ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 50	
		2007	HP < 75 / < 10 L / NSPS / < 2007	
Displacement <	50 ≤ HP < 75	Manufacture Date During	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 50 ·	
10L		2007	HP < 75 / < 10 L / NSPS / = 2007	
101		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 50 -	
		Between 2008 & 2012	HP < 75 / < 10 L / NSPS / 2008 - 2012	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 50 ·	
		On/After 2013	HP < 75 / < 10 L / NSPS / >= 2013	
ſ		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 75 ·	
		2007	HP < 100 / < 10 L / NSPS / < 2007	
			ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 75 ·	
		2007	HP < 100 / < 10 L / NSPS / = 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 75 ·	
	75 ≤ HP < 100	Between 2008 & 2011	HP < 100 / < 10 L / NSPS / 2008 - 2011	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 75	
		Between 2012 & 2013	HP < 100 / < 10 L / NSPS / 2012 - 2013	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 75	
		On/After 2014	HP < 100 / < 10 L / NSPS / >= 2014	
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 10	
	100 ≤ HP < 175	2007	<= HP < 175 / < 10 L / NSPS / < 2007	
		Manufacture Date During	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 10	
		2007	<= HP < 175 / < 10 L / NSPS / = 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 10	
		Between 2008 & 2011	<= HP < 175 / < 10 L / NSPS / 2008 - 2011	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 10	
		Between 2012 & 2013	HP < 175 / <10 L / NSPS / 2012 - 2013	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 10	
		On/After 2014	<= HP < 175 / < 10 L / NSPS / >= 2014	

Calculations Bas	ed On Gallons of Lie	quid Fuel Consumed	Stationary Non-Emergency Engine Diesel Fuel	
		Requir	red to be NSPS Compliant	
		Manufacture Date ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 175 <=		
		Before 2007	Before 2007 HP <= 600 / < 10 L / NSPS / < 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 175 <=	
		Between 2007 & 2010	HP <= 600 / < 10 L / NSPS / 2007 - 2010	
	175 ≤ HP ≤ 600	Manufacture Date		
		Between 2011 & 2013	HP <= 600 / < 10 L / NSPS / 2011 - 2013	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 175 <=	
		On/After 2014	HP <= 600 / < 10 L / NSPS / >= 2014	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 600 <	
		Before 2007	HP < 750 / < 10 L / NSPS / < 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 600 <	
		Between 2007 & 2010	HP < 750 / < 10 L / NSPS / 2007 - 2010	
	600 < HP < 750	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 600 <	
		Between 2011 & 2013	HP < 750 / < 10 L / NSPS / 2011 - 2013	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 600 <	
		On/After 2014	HP < 750 / < 10 L / NSPS / >= 2014	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 750 <=	
		Before 2007	HP <= 1200 / < 10 L / NSPS / < 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 750 <=	
		Between 2007 & 2010	HP <= 1200 / < 10 L / NSPS / 2007 - 2010	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 750 <=	
	$750 \le HP \le 1200$	Between 2011 & 2014	HP <= 1200 / <10 L / NSPS / 2011 - 2014	
		Generator Manufacture	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 750 <=	
		Date On/After 2015	HP <= 1200 / <10 L / NSPS / >= 2015 GENERATORS	
Displacement <		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 750 <=	
10L		On/After 2015	HP <= 1200 / < 10 L / NSPS / >= 2015 NON-GENERATORS	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 1200 <	
		Before 2007	HP <= 3000 HP / < 10 L / NSPS / < 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 1200 <	
		Between 2007 & 2010	HP <= 3000 HP / < 10 L / NSPS / 2007 - 2010	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 1200 <	
		Between 2011 & 2014	HP <= 3000 HP / < 10 L / NSPS / 2011 - 2014 GENERATORS	
	1200 < HP ≤ 3000	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 1200 <	
		Between 2011 & 2014	HP <= $3000 \text{ HP} / < 10 \text{ L} / \text{NSPS} / 2011 - 2014 \text{ NON-GENERATOR}$	
		Generator Manufacture	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 1200 <	
		Date On/After 2015	HP <= $3000 \text{ HP}$ / < $10 \text{ L}$ / NSPS / >= $2015 \text{ GENERATORS}$	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 1200 <	
		On/After 2015	HP <= $3000 \text{ HP}$ / < $10 \text{ L}$ / NSPS / >= $2015 \text{ NON-GENERATORS}$	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / > 3000	
		Before 2007	HP / $<$ 10 L / NSPS / $<$ 2007	
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / > 3000	
		Between 2007 & 2010		
	> 3000 HP	Manufacture Date	HP / < 10 L / NSPS / 2007 - 2010	
		Between 2011 & 2014	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / > 3000	
		Manufacture Date	HP / < 10 L / NSPS / 2011 - 2014 GENERATORS ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / > 3000	
		Between 2011 & 2014	HP / < 10 L / NSPS / 2011 - 2014 NON-GENERATORS	
		Generator Manufacture	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / > 3000	
		Date On/After 2015 Manufacture Date	HP / < 10 L / NSPS / >= 2015 GENERATORS ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / > 3000	
		On/After 2015	HP / < 10 L / NSPS / >= 2015 NON-GENERATORS	

# APIMS AEI Procedure

Calculations Based On Gallons of Liquid Fuel Consumed		Stationary Non-Emergency Engine	Diesel Fuel		
	Is Not Required to Conform to NSPS				
Displacement < 10L	≤ 600 HP Any Manufactu		ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / <= 600		
		Any Manufacture Date	HP / < 10 L / NON-NSPS / ALL		
	> 600 HP Any Manufacture Date		ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / > 60		
		HP / < 10 L / NON-NSPS / ALL			

Calculations Bas	Iculations Based On Gallons of Liquid Fuel Consumed Stationary Non-Emergency Engine Diesel Fuel					
	Required to be NSPS Compliant					
		Manufacture Date Before	e ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / <= 600			
		2007	HP / 10 <= L < 15 / NSPS / < 2007			
	≤ 600 HP	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / <= 60			
	≤ 600 HP	Between 2007 & 2012	HP / 10 <= L < 15 / NSPS / 2007 - 2012			
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / <= 600		
		On/After 2013	HP / 10 <= L < 15 / NSPS / >	= 2013		
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENO	CY CI / DIESEL / > 600		
	> 600 HP	2007	HP / 10 <= L < 15 / NSPS / < 2007			
Displacement		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENO	CY CI / DIESEL / > 600		
10 ≤ L < 15		Between 2007 & 2012	HP / 10 <= L < 15 / NSPS / 20	07 - 2012		
	600 < HP < 4958	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGEN	CY CI / DIESEL / 600 <		
		On/After 2013	HP < 4958 / 10 <= L < 15 / NSP	S/ >= 2013		
	≥4958 HP	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY	/ CI / DIESEL / >= 4958		
		On/After 2013	HP / 10 <= L < 15 / NSPS/ >	= 2013		
	Is Not Required to Conform to NSPS					
		Anna Manaufa atuma Data	ICOM - 02 STATIONARY NON-EMERGENO	Y CI / DIESEL / <= 600		
	≤ 600 HP	Any Manufacture Date	HP / 10 <= L < 15 / NON-NS	PS / ALL		
	5 COO UD		ICOM - 02 STATIONARY NON-EMERGEN	CY CI / DIESEL / > 600		
	> 600 HP	Any Manufacture Date	HP / 10 <= L < 15 / NON-NS	PS / ALL		

Calculations Bas	culations Based On Gallons of Liquid Fuel Consumed Stationary Non-Emergency Engine Diesel Fuel				
	Required to be NSPS Compliant				
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / <= 600		
		2007	HP / 15 <= L < 20 / NSPS / < 2007		
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / <= 600		
	≤ 600 HP	Between 2007 & 2013	HP / 15 <= L < 20 / NSPS / 2007 - 2013		
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	CY CI / DIESEL / <= 600	
		On/After 2014	HP / 15 <= L < 20 / NSPS / 3	>= 2014	
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGEN	CY CI / DIESEL / > 600	
	> 600 HP	2007	HP / 15 <= L < 20 / NSPS /	< 2007	
	600 < HP < 2682	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY NON-FIRE PUMP CI /		
Displacement		Between 2007 & 2013	& 2013 DIESEL / 600 < HP < 2681 / 15 <= L < 20 / NSPS / 2007 - 2013		
15≤L<20		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENCY CI / DIESEL / 600		
		On/After 2014	HP < 2682 / 15 <= L < 20/ NSPS / >= 2014		
	2682 ≤ HP < 4425	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / 2682 <=	
		On/After 2007	HP < 4425 HP / 15 <= L < 20/ NSPS / >= 2007		
	≥4425 HP	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / >= 4425	
		On/After 2007	HP / 15 <= L < 20/ NSPS / 3	>= 2007	
	Is Not Required to Conform to NSPS				
	≤ 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY NON-EMERGEN		
			HP / 15 <= L < 20 / NON-NS		
	> 600 HP		ICOM - 02 STATIONARY NON-EMERGEN		
	> 000 HP	Any Manufacture Date	HP / 15 <= L < 20 / NON-NS	SPS / ALL	

Calculations Bas	Calculations Based On Gallons of Liquid Fuel Consumed		Stationary Non-Emergency Engine	Diesel Fuel
		Require	ed to be NSPS Compliant	
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / <= 600
		2007	HP / 20 <= L < 25 / NSPS / < 2007	
	≤ 600 HP	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / <= 600
	2000 HP	Between 2007 & 2013	HP / 20 <= L < 25 / NSPS / 20	07 - 2013
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / <= 600
		On/After 2014	HP / 20 <= L < 25 / NSPS / 2	>= 2014
	>600 HP	Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENO	CY CI / DIESEL / > 600
		2007	HP / 20 <= L < 25 / NSPS /	< 2007
Displacement		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGEN	CY CI / DIESEL / > 600
20 ≤ L < 25		Between 2007 & 2013	HP / 20 <= L < 25 / NSPS / 20	07 - 2013
	600 < HP < 2682	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGEN	CY CI / DIESEL / 600 <
		On/After 2014	HP < 2682 / 20 <= L < 25/ NSP	S / >= 2014
	≥2682 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY N	ION-FIRE PUMP CI /
		On/After 2014	DIESEL / >= 2682 HP / 20 <= L < 25/	/ NSPS / >= 2014
	Is Not Required to Conform to NSPS			
	≤ 600 HP	Any Manufastura Data	ICOM - 02 STATIONARY NON-EMERGENO	CY CI / DIESEL / <= 600
	2000 HP	Any Manufacture Date	HP / 20 <= L < 25 / NON-NS	SPS / ALL
	> 600 HP	Any Manufacture Data	ICOM - 02 STATIONARY NON-EMERGEN	
	2000 HP	Any Manufacture Date	HP / 20 <= L < 25 / NON-NS	SPS / ALL

Calculations Bas	ed On Gallons of Li	quid Fuel Consumed	Stationary Non-Emergency Engine	Diesel Fuel		
		Required to be NSPS Compliant				
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / <= 600		
		2007	HP / 25 <= L < 30 / NSPS / < 2007			
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / <= 600		
	≤ 600 HP	Between 2007 & 2013	HP / 25 <= L < 30 / NSPS / 20	07 - 2013		
		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENC	Y CI / DIESEL / <= 600		
		On/After 2014	HP / 25 <= L < 30 / NSPS / 3	>= 2014		
		Manufacture Date Before	ICOM - 02 STATIONARY NON-EMERGENO	CY CI / DIESEL / > 600		
	> 600 HP	2007	HP / 25 <= L < 30 / NSPS /	< 2007		
Displacement		Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENO	CY CI / DIESEL / > 600		
25 ≤ L < 30		Between 2007 & 2013	HP / 25 <= L < 30 / NSPS / 20	07 - 2013		
	600 < HP < 2682	Manufacture Date	ICOM - 02 STATIONARY NON-EMERGEN	CY CI / DIESEL / 600 <		
		On/After 2014	HP < 2682 / 25 <= L < 30/ NSP	S / >= 2014		
	≥2682 HP	Manufacture Date	ICOM - 02 STATIONARY EMERGENCY N	ION-FIRE PUMP CI /		
		On/After 2014	DIESEL / >= 2682 HP / 25 <= L < 30/	' NSPS / >= 2014		
	Is Not Required to Conform to NSPS					
	≤ 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY NON-EMERGENO			
	2 000 TIF	Any Manulacture Date	HP / 25 <= L < 30 / NON-NS	•		
	> 600 HP	Any Manufacture Date	ICOM - 02 STATIONARY NON-EMERGEN			
	> 000 TIF	Any Manuacture Date	HP / 25 <= L < 30 / NON-NS	SPS / ALL		

Calculations Bas	ed On Gallons of Li	quid Fuel Consumed	Stationary Non-Emergency Engine	Dual Fuel
			Compliant and Not Required	
All			ICOM - 02 STATIONARY NON-EMERGENO	CY CI / DUAL FUEL / ALL
Displacement	All HP	Any Manufacture Date	/ ALL / ALL / ALL	

## 3.1.3.1.5.3 ICOM-04

Calculations Based On Hours Of Operation		Stationary Reciprocating Engines	Natural Gas	
		Compliant and Not Required		
	2 Churches Lesens Duran		ICOM - 04 STATIONARY RECIPROCATING	G SI / NATRUAL GAS /
	2-Stroke Lean Burn	Any Manufacture Date	ALL / 2-STROKE LEAN BURN / ALL / ALL	
All	A Chucke Lee a Durin	Stroke Lean Burn Any Manufacture Date	ICOM - 04 STATIONARY RECIPROCATING	G SI / NATRUAL GAS /
Displacement	4-Stroke Lean Burn		ALL / 4-STROKE LEAN BURN /	ALL / ALL
	4 Stroke Dieb Durn	Any Manufastura Data	ICOM - 04 STATIONARY RECIPROCATING	G SI / NATRUAL GAS /
	4-Stroke Rich Burn Any Manufacture Date		ALL / 4-STROKE RICH BURN /	ALL / ALL

Calculations Based On Hours Of Operation		of Operation	Stationary Turbine Engine Natrual Gas	
	SPS Compliant and Not Required			
	Lean Premix	Any Manufacture Da	ICOM - 04 STATIONARY TURBINE SI / NATURAL GAS / ALL / LEA	
All	Lean Premix	Any Manufacture Date	PREMIX / ALL / ALL	
Displacement	Uncontrolled	Any Manufacture Da	ICOM - 04 STATIONARY TURBINE SI / NATRUAL GAS / ALL /	
Displacement	Ally Manu	Ally Mallulacture Da	UNCONTROLLED / ALL / ALL	
	Water-Steam		ICOM - 04 STATIONARY TURBINE SI / NATRUAL GAS / ALL /	
	Injection	Any Manufacture Da	WATER-STEAM INJECTION / ALL / ALL	

Calculations Based On Hours Of Operation		Stationary Turbine Engine	Landfill Gas	
		ISPS Compliant and Not Required		
All		Anna Manufashina Data	ICOM - 04 STATIONARY TURBINE SI / LAN	IDFILL GAS / ALL / ALL /
Displacement	All HP	Any Manufacture Da	ALL / ALL	

Calculations Based On Hours Of Operation		Stationary Turbine Engine	Digester Gas	
Both NSPS Compliant and Not Required				
All			ICOM - 04 STATIONARY TURBINE SI / DIG	ESTER GAS / ALL / ALL /
Displacement	All HP	Any Manufacture Da	ALL / ALL	

If the manufacturer supplied engine specific emission factors, these should be used instead of the standard emission factor sets. Contact the APIMS data standard personnel for configuration in APIMS.

If your permit or regulatory agency requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.1.3.1.6 Materials

The last step in setting up the Unique Process record is to add the fuel as the authorized material on the *Authorized Materials* tab.

Process Edupment Ca	et statutes Registerry Authorized Naterials	Indiatual Contacts Zones Records Assessments Balas	
Create Authorized Mate	enal		
0 records found			
			Save
Actions 1111 +	CAGE CHOR	Phil Material Name	Authorize Flag
	1	No records found	
			Save

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations	Regulatory Authorized Materials	Industrial Contacts	Zones Records	Assessments	Status
NSN:*	DIESEL	FUEL	Verified)		
CAGE Code:	EMC				
PNI:	А				
Material Name:	DIESEL	FUEL (INCLUDES BIO	DIESEL)		
Authorize?	Yes	○ No			
1	Save &	Create Another Save	& Finish Cancel		

Select the fuel used from the list of values. Next select "Yes" to **Authorize** the material, then click the **Save & Finish** button.

## 3.1.3.2 New Sources

## 3.1.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

It is also recommended to take pictures of the name plates and unit while in the field if possible.

Location:					
Location Description:					
	D: Asset Type:				
Unit Description:					
Engine Details:	Alternator Details:				
Manufacturer:	Manufacturer:				
Model:	Model:				
Serial:	Serial:				
Fuel:					
Displacement: Cylinders:	Rated KW:				
Rated hp: RPM:	Amps: Phase:				
Ignition Type:	Frequency:				
CEMS? CPMS? Hour Meter?	Voltage:				
Manufacture Date:	Power Factor:				
Order Date:	Switch Details:				
Install Date:	Manufacturer:				
Reconstruction Date:	Model:				
Usage Tracking Method:	Serial:				
Crankcase Ventilation:	Amps: Poles:				
Battery Install Date:	Bypass Capable?				
Engine Family:	Switch Type:				

Integral Tank Details:	Separate Tank Details:			
Tank ID:	Tank ID:			
Position:	Position:			
Volume:	Volume:			
Length: Diameter:	Length: Diameter:			
Details Collected at the Shop:				
Priority: Real Proper	ty ID:			
NSPS Applicable: NESHAP Exempt:				
Max Demand Load: Ir	nspection Anchor Date:			
Authorization Letter: 🔲 One-line Diag	gram: 🔲 Facility Schematics: 🗌			
Technical Data Sheet: 🔲 🛛 O & M Manu	als: Connection Diagrams:			
Approved Design: 🗌 As-Built Draw	vings: MOA(s):			
Additional Comments:				

## 3.1.3.2.2 New Source Configuration

## 3.1.3.2.2.1 New Source Wizard

For installations that have not implemented the Facility Power module in APIMS, this is the proper configuration of data. In order to properly document this emission source in APIMS, there will need to be a unique record for each engine.

Click on Engine New Source Wizard under the Emission Unit tab.

omes Emission-Unit Usage Calculations Reports Compliance Data Materials Tanks Setup	
Help Desk: (800) 274-4406 Add New Equipment Email: help@spins-support.com	0
UNITIDENTIFICATION	Required: 7
UNIT DETAILS	Required: 7
FUEL/TANK	Required: 2
ENGINE	Required: 10
ALTERNATOR	Required: 1
REGULATORY INFO	(Required;4)
CALCULATION METHODS	Regared: 3
BASSION CALCULATIONS	
CONTROL	Required:1
STACK	Required; 1
VERDY GENERATOR SET.	
COMMENTS	

All the modules highlighted in red will need data populated to properly configure the engine in APIMS. Click the UNIT IDENTIFICATION hyperlink to view the data entry fields.

Engure Unit Type"	STATIONARY EMERGENCY DEVERATOR	
Unit SQ4	0913	
Amer Type*	· MAR O END	
Real Property D	5442963	
540.0	Anne II	
Priacity	5	
Asset Allocation Category	C Replace by Attribut. • Replacement Eighte C Replacement Not Realitie	
Air Facility*	MCDURE ARE	
Location*	80/10/48 6913	
Date Unit was Ordered	3006/11/05	
Menufecture Date"	2006/06/01	
Instal Dates		
Management Group	PCM98 PKC	1
Dass unit have a Continuous Emissions Monitoring System (CENS)?	• Yan C Re	
CEMS Monitoring Flam	Risule (25MS_Monitoring_Planutoce	Upicar 1
	Was Pin San 1 25 148	
loss unit have a Continuous Parameter Monitoring System (CPMS)?	• yes 0 me	
OVPS Monitoring Plan	Brunde: CMPS_Manituring_Plan.docs	Uproset 2
	Was File Law is 22.118	
Spec Sheet	Stores Spec_Sneet.adl	Univer 🚨
	Nex Pic Service 25 MB	
Technical Gate Sheet	Remove Tech_Data_street.pdf WestFin_Socia_25.00	Upiced _
A	milec development common bess	
Generator Set Description*	and an internet of the second second second	

Select the **Engine Unit Type** that best fits the unit type from the list of values provided below:

- AIRCRAFT ARRESTING SYSTEM These units are used to rewind the cable used to rapidly decelerate an aircraft as it lands.
- PORTABLE GENERATOR This is a unit that can be moved from site to site and does not reside in any single location for 12 months or more.
- PUMP ENGINE These are units used to pump water such as during a fire.
- STATIONARY EMERGENCY GENERATOR These are units that provide backup power but do not power a moving vehicle or piece of equipment.
- STATIONARY NON-EMERGENCY GENERATOR These are units that provide main power but do not power a moving vehicle or piece of equipment.
- TACTICAL SUPPORT EQUIPMENT This defined as equipment that is used in combat, combat support, combat service support, tactical or relief operations or training for such operations.

Enter the **Unit ID** that is used by the Facility Power shop or by the shop that maintains the engine.

Select the **Asset Type**, either RPIE (Real Property Installed Equipment) or EAID (Equipment Authorization Inventory Data). EAID units are usually mobile units.

Depending upon the value selected in the **Asset Type** field, enter the associated ID in the **Real Property ID** or **EAID ID** fields.

Enter the **Priority**, this a number utilized by the Facility Power shop to track the order they resort power in the case of a basewide power outage. If this number is not known, either leave blank or contact the Facility Power shop for the information.

Select the **Asset Allocation Category**, if known, this is also a field utilized and maintained by the Facility Power shop.

Select the **Air Facility** name that is responsible for the unit.

Select the **Location** of the unit from the drop down, this is usually the building number closest to the engine.

If available, enter the **Date Unit was Ordered** to match the date the engine was ordered from the manufacturer. This is very important to enter accurately as it can have regulatory implications.

Enter the **Manufacture Date** to match the date the engine was manufactured. This can often be found on the name plate on the engine. This is very important to enter accurately as it can have regulatory implications.

Enter the **Install Date** for the engine, this is very important to enter accurately as it can have regulatory implications.

Select the **Management Group** from the available list to indicate the group responsible for maintaining the engine. For most engines this will be Power Pro.

Specify if the unit has a **Continuous Emissions Monitoring System (CEMS)** by selecting the appropriate radio button. If the unit does have a CEMS, the **CEMS Monitoring Plan** can be uploaded as a file attachment.

Specify if the unit has a **Continuous Parameter Monitoring System (CPMS)** by selecting the appropriate radio button. If the unit does have CPMS, the **CMPS Monitoring Plan** can be uploaded as a file attachment.

The next fields allow for the engine **Spec Sheet** and the **Technical Data Sheet** to be uploaded as file attachments. This is very useful information and it is important to upload these files as they can serve as a reference to all engine specifications. To upload these documents, use the Browse button to navigate out to the file saved on your computer. Once the file name appears it will still need to be uploaded, by clicking the Upload button after the data has been saved.

Enter the **Generator Set Description** to further identify the unit. This could be a combination of location and engine manufacturer, such as CLINIC GENERATOR – CUMMINS DIESEL.

Once these fields are populated it is a good practice to scroll to the bottom and click the Save button. This will then allow you to return to the file upload fields and click the Upload button.

The next section is the UNIT DETAILS section; click the hyperlink to expand section to view the data fields.

Usage Tracking Method*	Fuel     Fuel     Fuel     Fuel	
installed?*	💌 Yes 🖸 No	
Max Demand Load*	43	
	Feak demand of facility/building	

The **Usage Tracking Method** fields are used to determine how the engine usage is tracked. The most common and recommended method is **Hours of Operation**.

This selection will affect how the usage information is tracked and which algorithms and emission factors will be used for emissions calculations.

The next field indicates whether the engine has a **non-resettable hour meter installed**. This is required by law for all emergency engines with a manufacturer date newer than 2007.

The **Max Demand Load** field is also very important as it can be used to accurately calculate emissions. Many engines are sized to have a max power output that is greater than the highest level of power required by the item being powered. For example, a 60 hp emergency generator is attached to a building to provide backup power, however the total maximum amount of power the building requires to run is only 45 hp. Therefore, in this case the Max Demand Load would be 45/60=75%. This is only if there is not a load balancer. Very rarely is this number ever 100%. Air Force Instruction for Electrical System, Power Plants and Generators, AFI 32-1062 addresses specific generator sizing guidelines. Additionally, the Design and Construction Engineering group can be contacted.

The next section is the FUEL/TANK section; click the hyperlink to expand section to view the data fields.

TANK		
Fuel Type*	DIESEL FUEL (INCLUDES BIODIESEL)	3
Is this a dual fuel unit?*	* Yes 💿 No	
Secondary Fuel Type*	NATURAL GAS	
Tank Configuration*	🔹 integral 🐵 Separate 🐵 Both	

Select the **Fuel Type** stored in the associated fuel tank.

The next field, **Is this a dual fuel unit?** can be used to specify if the unit runs on a primary fuel and a backup fuel. If Yes is selected, another field will be shown that allows the **Secondary Fuel Type** to be specified.

The **Tank Configuration** field is used to specify if the fuel tank is built into the unit (Integral) if it is located separate from the unit (Separate) or if there are both types of tanks (Both).

If Integral is selected, the fields below will be displayed.

Select Integral Tank ID	Start Typing		
	Capacity: GAL		
integral Tank ID	959-1		
Integral Fuel Tank Position*	🔘 Above 🔹 Belov	© Side	
Integral Fuel Tank Capacity*	125	GAL	
Engine Run-time on Full Integral	6	HRS	

If the tank is already configured in APIMS, it can be selected from the **Select Integral Tank ID** list of values by typing the tank ID and selecting the correct record as it appears in a list below the field as shown.

Select Integral Tank ID	95	
	1039-1; 14950-1	
	503-4; 14951-4	
	503-5; 14951-7	
	959-1; 17804-1	
	959-2 <sup>-</sup>	
	959-3	

If the tank is not already configured in APIMS, then populate the **Integral Tank ID** text field. This ID should be the building number or identifier that can be used by base personnel to easily identify the tank. APIMS will then create the tank in the STAR module based on the information provided in these screens.

The Integral Fuel Tank Position field needs to be specified as either Above, Below or Side.

The Integral Fuel Tank Capacity should be specified to be the total internal volume of the tank in gallons.

The **Engine Run-time on Full Integral Tank** field should be entered as the number of hours the generator can run on a full tank.

If Separate (not integral) is selected and the tank is already configured in the STAR module of APIMS the following fields will be displayed.

this unit supported by a new tank?	© Yes ∰ No			
Select Separate Tank ID*	959-3			
	Capacity: 500 GAL		Position: Aboveground	
Engine Run-time on Full Separate Tank*	24	HRS		

Populate the Select Separate Tank ID field by either typing the ID and selecting from the list or using the

icon to select the tank from the Tank Search pop-up window.

The **Engine Run-time on Full Separate Tank** field should be entered as the number of hours the generator can run on a full tank.

If Separate (not integral) is selected and the tank is not configured in the STAR module of APIMS the following fields will be displayed.

this unit supported by a new tank?	# Yes 📄 No		
	Flease complete the fo	llowing fields so that the new tank may be entered into the s	yatevn.
Tank Type*	HORIZONTAL FIXED	ROOF	9
Install Date*	2013/06/08	<b>m</b>	
Installation/GSU*	AIR FORCE BASE		
Description*	CUNIC - BLDG 959 -	SENERATOR TANK	
Separate Tank ID	959-1		
Separate Fuel Tank Position*	Aboveground	nderground 🔘 Corwault	
Separate Fuel Tank Capacity*	500	GAL	
		HRS	

The Tank Type needs to be selected from the list of values (DOMED EXT. FLOATING ROOF, EXTERNAL FLOATING ROOF, HORIZONTAL FIXED ROOF, INTERNAL FLOATING ROOF, and VERTICAL FIXED ROOF). The most common type of tank is HORIZONTAL FIXED ROOF.

The Install Date should be entered as the date the tank was first put in place and installed at the current location.

The **Installation/GSU** should be the installation that manages the storage tank. This may be different from the Facility specified in the previous screen as Air Quality Facilities and Storage Tank Installations may be defined differently.

The **Description** field should be used to describe where the tank is located and the main purpose for the tank.

The **Separate Tank ID** should be the building number or identifier that can be used by base personnel to easily identify the tank. APIMS will then create the tank in the STAR module based on the information provided in these screens.

The **Separate Fuel Tank Position** field needs to be specified as Aboveground, Underground or Convault.

The **Separate Fuel Tank Capacity** should be specified to be the total internal volume of the tank in gallons.

The **Engine Run-time on Full Separate Tank** field should be entered as the number of hours the generator can run on a full tank.

The next section is the ENGINE section; click the hyperlink to expand section to view the data fields. Engine manufacturers often have important information included in the model number if you know how to read it. This also varies from manufacturer to manufacturer. For a complete list of codes and information that can be obtained from the model number for the most common manufacturers, refer to Appendix A.

The first field specifies the **Engine Type**, reciprocating or turbine. The selection on this field will determine the fields that appear below.

If the engine is a RECIPROCATING engine the following fields will appear.

Engine Type*	# RECIPROCATING (	U TURBINE			
ignition Type	Compression				
Engine Serial Number*	35150886				
Engine Model Number	QSM11-G2	QSM11-G2			
Engine Manufacturer*	CUMMINS				
Manufacture Date*	2006/86/01	0			
Engine Model Year*	2006				
EPA Engine Family	6CEXH0912XAJ				
Revolutions Per Minute*	1800	RP	M		
Horsepower*	470	F	₽ )		
Engine Displacement*	10.8		L		
# of Cylinders*	6				
Cylinder Displacement	1.80 L				
Crankcase Ventilation*	💽 Closed 🕕 Open				
Exhaust Gas Temperature	Enter Number	18	F		

The **Ignition Type** will automatically populate as **Compression** if the fuel specified in the fuel section was DIESEL, JP-10, JP-7, JP-5, or JP-8. If the fuel specified was DIGESTER GAS, GASOLINE, LANDFILL GAS, LPG, or NATURAL GAS the Ignition Type will automatically populate as **Spark**.

If the Ignition Type is Spark, additional fields will appear as shown below.

Ignition Type	Spark
Stroke*	🔘 Two-stroke 🖲 Four-stroke
Burn*	🖲 Lean-burn 🔘 Rich-burn

Spark ignition engines can be either Two-stroke or Four-stroke depending upon the revolutions of the crankshaft.

Four and two stroke engines can also be either Lean-burn or Rich-burn. Lean-burn refers to the burning of fuel with an excess of air with a ratio ranging from 20:1 to 50:1 and are typically higher than 24:1. Richburn refers to engines that operate at near-stoichiometric combustion where the air/fuel ratio is nearly 16:1. If this is not known, refer to manufacturer documentation.

# APIMS AEI Procedure

The data for the following fields can be found on the engine plate and engine specification. This is not to be confused with the plate that is found on the generator set. This information is specific to the engine and should not be the generator set information. Often the manufacturer of the engine is different from the generator set manufacturer.

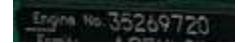
Refer to Appendix 4 for Engine Manufacturer Specific Information and Guidance for help.



Engine



## **Engine Plate**



Serial: 35269720

## APIMS AEI Procedure

The **Engine Serial Number** field is very important as it uniquely identifies the engine. This is not to be confused with the serial number of the generator set. This number should be on the engine nameplate attached to the engine.



# Model: QSM11-G4 NR3

The **Engine Model Number** field is very important as it correctly identifies the engine. Most manufacturer model numbers are coded with important information regarding the engine. This model number can also be used to obtain specification sheets and technical data sheets.



Manufacturer: Cummins

The **Engine Manufacturer** field is very important as it identifies the manufacturer of the engine. This is not to be confused with the manufacturer of the generator set. This information should be on the engine nameplate attached to the engine.





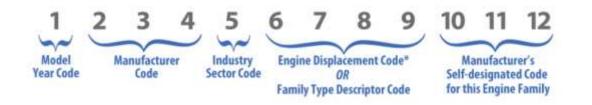
The **Manufacture Date** must be recorded accurately as it has regulatory significance as to the requirements imposed on the engine. Most of these regulations differ from year to year based on the manufacture date. This date should also be included on the engine name plate.

The **Engine Model Year** should also be recorded accurately as it is the method used by manufacturers to track the engine certifications.





The **EPA Engine Family** can be obtained from the engine name plate. This is used by the EPA to identify a group of engines for certification and compliance purposes. The typical naming convention is as follows:



## APIMS AEI Procedure

Rated Pow	er HP/KW	at RPM	
Standby	470/350	at	1800
atondby	431/321	ot	1500
Prime	426/318	et	1800
Picine Vision	392/292	ot	1500
THE LOSP	Cold in/mm	.014/.3	56

**RPM:** 1800

The **Revolutions Per Minute** is a measure of the frequency of rotation, specifically the number of rotations around a fixed axis in one minute. This data point is important to the Facility Power user community as it is part of the Authorization Inventory. It can also be used to determine the output frequency of the engine and is used to certify the engine.

Rated Powe	r HP) KW	at RPW	
Standby Standby	470/350 431/321		1800
Prime	426/318 392/292		1500 1800
Volve Losh	Cold in/mm	.014/.3	1500 56

Rated hp: 470

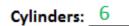
The **Horsepower** of the engine should be the maximum mechanical power that an engine can put out or generate. This is usually in expressed in either hp or kw. This should not be electrical output of the generator.



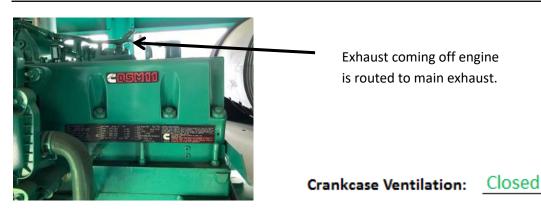
Displacement: 10.8 L

The **Engine Displacement** is the total volume of all the cylinders of an engine. This is usually expressed in liters (L) and should be displayed on the engine name plate or specification sheet. This is a very important data point as it can impact how emissions are calculated.





The **# of Cylinders** is an important indicator of the size of the engine. This value is also used on combination with the Engine Displacement field to auto-calculate the **Cylinder Displacement** field.

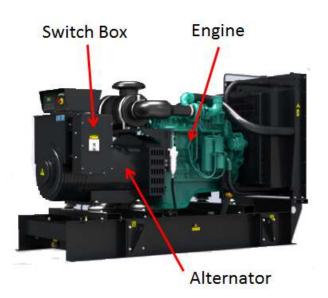


The **Crankcase Ventilation** field is used to determine compliance with 40 CFR 89.112(e) which dictates that crankcase emissions may not be discharged to the ambient atmosphere unless they are permanently routed into the exhaust and included in exhaust emission measurements. This applies to all Tier 2 engines and later models unless turbochargers, pumps, blowers, or superchargers are employed for air induction.

The next section is the ALTERNATOR section; click the hyperlink to expand section to view the data fields.

ALTERNATOR		
KW Rating*	300	ĸw

The **KW Rating** of the alternator can be obtained from the engine plate or specification sheet. This is not necessarily the same as the KW rating of the generator set or engine.



The next section is the REGULATORY INFO section; click the hyperlink to expand section to view the data fields.

Subject to NSPS*	Ves * No	
Permitted*	* Yes. D No	
Emission Unit ID*	EU DG	
Emission Unit ID*	EU 06	
Source Classification Code	2270006005	
Is this unit exempt from RICE	Ves * No	
NESHAP?*		

The first field selects whether the engine is **Subject to NSPS** or otherwise known as the New Source Performance Standards. The NSPS regulations for compression ignition engines are detailed in 40 CFR Part 60 Subpart IIII. The NSPS regulations for spark ignition engines are detailed in 40 CFR Part 60 Subpart JJJJ. For additional guidance reference the United States Air Force Compliance Guide for Stationary Internal Combustion Engines; National Emission Standards for Hazardous Air Pollutants and New Source Performance Standards based on the engine size and date of manufacture.

The **Permitted** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Emission Unit ID** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for internal combustion engines are:

Process Type	SCC
Internal Combustion Engines, Commercial/Institutional, Distillate Oil (Diesel), Reciprocating	20300101
Internal Combustion Engines, Commercial/Institutional, Distillate Oil (Diesel), Turbine	20300102
Internal Combustion Engines, Commercial/Institutional, Natural Gas, Reciprocating	20300201
Internal Combustion Engines, Commercial/Institutional, Natural Gas, Turbine	20300202
Internal Combustion Engines, Commercial/Institutional, Gasoline, Reciprocating	20300301
Internal Combustion Engines, Commercial/Institutional, Digester Gas, Turbine	20300701
Internal Combustion Engines, Commercial/Institutional, Landfill Gas, Turbine	20300801
Internal Combustion Engines, Commercial/Institutional, Landfill Gas, Reciprocating	20300802
Internal Combustion Engines, Commercial/Institutional, Gas (LPG), Propane: Reciprocating	20301001
Internal Combustion Engines, Commercial/Institutional, Gas (LPG), Butane: Reciprocating	20301002

The **Is this unit exempt from RICE NESHAP?** Flag should be flagged according to the guidelines provided in the United States Stationary Internal Combustion Engine Guide.

The next section is the CALCULATION METHODS section; click the hyperlink to expand section to view the data fields. Once the fields are expanded, APIMS will display the converse icon while it processes the data entered in the previous sections to suggest an appropriate algorithm and emission factor set.

s approved	For additional assistance	now, there is no qualified standa please contact the APIMS Help D	rd method for this source. Algorithms must be defined in the Unique Process record once the sourc Desk
0.00	e the Calculation Method selected		
-3 of 3	٩		
Search			Columns - Show 10 V
□,	Algorithm	Formula	Emission Factor Criteria
□,	Algorithm	Formula	Emission Factor Criteria

The suggested calculation methodology will be displayed in the grid. If this is the desired algorithm and emission factor set, select "Yes" in the **Approve the calculation Methods presented** field.

The next section is the EMISSION CALCULATIONS section; click the hyperlink to expand section to view.

1-4 of 4 Search	Q	Columns + Show 10
- <i>v</i>	Calculation Name	
	Film	
0	ANNUAL STATIONARY AEI	
0	HAP CALC	
8	MOBILE AEI	
*	MONTHLY STATIONARY EMISSION CALCULATION	

The emission calculations that are currently configured in the Emission Calculation module of APIMS will be displayed in the grid. Select the appropriate calculation for this source by checking the corresponding box.

The next section is the CONTROL section; click the hyperlink to expand section to view.

Source equip	oped with air emission controls?*	* Yes 🗇 No	
	Control Device Type*	DIESEL PARTICULATE FILTERS/TRAP OXIDIZER SYSTEM	
-3 of 3 Search		Q	Columns + Show 10
Edit	CAS #	Chemical Name	Control Efficiency (%)
	PM	( #Rev	) Film
(2	PM	PARTICULATE MATTER	00
5 ×	PM10	PARTICULATE MATTER <10UM (PM10)	ed e
a.	PM2.5	PARTICULATE MATTER <2.5UM (PM2.5)	
Einet	Previous	Page: 1 . of 1	Next Last

The fields that are displayed are dependent upon the selection in the **Source equipped with air emission controls** field. If "No" is selected no additional fields will be displayed. However, if "Yes" is selected the Control Device Type field will be displayed.

The Control Device Type will display a list of possible controls (DIESEL PARTICULATE FILTERS/TRAP OXIDIZER SYSTEM, OXIDATION CATALYST, RETARDED TIMING, SELECTIVE CATALYTIC REDUCTION, and TURBOCHARGER).

Newer engines that use manufacturer specified emission factor sets should not use this tab as the controls are already accounted for in the manufacturer specified emission factors.

The grid below will then populate with all the chemicals that are currently being calculated for based on the emission factor set selected in the previous section. To filter this list down the CAS # or Chemical Name fields at the top of the grid can be used. For example, PM is typed into the CAS# field to limit the results grid to only show the pollutants that have PM in the CAS #.

To enter the control efficiency, click the  $\square$  icon next to the pollutant, this will then display the field under the Control Efficiency (%) column. Type the percent control efficiency; then click the  $\square$  button on the left side. Repeat these steps for all the controlled pollutants.

The next section is the STACK section; click the hyperlink to expand section to view.

re the emissions released through a stack?*	🛞 Yes 🔘 No			
Stack Type	O Horizontal ® Vert	ical 🍈 Unknow		
Does the stack have a raincap?	8 Ves ⊕ No	🕷 Yes 💿 No		
Stack Shape	🔹 Round 🕕 Rectangular			
Depth	Enter Number	IN		
width	Enter Number	IN		
Diameter	6	174		
Exit Height from Ground	20	FT		
Exit Height from Roof	10	FT		
Continuous Monitoring	🖲 Yes 🖯 No 🗇 Uni	inown		
Design Volumetric Flow Rate	2200	SCFM		
Design Gas Moisture Content	30	WT PCT		
Design Exit Gas Temperature	660	۰ŗ		

The fields that are displayed are dependent upon the selection in the **Are the emissions released through a stack?** field. If "No" is selected no additional fields will be displayed. However, if "Yes" is selected several stack dimension and information fields will be displayed.

Select the appropriate Stack Type radio button. If "Vertical" is selected, the **Does the stack have a raincap?** field will be displayed. Select the appropriate answer.

If "Round" is selected in the **Stack Shape** field, then the **Diameter** field should be populated. If "Rectangular" is selected, then the **Depth** and **Width** fields should be populated.

The Exit Height from Ground and Exit Height from Roof should also be populated in feet.

Select the appropriate value in the **Continuous Monitoring** field as it applies to the stack, not the engine.

If known, the **Design Volumetric Flow Rate**, **Design Gas Moisture Content** and **Design Exit Gas Temperature** should be populated.

At this point all the tabs should be green. Proceed to the VERIFY GENERATOR SET section to review the information. Click the section titles to expand the selection to view the data.

PROCESS			
	Process Category	INDUSTRAL	
	Process Type	FUELS	
	Process Name	COMBUSTING FUEL, FUEL OIL #2/DIESEL, INTERNAL	
	Base Specific	21	
	Local Process Name	RECIPROCATING - DIESEL FUEL - 470 HP	
	Start Date	2006/01/01	
	Facility	PETERSON AFB	
	Location	BUILDING 959 CLINIC	
	Complete Location Name	PETERSON AFB \ BUILDING 959 CLINIC	
	Source Category	ICOM	
	Source Type	POINT	
	Emission Point	STACK	
	GHG Scope	1	
	Permitted Source?	Yes	
	Usage Interval	MONTHLY	
EQUIPMENT			
CONTROLS			
STACK			
MATERIALS			
ALGORITHMS AND EMISSION PA	ACTORS		
CALCULATIONS			

The final section is the COMMENTS section. This displays a single field that can be used to document any additional information regarding the source.

COMMENTS	
Start Typing	

The last step is to click the button to save and complete the data configuration in APIMS.

The equipment and process records will be completely configured in APIMS.

If the engine uses a storage tank that was not previously configured in STAR, a Task will appear in the workbasket to notify the Tanks Manager and Air Quality Manager a new tank has been created and additional data configuration is required. If necessary, a storage tank record will also be created, and a task will appear in the Task section of the workbasket.

ĺ		Task List	
	TANK CREATED	Created: 2019/12/12	Due: 2020/01/11
	1759 - GATE 2 TRAFFIC CHECK	E 2 TRAFFIC CHECKHOUSE NEW HOUSE on ARNOLD ENGINEERII d as a(n) HORIZONTAL FIXED RO	NG DEVELOPMENT

This record will not be complete and will require additional data configuration. To complete the tank configuration, click on the <u>TANK CREATED</u> link.

Identification			
Air Tank ID:"	U-183292		
Facility:*	AIR FORCE BASE		Verified
Dimensions			
Diameter:*		feet	
Length:*		feet	
Is the tank heated?"	🔍 Yes 💌 No		
Shell Characteristics			
Paint Condition: *	🖲 Good 🔘 Poor		
Shell Color/Shade: *	Select Value	*	
Breather Vent Settings			
Vacuum Setting:*	-0.03	psig	
Pressure Setting:"	0.03	psig	
Meteorological Data			
City:*		(Unverified)	
State:	1		

This will open the *Air* tab of the storage tank record. Some fields will already be populated based on the data entered during the generator configuration. The remaining fields that are in bold with a red asterisk \* are required to complete the data configuration. For more information on entering these

fields reference Section 3.6 Aboveground Storage Tanks (AST). Once the data is entered, click the **Save** button.

The workbasket will display any incomplete generator entries in the Tasks section. Completed engine entries will appear in the Notifications section.

## 3.1.3.2.2.2 Facility Power Module

For installations that have implemented the Facility Power module in APIMS each new engine will be created by the engine owner, which is usually the Power Pro shop. Once the engine has been configured in the Facility Power module of APIMS a workbasket notification will appear for the Air Admin on the APIMS home page.

Task List				
DIVENUE Created: 2019/05/14 Due: 201				
	ated at BUILDING 420 on SCHRIEV STAT_GEN - STATIONARY EMERGE			

Click the <u>NEW GENERATOR</u> link. This will open the Add New Equipment screen in the Facility Power module.

Add New Equipment	
GENSET IDENTIFICATION	<b>~</b>
GENSET DETAILS	×
FUEL/TANK	×.
ENGINE	×.
ALTERNATOR	<b>v</b>
REGULATORY INFO	Required: 4 🚦
CALCULATION METHODS	Required: 1
EMISSION CALCULATIONS	<b>~</b>
CONTROL	Required: 1 🚦
STACK	Required: 1
VERIFY GENERATOR SET	<b>√</b>
COMMENTS	<b>~</b>
Delete Save Approve	

The tabs highlighted in RED need additional data configured. The others have been completed by Facility Power. Click the REGULATORY INFO section.

Subject to NSPS*	* Yes 🙂 No	
10	* Yes O No	
Permitted*		
Emission Unit ID*	04	
Source Classification Code	20300101	
Is this unit exempt from RICE NESHAP7*	© Yes ≢ No	

The first field selects whether the engine is **Subject to NSPS** or otherwise known as the New Source Performance Standards. The NSPS regulations for compression ignition engines are detailed in 40 CFR Part 60 Subpart IIII. The NSPS regulations for spark ignition engines are detailed in 40 CFR Part 60 Subpart JJJJ. For additional guidance reference the United States Stationary Internal Combustion Engine Guide.

The **Permitted** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Emission Unit ID** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for internal combustion engines are:

Process Type	SCC
Internal Combustion Engines, Commercial/Institutional, Distillate Oil (Diesel), Reciprocating	20300101
Internal Combustion Engines, Commercial/Institutional, Distillate Oil (Diesel), Turbine	20300102
Internal Combustion Engines, Commercial/Institutional, Natural Gas, Reciprocating	20300201
Internal Combustion Engines, Commercial/Institutional, Natural Gas, Turbine	20300202
Internal Combustion Engines, Commercial/Institutional, Gasoline, Reciprocating	20300301
Internal Combustion Engines, Commercial/Institutional, Digester Gas, Turbine	20300701
Internal Combustion Engines, Commercial/Institutional, Landfill Gas, Turbine	20300801
Internal Combustion Engines, Commercial/Institutional, Landfill Gas, Reciprocating	20300802
Internal Combustion Engines, Commercial/Institutional, Gas (LPG), Propane: Reciprocating	20301001
Internal Combustion Engines, Commercial/Institutional, Gas (LPG), Butane: Reciprocating	20301002

The **Is this unit exempt from RICE NESHAP?** Flag should be flagged according to the guidelines provided in the United States Stationary Internal Combustion Engine Guide.

The next section is the CALCULATION METHODS section; click the hyperlink to expand section to view the data fields. Once the fields are expanded, APIMS will display the converse icon while it processes the data entered in the previous sections to suggest an appropriate algorithm and emission factor set.

approved	For additional assistance	now, there is no qualified standa please contact the APIMS Help D	rd method for this source. Algorithms must be defined in the Unique Process record once the sour Desk.
	e the Calculation Method selected	he.	
-3 of 3			
Search		٩	Columns • Show 10 v
0,	Algorithm	Formula	Emission Factor Criteria
□,	Algorithm	Formula	Emission Factor Criteria

The suggested calculation methodology will be displayed in the grid. If this is the desired algorithm and emission factor set, select "Yes" in the **Approve the calculation Methods presented** field.

The next section is the EMISSION CALCULATIONS section; click the hyperlink to expand section to view.

1 4 of 4		
Search	Q	Columna - Show 10 -
n v n	Calculation Name	
	Run	
0	COMPREHENSIVE AEI CALCULATION - STATIONARY SOURCES	
×	MONTHLY STATIONARY CALCULATION	
4	MOBILE CALCULATION	

The emission calculations that are currently configured in the Emission Calculation module of APIMS will be displayed in the grid. Select the appropriate calculation for this source by checking the corresponding box.

The next section is the CONTROL section; click the hyperlink to expand section to view.

Source equip	ped with air emission controls?*	🔹 Yes 🐵 No	
	Control Device Type*	DIESEL PARTICULATE FILTERS/TRAP OXIDIZER SYSTEM	
1-3 of 3		1000	
Search		Q	Columns + Show 10
Edit	CAS #	Chemical Name	Control Efficiency (%)
	PM	Flor	- #01201
2	PM	PARTICULATE MATTER	90
8 ×	PM10	PARTICULATE MATTER <10UM (PM10)	e De
œ	PM2.5	PARTICULATE MATTER <2.5UM (PM2.5)	
First	Previous	Page: 1 • of 1	Next Last

The fields that are displayed are dependent upon the selection in the **Source equipped with air emission controls** field. If "No" is selected no additional fields will be displayed. However, if "Yes" is selected the Control Device Type field will be displayed.

The Control Device Type will display a list of possible controls (DIESEL PARTICULATE FILTERS/TRAP OXIDIZER SYSTEM, OXIDATION CATALYST, RETARDED TIMING, SELECTIVE CATALYTIC REDUCTION, and TURBOCHARGER).

Newer engines that use manufacturer specified emission factor sets should not use this tab as the controls are already accounted for in the manufacturer specified emission factors.

The grid below will then populate with all the chemicals that are currently being calculated for based on the emission factor set selected in the previous section. To filter this list down the CAS # or Chemical Name fields at the top of the grid can be used. For example, PM is typed into the CAS# field to limit the results grid to only show the pollutants that have PM in the CAS #.

To enter the control efficiency, click the  $\square$  icon next to the pollutant, this will then display the field under the Control Efficiency (%) column. Type the percent control efficiency; then click the  $\square$  button on the left side. Repeat these steps for all the controlled pollutants.

The next section is the STACK section; click the hyperlink to expand section to view.

e the emissions released through a stack?*	🏽 Yes 🔘 No		
Stack Type	Horizontal      Vert	tical 🕕 Unknown	
Does the stack have a raincap?	® Ves ⊕ No		
Stack Shape	🔹 Round 🍈 Rectang	gular	
Depth	Enter Number	Its	
width	Enter Number	IN	
Diameter	6	194	
Exit Height from Ground	20	FT	
Exit Height from Roof	10	FT	
Continuous Monitoring	🖲 Yes 🐵 No 🗇 Uni	known	
Design Volumetric Flow Rate	2200	SCFM	
Design Gas Moisture Content	30	WT PCT	
Design Exit Gas Temperature	660	*F	

The fields that are displayed are dependent upon the selection in the **Are the emissions released through a stack?** field. If "No" is selected no additional fields will be displayed. However, if "Yes" is selected several stack dimension and information fields will be displayed.

Select the appropriate Stack Type radio button. If "Vertical" is selected, the **Does the stack have a raincap**? field will be displayed. Select the appropriate answer.

If "Round" is selected in the **Stack Shape** field, then the **Diameter** field should be populated. If "Rectangular" is selected, then the **Depth** and **Width** fields should be populated.

The Exit Height from Ground and Exit Height from Roof should also be populated in feet.

Select the appropriate value in the **Continuous Monitoring** field as it applies to the stack, not the engine.

If known, the **Design Volumetric Flow Rate**, **Design Gas Moisture Content** and **Design Exit Gas Temperature** should be populated.

At this point all the tabs should be green. Proceed to the VERIFY GENERATOR SET section to review the information. Click the section titles to expand the selection to view the data.

PROCESS	
Process Category	INDUSTRIAL
Process Type	PUELS
Process Name	COMBUSTING FUEL, FUEL, OIL #2/DIESEL, INTERNAL,
Base Specific	04
Local Process Name	REOPROCATING - DIESEL FUEL - 36 HP
Start Date	2010/06/30
Facility	AIR FORCE BASE
Location	BUILDHNG 523
Complete Location Name	AIR FORCE BASE \ BUILDING \$23
Source Category	ICOM.
Source Type	POINT
Emission Point	ATMOSPHERE
GHG Scope	12
Permitted Source?	Yes
Usage Interval	MONTHLY
EQUIPMENT	
CONTROLS	
STACK	
MATERIALS	
ALGORITHMS AND EMISSION FACTORS	
CALCULATIONS	

The final section is the COMMENTS section. This displays a single field that can be used to document any additional information regarding the source.

COMMENTS	
Start Typing	

The last step is to click the button to save and complete the data configuration in APIMS. This will return you to the APIMS home page.

The equipment and process records will be completely configured in APIMS and a notification will appear in the workbasket.

The equipment and process records will be completely configured in APIMS and a notification will appear in the workbasket.

Notification List					
UNIT CREATED	Received: 2021/10/06				
A NEW GENERATOR WAS CREATED.					

To view the configured equipment record, click the <u>UNIT CREATED</u> link to view the generator.

If necessary, a storage tank record will also be created, and a task will appear in the Task section of the workbasket.

	Task List					
TANK CREATED	Created: 2021/10/06	Due: 2021/11/05				
Tank ID: BUILDING 00505 NEW located at BUILDING 00505 on GOODFELLOW AFB. This tanks is classified as a(n) HORIZONTAL FIXED ROOF.						

This record will not be complete and will require additional data configuration. To complete the tank configuration, click on the <u>TANK CREATED</u> link.

Identification			
Air Tank ID:*	U-183292		
Facility:*	AIR FORCE BASE		Verified
Dimensions			
Diameter:*		feet	
Length:*		feet	
Is the tank heated?"	🔘 Yes 💌 No		
Shell Characteristics			
Paint Condition: *	Good Opoor		
Shell Color/Shade: *	Select Value	× ]	
Breather Vent Settings			
Vacuum Setting:*	-0.03	psig	
Pressure Setting:*	0.03	psig	
Meteorological Data			
City:*		(Unverified)	
State:	<b>1</b>		

This will open the *Air* tab of the storage tank record. Some fields will already be populated based on the data entered during the generator configuration. The remaining fields that are in bold with a red asterisk \* are required to complete the data configuration. For more information on entering these fields reference Section 3.6 Aboveground Storage Tanks (AST). Once the data is entered, click the **Save** button.

The workbasket will display any incomplete generator entries in the Tasks section. Completed engine entries will appear in the Notifications section. When Facility Power creates a new unit, most details will be entered; however, there is some Air Quality specific information that will be required to complete the record.

Equipment	Equipment Type	Process	Regulated Unit Group	Control	Stack	Status	
Definition	IC Engine Specifica	ations					
Disabled fields a	are associated to Fac	ility Power a	nd must be maintained in t	the Facility I	Power mo	dule.	
Serial #:*			PE3029T229259	l.			
Equipment ID	*		06				
Equipment Des	scription:		RADAR RELAY	GENERAT	OR		
Model #:			3029TF150D				
Model Descrip	tion:		RED FLAG GEN	ERATOR			
Start/Install D yyyy/mm/dd	ate:*		2003/02/22				
Manufacture D yyyy/mm/dd	ate:		2003/01/12				
End Date:							
Service Date: yyyy/mm/dd							
Portable?			O Yes O No	Unknow	n		
Significant Sou	irce?		Ves No	Unknow	n		
Location:			BUILDING 6402	QUARRY	HILL RA	DAR REI	LAY
Complete Loca	ation Name:		EIELSON AFB \	BUILDING	6402 Q	UARRY H	HILL RADAR RELAY
Management G	Broup:						
Other Identifica	ation:						
Comments:							
			Save Cancel	]			

The only field that can be edited in in this module is the Equipment ID, all other fields are maintained in the Facility Power module. This is the value entered in the wizard as the Emission Unit ID.

The next sub tab is the IC Engine Specifications tab.

Equipment Equipment Type Process Regulated Unit Group	p Control Stack Status
Definition IC Engine Specifications	
Spec Sheet File Path: (Case Sensitive)	Choose File No file chosen Max File Size is 25 MB Specifying a File Path will delete any existing file and upload a new file when you save.
File Link:	1
File Name:	Spec_Sheet.pdf
Asset Type:	RPIE V
Real Property ID:"	12486268
Unit ID:	R-34
Engine Data	
Rated HP:*	58
RPM:	1800
Ignition Type:	Compression Spark Unknown
Load Percent:*	62 %
# of Cylinders:*	3
Engine Displacement:*	2.9 L
Cylinder Displacement:	0.966667 L
Crankcase Ventilation:*	Open  Closed
Is unit equipped with a filtration emission control system?"	Yes
Exhaust Gas Temperature:	° F
EPA Engine Family:	3JDRH0912XAJ
Alternator Data	
Model:	20RE0ZJB-QS1
Manufacturer:	KOHLER
Voltage:	120/208 •
Amp Rating:	81
KW Rating:	26
Frequency:	leo Vertz
Tank Data	
Tank Configuration:*	Separate  Integral  Both
Integral Tank ID:*	6402-1 (Verified
Integral Fuel Tank Position:*	O Above  Below  Side
Integral Fuel Tank Capacity:	500 GAL
Engine Run-time on Full Integral Tank:*	200 HRS
	Save Cancel

Most of this data was populated when the unit was created, however there are additional fields that will need to be populated to complete the record.

The **Asset Type** should be populated to indicate if the engine is an RPIE (Real Property Installed Equipment) or an EAID (Equipment Authorized Inventory Data) owned unit. RPIE generators support mission-critical functions where controlled shut-down or delayed power restoration is unacceptable. They may be authorized for missions requiring immediate power restoration, uninterrupted power, or support for emergency systems. RPIE engines are in a fixed location and are not portable. EAID units are portable generators (trailer-mount or skid-mount) that are used for POL/Fuel functions that include: hydrant fueling systems, bulk fuel storage areas, non-hydrant operating storage areas, and vehicle fueling stations. EAID units are also portable generators that may be authorized for mission-essential functions where delayed power restoration is acceptable.

EAID Engines should be configured in APIMS but are not required/should not be have any calculations associated with their usage/consumption.

The only field that can be edited on this screen is the **Equipment ID**, as the other fields are owned by the Facility Power module. If any of these fields are not correct, contact the installation Engine Admin.

## 3.1.4 Year-to-Year Maintenance

#### 3.1.4.1 Usage

#### 3.1.4.1.1 IC Engine Log

The consumption for internal combustion sources will need to be tracked monthly. To correctly document the monthly usage for this emission source the consumption should be entered in the IC Engine log.

This module is only to be used if the Facility Power module has not been implemented. Otherwise there is the risk of double counting the operation of an engine.

C Engine Log			
Search IC Engine Log			
Equipment ID:			) 🗖 🕶 🗙
Process ID:		<u>- ×</u>	
Unit ID:			
Facility:			
Building No.:		- ×	
Search by Date: yyyy/mm/dd hhmm	From:	To:	
Year			
YYYY Type of Operation:	Select Value V		
View:	Validated Usage Unvalidat	ted Usage 💿 Both	
View Latest Runs:	• Yes O No		
	Search		

To enter a new runtime record, click on **IC Engine Log** under the **Usage** tab, and then click the <u>Enter IC</u> <u>Engine Runtime Record</u> hyperlink in the bottom left corner of the page.

Equipment ID:*	04 (Verified		
	Rated HP: 36 Load Percent: 46		
Serial #:	AC0838		
Process ID:*	IFU120870829604		
Start Date/Time:* yyyy/mm/dd hhmm	2016/01/01 0000		
End Date/Time:* yyyy/mm/dd hhmm	2016/01/31 2359		
Type of Operation:*	MAINTENANCE/TEST		
Operation Description:	MAINTENANCE/TESTING		
Usage Method:*	Hours of Operation Fuel Usage Both		
Hours of Operation:*	1.5 Calculated HP Hours: 24.8		
Fuel:*	DIESEL FUEL		
Maintenance Description:	CAGE Code: EMC PNI: A Preparation Date: 1901/01/01		
Comments:			
Validate Runtime:	• Yes O No		

Enter or search for the **Equipment ID** by either typing in the Equipment ID, Serial number or Model number and selecting from the list that appears.

04   AC0838   V2203-M-BG-ET02	

Or if the equipment is not found, click on the folder icon to open a search pop-up window.

https://apims.eesoh.com	om/apims/common/ic	EquipmentSearch.apims?name=EQ C
Equipment Search		í.
Search: 04	in Equipment ID	• Search
11 records found.		
Displaying records 1 - 10. Equipment ID	Serial #	Model#
04	AC0838	V2203-M-BG-ET02
2412049598	2412049598	U-GENERATOR-044
2412049823	2412049823	U-GENERATOR-045
EZGA1028004	EZGA1028004	U-GENERATOR-026
F970640485	F970640485	U-GENERATOR-001
F970640486	F970640486	U-GENERATOR-014
F970640487	F970640487	U-GENERATOR-011
F970640488	F970640488	U-GENERATOR-010
F970640491	F970640491	U-GENERATOR-007
F970640492	F970640492	U-GENERATOR-009
Page:1 2   View all results		« Previous   <u>Next</u>

Select the radio button next to the correct equipment record. This will automatically close the pop-up window and return you to the Enter Runtime Record screen.

Once the **Equipment ID** has been verified, the Rated HP, Load Percent and Serial # and **Process ID** will auto-populate.

The **Start Date/Time** and **End Date/Time** should be entered as the first and last day of the month.

The **Type of Operation** should be selected from the list of values (MAINTENANCE/TEST, EMERGENCY, BLACK START, NON-EMERGENCY).

The Type of Operation is critical to tracking compliance with the various regulatory rules stated in 40 CFR 60 Subpart IIII, 40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZ.

The **Usage Method** should be selected according to how the engine run is measured. For most engines this will be Hours of Operation.

If **Hours of Operation** is selected as the **Usage Method**, then the **Hours of Operation** field will be displayed. Enter the hours the engine actual ran, not the time it took to complete the maintenance and testing. Once the hours of operation are entered, APIMS will calculate the **Calculated HP Hours** according to the Hours of Operation, Load Percent and Rated HP.

If Fuel Usage is selected as the Usage Method, then the Fuel Used and UOM fields will appear.

1	Fuel Used:*	32	UOM:* GAL	Verified)

Enter the total gallons of fuel used during the engine operation.

The last steps are to select "Yes" in the Validate Runtime field and click the Save button.

Repeat this step for all the engines and engine operation types. If the unit did not operate during the month but was still an active source, enter a consumption record with zero usage and a comment as to why it did not operate to track negative documentation. This type of documentation ensures that all equipment is accounted for from year to year and can be used to account for differences in AEI reporting from year to year.

#### 3.1.4.1.2 Facility Power Module

If your installation has implemented the Facility Power module in APIMS then all engine run times will be recorded by the personnel conducting maintenance and testing. Each time a generator is run for maintenance and testing as well as all emergency hours are automatically incorporated into the Air Quality portion of APIMS and will be included in the calculations for the corresponding processes.

## 3.1.4.2 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation** depending upon the designation of the engine. All stationary engines and portable engines that have been in the same location for 12 months should be included in the stationary calculation. All portable engines that have not been on the same location for 12 months do not require calculations. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.2 External Combustion (ECOM)

# 3.2.1 Source Types

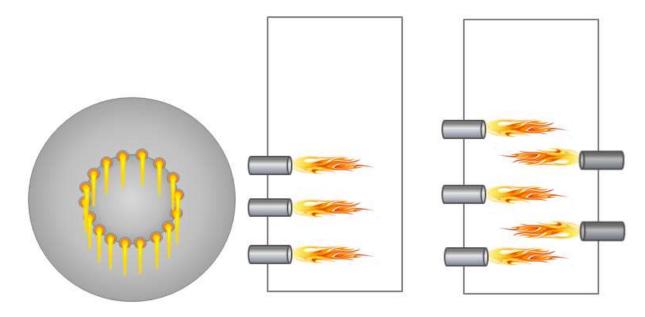
This source category includes external combustion equipment such as furnaces and boilers. Furnaces heat an area by warming air while boilers utilize water and may produce enough steam to generate electricity. Emissions from external combustion sources will vary depending on several factors including the boiler configuration, the size of the combustor, the firing configuration, the fuel type, the control devices used, and a variety of different design configurations.

Boilers are usually classified into four categories based on their size (heat input) and application: Utility, Industrial, Commercial, and Residential. The size is defined as the maximum heat input capacity, which is the measure of the source's maximum heat value it is capable of combusting. Utility boilers are typically the largest boilers and utilize steam for electricity generation. The Air Force does not currently have any boilers in this category. Industrial boilers can produce electricity, or they may generate process steam. The process steam may be used for heat generation or the captured condensate may be used as a solvent or feedstock. Both commercial and residential boilers are considerably smaller than utility and industrial boilers and are used exclusively for comfort heat generation. The main difference between commercial and residential boiler types is that the commercial boilers are significantly larger than residential boilers since they are used to heat larger (commercial) spaces. The boiler types and their respective heat inputs are given in the table below.

Boiler Type	Size (Heat Input)
Industrial – Heavy	≥100 to 250 MMBtu/hr
Industrial – Light	≥10 to <100 MMBtu/hr
Commercial/Institutional	≥0.3 to <10 MMBtu/hr
Residential	<0.3 MMBtu/hr

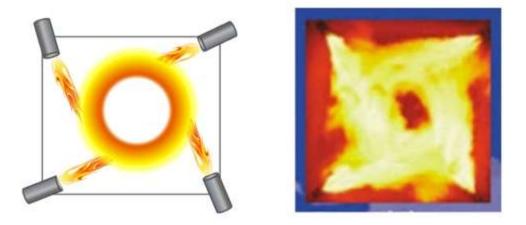
Boilers usually use natural gas, diesel, or coal as the fuel. Some boilers are defined as dual fuel boilers; this means that the boiler is configured to operate mainly on one fuel with a backup fuel available. The most common example is a natural gas fired boiler with a diesel backup. In addition to the size of the boiler and the fuel combusted, the burner configurations and control devices need to be considered.

Natural gas boilers may be either wall-fired or tangential-fired. Wall-Fired boilers have burners mounted in the boiler walls, producing discrete flames in the furnace. Burners may be mounted in a single boiler wall or in two opposing walls.



#### Wall Fired Burner Configurations

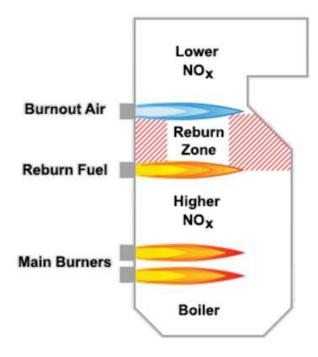
Tangentially Fired Boilers have stacked groups of burners and air registers at the four corners of the furnace. Fuel and air are injected to create a single rotating fireball in the center of the furnace, rather than the discrete flames produced by burners in the wall-fired boilers.



Tangential-Fired Burner Configuration

In addition to the burner configuration there are additional controls that can affect how the boiler operates. Such as a Low NOx Burner (LNB) or Flue Gas Recirculator (FGR) that are built into the boiler and a Baghouse (BGH), Electrostatic Precipitator (ESP), Multi-Cyclone (MCL), Multi-Cyclone with Fly-Ash Reinjection (MCL with FAR) and Scrubbers (SCB) that are external to the boiler.

Low NOx burners integrate staged combustion into the burner. A typical low NOx burner creates a fuelrich primary combustion zone. The reducing conditions in this zone promote the reduction of the fuel NOx, while limited combustion air lowers the flame temperature, minimizing the production of thermal NOx. Combustion is completed in a lower-temperature, fuel-lean zone.



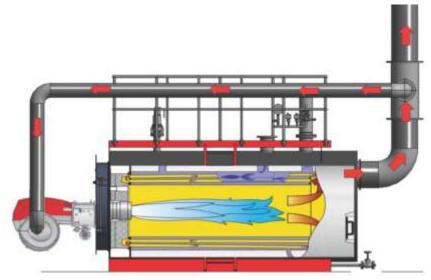
Low NOx burner technology is applicable to most wall-fired and tangentially fired boilers. It is not applicable to stokers, which have no burners, or to cyclones, which must maintain rigidly defined combustion conditions for proper slagging. Because low NOx burners produce longer flames, they may be inappropriate for retrofit on smaller furnaces.

Installation of low NOx burners may be accompanied by increased emissions of CO and hydrocarbons, in the case of coal, by increased unburned carbon. The image below illustrates how a boiler with a Low NOx burner and Flue Gas Recirculator might look.



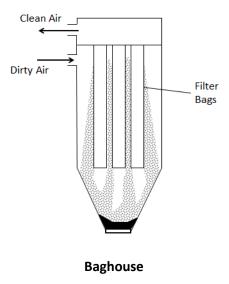
External View of Boiler with Low NOx Burner and Flue Gas Recirculator

Flue gas Recirculation involves recycling of up to about 20 percent of the cooled flue gas back to the combustion zone. FGR lowers peak flame temperature primarily by adding a large mass of cool, inert gas to the fuel-air mixture. FGR also lowers the oxygen concentration of the flame. Because FGR reduces thermal NOx formation and only has a small effect on fuel NOx levels, its principal applicability is to oil and gas fired boilers.

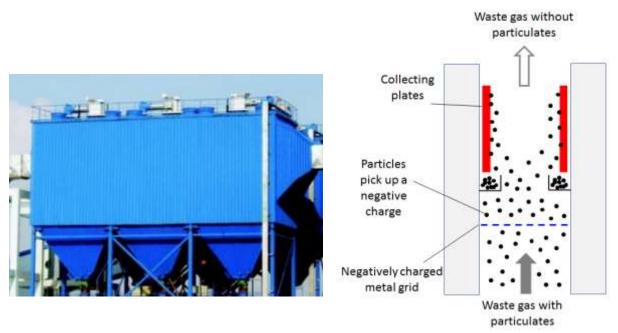


#### **Boiler with Flue Gas Recirculation**

Baghouses are a separate unit from the boiler but are attached to the exhaust stack through piping. A baghouse uses a series of fabric filters to separate particulate matter from gases. Flue gas enters the baghouse and passes through fabric bags that act as thick filters utilizing the particulate matter captured to improve efficiency. The particulate matter then collects on the filter packs allowing the clean air to exit through the top of the bags. During cleaning cycles, the collected material is allowed to fall to the bottom of the baghouse and captured for disposal. This type of control only controls the emissions of PM, PM<sub>10</sub>, PM<sub>2.5</sub> although additional controls for other pollutants have been installed in the baghouse in some control situations.

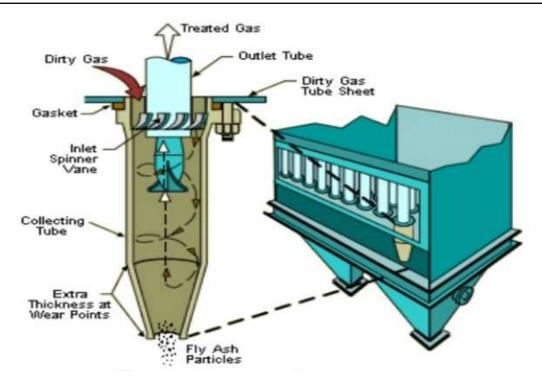


Electrostatic Precipitation is a control device that uses an induced electrostatic charge to remove particulates. The flue gas passes ionizing electrodes which come into contact with the particulate matter and imparts an electrical charge. As the charged particles pass near the plates the particles collect on the plates and are removed from the gas due to electrostatic forces. The plates are then rapped, vibrated, or washed with water to dislodge the particles, which fall into a hopper to be disposed. Originally invented to control wet particulate matter (sulfuric acid mists) the electrostatic precipitator is now commonly used to control emissions of PM, PM<sub>10</sub> and PM<sub>2.5</sub> with a very high efficiency even for very small particulate matter.



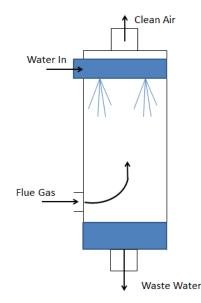


Multi-Cyclone control devices are used to control the emissions of PM, PM<sub>10</sub> and PM<sub>2.5</sub>. Flue gas enters into a cylindrical or conical chamber and leaves through a central opening. The cyclone then uses inertia to remove particles from the gas stream. The incoming gas is forced into circular motion down the cyclone near the inner surface of the cyclone tube. At the bottom of the cyclone, the gas turns and spirals up through the center of the tube and out of the top of the cyclone. Particles in the gas stream are forced toward the cyclone walls by the centrifugal force of the spinning gas but are opposed by the fluid drag force of the gas traveling through and out of the cyclone. For large particles, the inertial momentum overcomes the fluid drag force so that the particles reach the cyclone walls and are collected. Gravity also causes the larger particles that reach the cyclone walls to travel down into the bottom hopper. A multiple tube cyclone increases the efficiency of particulate removal. See the diagram below for an illustration of a multi-cyclone.



A Multi-cyclone with Fly-Ash Reinjection is a two-stage control of particulate emissions. The multi-cyclone is operated as explained above, however the fly ash particles that are collected at the bottom of the cyclone are then pneumatically pumped back into the boiler. This type of control is usually only associated with a spreader stoker boiler that combusts coal. The fly ash has a high enough carbon content to make reburning feasible.

In a scrubber, flue gas enters through an inlet at the bottom of the column. Liquid enters through a nozzle or pipe at the top. As the gas flows up through the scrubber it is contacted by the water flowing down. Particulates are either formed into droplets or are forced against the wall much like in a cyclone and drop to the bottom. In addition to the particulate removal, acidic gases react with the water to become salts that also fall out to the bottom.





Boilers can burn various types of fuel such as natural gas, diesel, and coal. Each fuel is detailed below.

Natural gas boilers are by far the most common type of boiler used by the Air Force. They can be used for industrial processes, steam and heat production, residential and commercial space heating, and electric power generation. Utility and large industrial boilers with a heat input greater than 100 MMBtu/hr are usually field erected, meaning they are assembled in place. Smaller boilers, less than 100 MMBtu/hr are often package units that are constructed off site and shipped to the location.

Fuel oil boilers include boilers that burn residual oil and distillate oil. Residual oils contain significant amounts of ash, nitrogen, and sulfur, and are primarily used in utility, industrial, and large commercial applications. Distillate oils are used mainly in domestic and small commercial applications and include kerosene and diesel fuels. Most fuel oil boilers in the Air Force burn No. 2 diesel fuel.

Coal-fired boilers are only utilized at a few installations in the Air Force.

Liquified Petroleum Gas (LPG) fired boilers usually consist of butane or propane and are used in small commercial and industrial boilers. These boilers operate in a similar manner to the natural gas fired boilers.

Waste oil includes crankcase oils from automobiles and trucks, used industrial lubricating oils and other used industrial oils (i.e., heat transfer fluids), as well as a minimal amount of oil considered contaminated. After being discarded, the physical properties of these oils changes as the components break down and the oil is contaminated with the materials that are brought into contact with the discarded oils. Only boilers that are designed to burn No. 6 residual fuel oil can be used to burn waste oil.

Digester gas formed from the breakdown of organic matter is often thermally destroyed to decrease the emissions of methane (CH<sub>4</sub>). Most often the gas is combusted by flare, however they can be used in boilers, turbines, and internal combustion engines.

# 3.2.2 Potential Data Sources

External combustion equipment is usually scattered all across the installation to provide comfort heating to all buildings. These boilers are usually managed by the HVAC shop which is part of the Civil Engineer unit. The HVAC shop should have an equipment inventory list that can provide the boiler type, size and fuel burned. They may also have the amount of fuel used for each boiler. If the HVAC shop does not have the consumption, it may be obtained through the Base Supply Fuels Maintenance office. Additionally, it may be necessary to contact the fuel supplier to determine the metal content, sulfur weight percent, or other pertinent fuel data used for the calculation of emissions. The shops listed below are the most common shops with information regarding external combustion equipment:

- HVAC (CEO)
- Base Supply Fuels Management (LGRF)
- Energy Manager (CENPE)
- Hospitals/Clinics
- Facility managers

The data elements that are needed are as follows:

- Type of fuel combusted.
- Total amount of fuel combusted in pounds, gallons or cubic feet depending upon the fuel type.
- Size of boiler (heat input)
- Firing Configuration (e.g., Wall Fired, Tangential, Spreader Stoker, Fluidized Bed etc.)
- Controls (e.g., LNB, FGR, MCL, ESP etc.)

## 3.2.3 Standard Source Identification/Characterization

## 3.2.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab. In the **Source Category** search field, type "ECOM" then select the row for EXTERNAL COMBUSTION from the dropdown results. Click the **Search** button.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	ECOM
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value
Permitted Source?	Yes      No      ● Both     Solution     Solutio
Mobile Source?	
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	◎ EESOH-MIS Interface Records ○ APIMS Entered Records ● Both
	Search

The search results grid will now display all the external combustion processes currently in APIMS.

24									
	Citex	te Pro	0855						
6 /00	ords	found							
Dep	laying	recor	ds 1 - 6					_	
1	lction	ē:	Unique ID Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Owle	Status
14	18	12	043302 809/6	HOSP-NAT DAS-BOLERS - 1 MMBTURH	ECOM	101	19010101		ACTIN
2		12	<u>643304</u> 429/8	AMARIS - NAT. GAS - BOILERS > 1 MIMBTUHR	ECOM	AMARG	19010101		ACTIV
100	OK.	102	043142 14412	AAFES - NAT. GAS - BOILERS	ECOM	AAFES	19010101		ACTIN
14	(M	100	043343 14414	US CUSTOMS - NAT GAS - BOILERS	ECOM.	US CUSTOMS	19010101		ACTIV
1	-	131	643344 14415	BLDG NAVY - NAT. GAS - BOILERS	ECOM	NAME	19010101		ACTE
128	in.	100	643350 65910	BASEWIDE - NAT. GAS BOILERS	ECOM		1901/01/01		ACTIV

# 3.2.3.1.1 Status

If the status of a process needs to be changed, click the edit  $\boxed{}$  icon next to the process.

Process Equipment Calcula	tions Regulatory Authorized Materials	Industrial Contacts Zones	Records Assessments	Status
Change Current Status				
1 records found				
Displaying records 1 - 1				
Actions Status	Start Date	End Date		Comments
ACTIVE	1901/01/01			
Page 1				

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Process Equipment Calculat	ins Regulatory Authorized Materials Industrial Contacts Zones Records Assessments S
itatus:"	INACT - INACTIVE 🔻
itart Date:" yyy/mm/dd	2016/06/12
333. com a da	Unit no longer in use.
Comments	
	A
	Save Cancel

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year the emissions will only be calculated for the part of the year the source was active.

#### 3.2.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. I	BASEWIDE
Location I	Unver
Complete Location Name:	
Office Symbol 2	C Vilver
Unit/Organization	
Shop	Unvertied)
Shop Name:	
Source Type I	POINT .
Permitted Source72	Yes IN No
Emission Point:	STACK •
Usage Interval	ANNUAL 🔻
Next Higher Process	(Unverified)
Next Higher Process Name:	
EPA Source Class Code:	10300603
EPA Industry Group	
GHG Scope:	1 •
Assessment Barcode:	
Exclude Consumption records from EESOH-MIS Interface?	* Yes 🖯 No
Operating Schedule	Hrs/Day, Day(s)/Wk, Wks/Yr
Comments	
and the second se	

The **Building No**. field can be used to specify a general location or area of the emission source. For instance, if this is for multiple boilers spread across the installation, specify BASEWIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This is especially important for boilers that are metered and not managed as part of a bigger group of boilers. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

External combustion operations are categorized as POINT source in the **Source Type**.

The **Emission Point** for external combustion equipment is usually STACK.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting. If some boilers are permitted and others are not it is wise to configure the boilers so that the permitted equipment is not associated to the same process as the non-permitted equipment.

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis but may be a different interval if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for external combustion operations are:

Process Type	SCC
Natural Gas Boiler, ≥ 100 MMBtu/hr, Electric Generation	10100601
Natural Gas Boiler, > 100 MMBtu/hr, Industrial	10200601
Natural Gas Boiler, > 100 MMBtu/hr, Commercial/Institutional	10300601
Natural Gas Boiler, < 100 MMBtu/hr, Wall Fired, Electric Generation	10100602
Natural Gas Boiler, 10-100 MMBtu/hr, Industrial	10200602
Natural Gas Boiler, < 10 MMBtu/hr, Industrial	10200603
Natural Gas Boiler, 10-100 MMBtu/hr, Commercial/Institutional	10300602
Natural Gas Boiler, < 10 MMBtu/hr, Commercial/Institutional	10300603
Natural Gas Boiler, Tangential Fired, Electric Generation	10100604
Natural Gas Boiler, Cogeneration, Industrial	10200604
No. 6 Oil Boiler, Industrial	10200401
Residual Oil Boiler, 10-100 MMBtu/hr, Industrial	10200402
Residual Oil Boiler, < 10 MMBtu/hr, Industrial	10200403
Distillate No. 1 and No. 2 Oil Boiler, Industrial	10200501
Distillate Oil Boiler, 10-100 MMBtu/hr, Industrial	10200502
Distillate Oil Boiler, < 10 MMBtu/hr, Industrial	10200503
No. 4 Oil Boiler, Commercial/Institutional	10300504
Distillate No. 1 and No. 2 Oil Boiler, Commercial/Institutional	10300501
Distillate Oil Boiler, 10-100 MMBtu/hr, Commercial/Institutional	10300502
Distillate Oil, < 10 MMBtu/hr, Commercial/Institutional	10300503
Liquified Petroleum Gas, Butane Boiler, Industrial	10201001
Liquified Petroleum Gas, Propane Boiler, Industrial	10201002
Liquified Petroleum Gas, Propane Boiler, Commercial/Institutional	10301002
Liquid Waste, Waste Oil Boiler, Electric Generation	10101302
Liquid Waste, Waste Oil Boiler, Industrial	10201302
Liquid Waste, Waste Oil Boiler, Commercial/Institutional	10301302

#### 3.2.3.1.3 Sub-Processes

This source does not utilize this functionality.

## 3.2.3.1.4 Equipment

The next tab is the *Equipment* tab. This is completely dependent upon how your installation is regulated by the regulatory agencies. For installations that are required to track individual boilers this tab can be used to associate the boilers to the process. If there is no regulatory requirement by the local regulatory agency, then this tab does not need to be configured. To link the equipment to the process the equipment must already be entered in APIMS.

The first tab in the Equipment record should be configured with the actual model and serial number of the boiler. These can be found on the boiler plate attached to the boiler. A sample boiler plate is shown below.

Model Number	Cleaver Brooks CB PACKAGED BOILER CB200-700 SERIAL NO LABEL2 AX. PRESSURE 150 PSI DATE 7/10/95
Heat Input	Image: Strategy   Image: Strategy
Equipment Equipment Type Process Re Definition Specifications	egulated Unit Group Control Stack Status
	gulated Unit Group Control Stack Status
Definition Specifications	
Definition Specifications Serial #:"	L-89612  BOIL-04880-2  BOILER
Definition Specifications Serial #;" Equipment ID:"	J89612 BOIL-04880-2
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description.         Model #:           Model Description.         Model Description.	L-89612  BOIL-04880-2  BOILER
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model Description:         Starblinstall Date:"	L-89612 BOIL-04880-2 BOILER CB200-700
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model @:         Start/Install Date:"           Synyminn/dd         Manufacture Date: "           Yyyy/mm/dd         Manufacture Date: "	L-89612 BOIL-04880-2 BOILER CB200-700 BOILER
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model Description:         Startifistall Date:"           Synymmidd         Manufacture Date: "           Ynymmidd         End Date:	L-89612 BOILER CB200-700 BOILER 1991/06/01
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model Description:           Model Description:         Start/Install Date:"           yyyy/mm/dd         Manufacture Date:           yyyy/mm/dd         Start/Install Date:	L-89612 BOIL-04880-2 BOILER CB200-700 BOILER 1991/06/01
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model #:         Model Description:           Model Description:         Startinistall Date:"           yyyymm/dd         Manufacture Date: "yyyymm/dd           End Date:         Service Date: "	L-89612 BOILER CB200-700 BOILER 1991/06/01
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model Description:         Startfinstall Date:"           Synymm/dd         Manufacture Date:           Ynywinm/dd         End Date:           Service Date:         Synywinm/dd	
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model Description:         Start/Install Date:"           Synymm/dd         Manufacture Date: "           Ynymm/dd         End Date:           Service Date:         Ynymm/dd           Portable?         Portable?	89612 BOIL-04880-2 BOILER CB200-700 BOILER 1991/06/01 1991/06/01 1991/06/01 1991/06/01 1991/06/01
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model Description:         Startinstall Date:"           Yyyy/mm/dd         Manufacture Date:           Yyyy/mm/dd         Service Date:           Yyyy/mm/dd         Portable?           Significant Source?         Significant Source?	L-89612         BOILER         CB200-700         BOILER         1991/06/01         1991/06/01         1991/06/01         Ves * No © Unknown         * Yes * No © Unknown         BUILDING 04880 AIRCRAFT MAINTENANCE         AFB \ BUILDING 04880 AIRCRAFT MAINTENANCE
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model #:         Model Description:           Model #:         Startinstall Date:"           Yyyy/mm/dd         Manufacture Date:           Yyyy/mm/dd         Service Date:           Service Date:         Yyyy/mm/dd           Portable?         Significant Source?           Location:         Service Date:	▶-89612         BOILER         CB200-700         BOILER         1991/06/01         1991/06/01         ● Yes ● No ● Unknown         ● Yes ● No ● Unknown         BUILDING 04880 AIRCRAFT MAINTENANCE
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model #:         Nodel #:           Model Description:         Startinstall Date:           Yyyy/mm/dd         Manufacture Date:           Yyyy/mm/dd         Service Date:           Synyy/mm/dd         Portable?           Significant Source?         Location:           Complete Location Name:         Complete Location Name:	L-89612         BOILER         CB200-700         BOILER         1991/06/01         1991/06/01         1991/06/01         Ves * No © Unknown         * Yes * No © Unknown         BUILDING 04880 AIRCRAFT MAINTENANCE         AFB \ BUILDING 04880 AIRCRAFT MAINTENANCE
Definition         Specifications           Serial #:"         Equipment ID:"           Equipment Description:         Model #:           Model #:         Model Description:           Model Description:         Start/Install Date:"           Yyyy/mm/dd         Manufacture Date:           Yyyy/mm/dd         Service Date:           Yyyy/mm/dd         Portable?           Significant Source?         Location:           Complete Location Name:         Management Group:	L-89612         BOILER         CB200-700         BOILER         1991/06/01         1991/06/01         1991/06/01         Ves * No © Unknown         * Yes * No © Unknown         BUILDING 04880 AIRCRAFT MAINTENANCE         AFB \ BUILDING 04880 AIRCRAFT MAINTENANCE

The **Serial #** field should be used to enter the serial number from the boiler plate.

The **Equipment ID** is intended to be used to easily identify the equipment. This field can be populated with the emission unit ID as identified in any applicable permits, the building number or a standard convention used to easily identify the equipment.

The **Model #** can be selected from the list of values (LOV) or created within the LOV popup window. Click the folder icon to open the Model Search popup.

Search:		in Model# V S	earch
Create Model			
295 records found.			
Displaying records 1 - 10.			
Model # 113RNA048-C	Manufacturer UNKNOWN	Description	Action
1357 MBTU/HR	WEIL MCCLAIN		
13ACX03023010	LENNOX		
13ACX-030-230-10	LENNOX	BLDG, 425 DX UNIT, MAIN GATE	
2136 MBH	BURNHAM		
24ABB336A610	CARRIER		
2TTA0036A3000AA	TRANE	BLDG 332 DX UNIT 4	
2TTA0072A3000AA	TRANE	BLDG 306 DX UNIT	
2TTA2060A3000AA	TRANE	BLDG 245 AC UNIT 4	
2TTA2060A3000AA CU1	TRANE		
Page:1 <u>2 3 4 5 6 7 8 9 10   Viev</u>	v all results		« Previous   Next

The search can be used to locate a specific model record. To select the model record, click the corresponding radio button. This will cause the popup window to close and will populate the **Model #** field with the selected record. If the model number is not available in the list it will need to be created. Reference the Equipment section on how to create a Model record.

The **Start/Install Date** should be the date the equipment was installed. If that data is not known a default date of 1901/01/01 may be used.

The Manufacture Date should be accurately populated for all boilers as it can have an impact on the regulations that apply to the unit. Sometimes the manufacture date is provided on the boiler plate. The **Location** field is very important for equipment as it can then relate to the Air Force geographic information system (GIS). For the instructions on how to create a location reference Section 2.2 Location.

The *Specifications* sub tab is important for boilers as the capacity of the boiler can dictate the emission factor set and boiler classification. This field is often used for enterprise Air Force reporting as well.

Equipment	Equipment Type	Process	Regulated Unit Group	Control Stack Status	
Definition	Specifications				
Capacity:					
Rated Capacit	ty:		29.291	- UOM: MMBTU/H	R (Verified)
Maximum Cap	acity:				
_ength:				UOM:	Unverified
Height:				UOM:	Unverified
Diameter.				UOM:	Unverified
Width:				UOM:	Unverified

The *Equipment Type* tab is essential to identify which equipment fall under specific regulatory rules such as the Boiler MACT. In the *Equipment Type* tab, it is possible to designate an Equipment Type by clicking the <u>Add Equipment Type</u> hyperlink.

const Tablasest Type Provent	Nepaderonation Color	plant theme		
Add Equipment Type				
cords loand:				
slaying records Ø - Ø				
The Contract Contract		Description Air reports August	TanchoadAna	

This will display the **Equipment Type** module, where the equipment type can be selected from the LOV. Below is a list of the values available and the appropriate equipment that should be designated under each type.

Code	Description	Examples of Equipment
BOILER	BOILER	This is used for external combustion
		equipment that is used to heat water to be
		used in a central heating system or steam
		engine.
FURNACE	FORCED AIR FURNACE	This is for equipment used to heat air, for
		process or comfort heating. This is different
		from a boiler as it heats air directly.
HEAT-AC	COMBINATION SYSTEM WITH	This is for a combination heating cooling unit.
	HEAT AND AC IN ONE UNIT	This equipment should be managed through
		the Refrigerant Compliance module.

INF_HEAT	INFRARED HEATER	This is used for external combustion radiator
		heaters or heaters used for comfort heating.
LN_BOILER	LOW NOX BOILER	This is used for external combustion
		equipment fitted with a low NOx burner that is
		used to heat water to be used in a central
		heating system or steam engine.
LN_WTR_HTR	LOW NOX WATER HEATER	This is used for external combustion
		equipment that is used equipped with a low
		NOx burner to heat water to be used outside
		the heater upon demand.
STEAMGEN	STEAM GENERATOR	This is used for external combustion that is
		used to heat water to be used in a turbine to
		generate electricity
ULN_BOILER	ULTRA LOW NOX BOILER	This is used for external combustion
		equipment fitted with a low NOx burner and
		Flue Gas Recirculator that is used to heat water
		to be used in a central heating system or steam
		engine.
WATER_HTR	WATER HEATER	This is used for external combustion
		equipment that is used to heat water to be
		used in a outside the heater upon demand.

Click the **Save** button to associate the **Equipment Type**.

Add Equipment Type			
Equipment Type:"	ſ.	) real #) (Unversited)	
Equipment Type Description:			
	Save		
conde kourset			
siaying nacords 1 - 1			

The Control tab is only needed for boilers that have an external control that is not already accounted for in the emission factors. Usually Low NOx burners and Flue Gas Recirculators are accounted for in the emission factor sets. Additionally, if boilers do have an external control they should not be grouped in a process with other boilers as the control efficiency will not be applied correctly. For information on how to configure a control efficiency reference Section 2.4 Equipment.

ocess Egupment Calculations Reput			ordards Zones Records	Assessments Italia	
Create Equipment Association					
a series and a series of the					
ecords Tound. playing records © - 0					
Hons Contract Contract	Secol #	Model #	Manufacturer	Start Date	End Date
			in receiveds lineast		

To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Equipment ID:*	BOIL-04880-2
Serial #.	L-89612
Model #:	CB200-700
Manufacturer	CLEAVER BROOKS
Description	BOILER
Equipment Start Date: yyyy/mm/dd	1991/06/01
Equipment End Date: /yyy/mm/dd	
Start Date:" yyyyimmidd	1991/07/10
End Date; yyyy/mm/dd	
Comments	
onnina.	

Search for the **Equipment ID** in the list of values, enter the **Start Date** and click the **Save & Finish** button.

If the process is for a group of boilers, multiple boilers can be associated on this tab by using the **Save & Create Another** button.

#### 3.2.3.1.5 Calculations

The next tab is the *Calculations* tab.

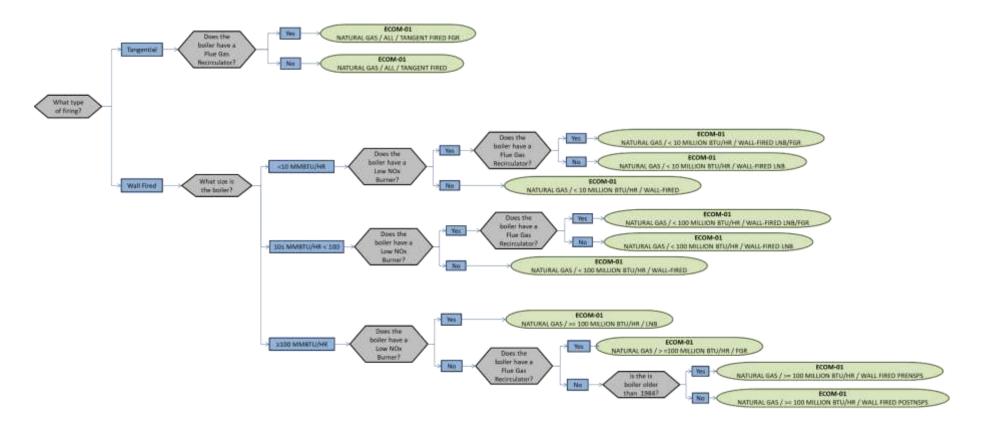
rocess Algorithm Assignm			
Create Process Algorithm Assign			
records found.			

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

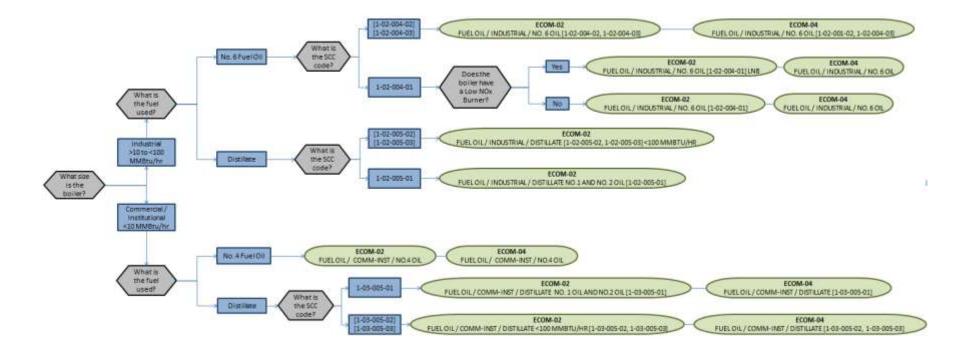
Process Equipment Calculations Regulator	y Authorized Materials Industrial Contacts Zones Records Assessments Status
Algorithm Code:"	ECOM-01 (Verified)
Formula:	CONSUMPTION*EF
Algorithm Start Date	1901/01/01
Algorithm End Date:	
Emission Factor Characteristic:"	FUEL / HEAT INPUT / FIRING
Emission Factor Criteria:	NATURAL GAS / < 100 MILLION BTU/HR / WALL-FIRED
Emission Factor Set ID:	5046
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date:	
Start Date:" yyyyimmidd	1991/07/10
End Date: yyyyimm/dd	
	Save & Create Another Save & Finish Cancel

Select the **Algorithm Code** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Finish** button to save and return to the Calculations tab or the **Save & Create Another** button to include more equipment. Use the flowchart below to find the correct Algorithm Code and Emission Factor set.

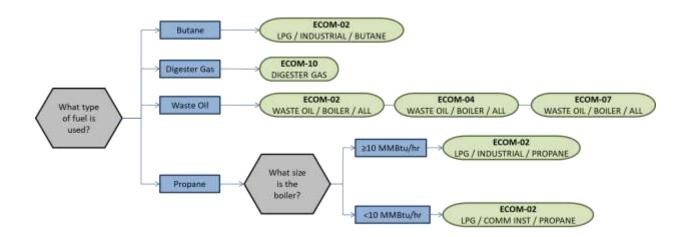
## 3.2.3.1.5.1 Natural Gas



#### 3.2.3.1.5.2 Fuel Oil



#### 3.2.3.1.5.3 Liquified Petroleum Gas (LPG), Waste Oil and Digester Gas



If your permit or regulatory agency requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

The next step on this tab is to enter the Calculation Parameters required to complete the Potential To Emit (PTE) calculations.

The calculations for actual emissions do not require parameters; however, the RATED CAPACITY is required to complete any PTE calculations. Freen Excent Consulties Augusty AdvicedNations Interior Details Dres Neuron Assessments State Process Algorithm Assignment Create Process Algorithm Assignment # moverly livered Emination Factor Criteria Acture (VIIII) Earmal ADART DISTR Electronic CONDUMPTION FR WATURN, GAG/ - 121 MILLON BTURR / WALLFREE ECON Calculation Parameter Assignment **Create Calculation Parameter Assessment** 

To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Process Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
Parameter Name:			RATED CAPACITY					🔁 🕶 🗙 (Verifi	ed)
Parameter Value:*			99.84		MMBTU	/HR			
Start Date:* yyyy/mm/dd			1901/01/01						
End Date: yyyy/mm/dd				-					
			Save & Create Ar	other Sa	ave & Finish	Cance	1		

Select the **Parameter Name**, RATED CAPACITY from the list of values.

Enter the rated capacity (heat input) of the boiler, or if this is for multiple boilers enter the total rated capacity of all the boilers in the **Parameter Value** field.

Enter the **Start Date** for the parameter, this date should match the start date of the algorithm or use 1901/01/01 as a default.

Click the **Save & Finish** button.

If this parameter is for multiple boilers, this parameter should be reviewed annually and the RATED CAPACITY should be adjusted as boilers are added and removed. In this case, DO NOT DELETE or EDIT the parameter value. Instead end date the previous year and create a new parameter record for the current year.

An example of an end dated parameter is shown below.

Process Algorithm Ass	ignment					
Create Process Algorithm	Assignment					
1 records toard.	1.000-000	250000000000000000000000000000000000000			(1-1) (1) (1-1)	100
Actore Majithin	CONSUMPTION/SF	Entherion Factor Entherio			Hockeyer.	East Date
10 IN SCOME!			LUON #71/HR/ IIIALL FIRED		100000000000000000000000000000000000000	
Calculation Parameter						
Calculation Parameter	Assignment					
Calculation Parameter .	Assignment					
Calculation Parameter Create Calculation Param Precords found.	Assignment eter Aulgereen	Department With	Parameter I/OM	Stat Drie		Data
Calculation Parameter .	Assignment eter Aulgereen	Paramolar Malan			17	Tata

#### 3.2.3.1.6 Materials

The last step in setting up the Unique Process record is to add the fuel as the authorized material on the *Authorized Materials* tab.

Create Authorized Materia	4			
necords found				Sav
Lettons with a	CAGE Com	PNI	Material Name	Authoriz Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

NSN:"	NATURAL GAS	X	(Venified)	
CAGE Code:	EMC			
PNE	A			
Material Name:	NATURAL GAS			
Authorize?	🖲 Yes 🔍 No			
	Save & Create Anothe	r Save & Finish	Cancel	

Select the fuel used from the list of values. Next select "Yes" to **Authorize** the material, then click the **Save & Finish** button.

Create Automated Material				
E records faund				Save
Actions (13)1 +	CAGE.Code	EM	Metarad States	Authorita Pilaj T
Actions OTH a	CAGE Code	EMI A	Material Name	datto Pie

Fuel material records used in external combustion have additional data requirements depending upon the algorithms used. Reference the table below to determine the data requirements for each algorithm.

Algorithm	Size / Configuration	Fuel(s)	Data Requirement
	Industrial	Fuel Oil - No. 6	
ECOM-04	Commercial - Institutional	Fuel Oil - No. 4	Material Sulfur Content
	Commercial – Institutional	Distillate	Material Sulfur Content
	All	Waste Oil	
ECOM-07	All	Waste Oil	Material Ash Content
ECOM-08 (PTE)	All	All Fuels	Heat Content
ECOM-09 (PTE)	All	All Fuels	Heat Content
ECOM-09 (PTE)	All	All Fuels	Sulfur Content

To review the material record, navigate to Material Product module. Use the search fields to filter the results to find the material record.

Manage Material Product	
Search Material Product	
NSN:	
CAGE Code:	
PNI:	
Prep Date: yyyy/mm/dd	From: To:
Trade Name:	
Material Name:	
Description of Material:	
ODC Tracked?	◯ Yes ◯ No ◉ Both
Data Source:	○ EESOH-MIS Interface Records ○ APIMS Entered Records ● Both
Status:	Active Inactive Both
Standard?	◯ Yes ◯ No ● Both
	Search

Once the search criteria, such as **NSN** has been entered, click the **Search** button.

Search Results						<b>9</b> =
Conste National Product						
1 records found						
Displaying records 1 1						
Actors Styles	CARECode	E81	Tixe Date	Material Nature	Simfard7	Note:
DIEBEL FLED.	EVC.	÷.	1001201301	DEIELFUELINGLOES BILDESEL	100	ACTINE .
						a Presidue I Next 4

To view the material record details, click the edit icon next to the material record. Once in the material record navigate to the *Pollutant Content* tab.

Create Politant Content		
I oscorda hurad		
Displaying records 1 - 2 Actions (Protrict/Const	Description	Control Amount Control 1909
And the second sec		
10 10 101	WATERIAL HEAT CONTENT	158.5 MMBTURASAL
A HEAP	WARDING TO THE TOWNSON THE TRUE WOLF	198.8 AMETONICAL 198.8 LINU.

It is recommended to use the values provided by the AFCEC Stationary Source Guide in Table 2-2 for Material Heat Content and Table 3-2 for Material Sulfur Content as, provided below.

Fuel Type	High Heating Value (Btu/unit fuel)
CNG	1.03E-03 MMBtu/ft <sup>3</sup>
Fuel Oil -No. 6	1.50E-01 MMBtu/gal
Fuel Oil -No. 5	1.40E-01 MMBtu/gal
Fuel Oil -No. 4	1.46E-01 MMBtu/gal
Fuel Oil -No. 1	1.39E-01 MMBtu/gal
Fuel Oil -No. 2/Distillate/ Diesel	1.38E-01 MMBtu/gal
Coal - Bituminous	24.93 MMBtu/ton
Coal - Subbituminous	17.25 MMBtu/ton
Coal - Anthracite	25.09 MMBtu/ton
Coal - Lignite	14.21 MMBtu/ton
LPG	9.20E-02 MMBtu/gal
Waste Oil	1.38E-01 MMBtu/gal
Landfill Gas	4.85E-04 MMBtu/ft <sup>3</sup>
Digester Gas <sup>1</sup>	6.55E-04 MMBtu/ft <sup>3</sup>

Table 2-2. Typical Fuel Heating Values

#### Table 3-2. Data for Common Fuels Used in Stationary ICOM Engines

Fuel Type	Heating Value (Btu/Unit Fuel) <sup>1</sup>	Sulfur Content (wt. %) <sup>2</sup>
Diesel	138,000 Btu/gal	0.0015 <sup>(3)</sup>
MOGAS	125,000 Btu/gal	0.02
CNG	1,026 Btu/ft3	0.0007
LPG	92,000 Btu/gal	Negligible
Landfill Gas	485 Btu/ft3	0.00469 <sup>(4)</sup>
Digester Gas	655 Btu/ft3	

 SOURCE Table C-1 of "Title 40-Protection of the Environment, Chapter I-Environmental Protection Agency, Subchapter C-Air Programs, Part 98-Mandatory Greenhouse Gas Reporting, Subpart C- General Stationary Fuel Combustion Sources," U.S. Environmental Protection Agency.

 SOURCE: (unless otherwise stated): "Household Vehicles Energy Use: Latest Data & Trends," Energy Information Administration (EIA), Office of Energy Markets and End Use, U.S. Department of Energy, November 2005.

 SOURCE: "Regulatory Announcement: Clean Air Nonroad Diesel Rule," U.S. Environmental Protection Agency (EPA), Office of Transportation and Air Quality, May 2004.

 SOURCE: This value assumes a typical sulfur compound concentration of 46.9 ppmv as given in "Section 2.4-"Municipal Solid Waste Landfills." Compilation of Air Pollutant Emission Factors - Volume I: Stationary Point and Area Sources. Fifth Edition, U.S. Environmental Protection Agency, November 1998.

"---" -- Indicates No Data Available

## 3.2.3.2 New Sources

## 3.2.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

It is also recommended to take pictures of the name plate while in the field if possible.

# External Combustion Data Collection Worksheet

	GENERAL INFORMATION	
Building Number	Mission/Purpose	
Shop Name/Function	Management Orga	nization
Coordinates: Latitude:	Longitude:	
UTM:Zone	Easting	Northing 🛛 Feet 🗆 Meters
Is this source in any of your permits	s? □ Yes □ No	
If yes, does it have an emission unit	number or other designation?	
	EQUIPMENT INFORMATION	
For each boiler, collect the followin	g information:	
Manufacturer	Heat Input	MMBtu/hr
	Installation Date	
What are the specific properties on Low NOx Burner Flue Gas Recirculator	□ Wall Fired □	Other External Control Device Specify
	USAGE INFORMATION	
How is fuel usage tracked?		
□ Meter for individual unit	Meter for group of units	Basewide fuel use
What is the fuel or fuels used?		
Natural Gas	☐ Heating Oil/No. 6 Fuel Oil	Butane
Diesel/No. 2 Fuel Oil	□ Waste Oil	Digester Gas
☐ Kerosene/No. 4 Fuel Oil	Propane	Ŭ
How often is the usage tracked?	] Monthly 🛛 Annually	
Total Fuel Used	MMCUFT	
Total Fuel Used		

### 3.2.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS the installation needs to evaluate the following:

- How is usage tracked for the boilers?
- What size boilers does my installation have?
- What fuel is used by my boiler?
- Do any of my boilers have controls?
- Are any of the boilers permitted?
- Do any of my boilers have meters installed?

The basic driving forces for source configuration are if the boilers calculate emissions using the same methodology and emission factors and if the usage is tracked as a single number.

The most common scenario for an installation is to have all-natural gas fired boilers, no permit requirements or metered units and a single natural gas usage for the entire installation. In this scenario refer to the next section 3.2.3.2.2.1 Installations without Metered Boilers.

For all other scenarios reference sections 3.2.3.2.2.2 Installations with Metered Boilers or 3.2.3.2.2.3 Dual Fuel Boilers.

## 3.2.3.2.2.1 Installations without Metered Boilers

In order to properly document this emission source in APIMS, there will need to be at a minimum a Unique Process record for each fuel type and size classification of boiler. For example, all-natural gas boilers that are less than 100 MMBtu/hr will be configured as a single process.

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:*	INDUSTRIAL T	
Process Type:*	FUELS	<ul> <li>× (Verified</li> </ul>
Process Name:*	COMBUSTING FUEL, NATURAL GAS, EXTERNAL	Verified
Base Specific:		
Local Process Name:*	BASEWIDE - BOILER - NATURAL GAS - <100MMBTU/HR	
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:*	AIR FORCE BASE	<ul> <li>X (Verified</li> </ul>
Mobile Source?*	O Yes  No	
Source Category:Σ	ECOM (Verified)	
	Save Cancel	

Process	Process	Process Name	Process ID
Category	Туре		
		COMBUSTING FUEL, FUEL OIL #2/DIESEL, EXTERNAL	1207
	FUELS	COMBUSTING FUEL, FUEL OIL #4/KEROSENE, EXTERNAL	1209
		COMBUSTING FUEL, FUEL OIL #6/HEATING OIL, EXTERNAL	1210
INDUSTRIAL		COMBUSTING FUEL, ISOBUTANE	1211
INDUSTRIAL		COMBUSTING FUEL, NATURAL GAS, EXTERNAL	1218
		COMBUSTING FUEL, PROPANE (LPG), EXTERNAL	1220
		COMBUSTING WASTE OIL, EXTERNAL	1223
		FUELS, NOC	1501

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, fuel used and size. Examples of process names are as follows:

- BASEWIDE BOILERS FUEL OIL <100 MMBTU/HR
- BASEWIDE FURNACE NATURAL GAS <100 MMBTU/HR

The **Start Date** should be the date the first unit became operational, if there is no possible way to determine the actual start date then use 1901/01/01 as a default start date.

The **Facility** name should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered a stationary source.

All external combustion sources are assigned to the ECOM **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.2.3.2.2.2 Installations with Metered Boilers

In order to properly document this emission source in APIMS, there will need to be at a minimum a Unique Process record for each fuel type, size classification and usage group. For example, if most boilers on the installation are less than 100 MMBtu/hr natural gas boilers but there is a building that has two boilers that have shared usage meter. In this scenario there would need to be the following processes configured:

- A process for the natural gas boilers that are not metered
- A process for the two metered boilers

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Search Results							
Create Process							
3 records found. Cisplaying records 1 - 2. Actions Unique ID Base Specific	Local Process Name PRINTTED BOLER US408		Source CatCode	Bida No. 4425	Start Date	End Date	Status ACTIVE
ia 🔒 🕘 🛛 🗤 🖓 🖓	BASEWICE - BOILER - NATURAL UAB - + 100	VINBTURE	ECOM		1901801801		ACTIVE
Page 1							
Create Process							
Process Category:"	INDUST	RIAL	(3.57)				
Process Type:"	FUELS	FUELS			Verified		
Process Name:"	COMBU	COMBUSTING FUEL, NATURAL GAS, EXTERNAL			-×	Verified	
Base Specific:							
Local Process Name:"	BASEW	BASEWIDE - BOILER - NATURAL GAS - <100MMBTU/HR					
Shot Date 1		1901/01/01					
Facility:"	AIR FO	RCE BASE				×	Verified
Mobile Source?"	Yes	No					
Source Category 2	(ECOM			(Verifie	(b:		
	Save	Cancel					
Croate Brasses				_			_
Create Process							
Process Category:"	INDUST	RIAL	•				
Process Type:"	FUELS					X	(Verifier

00055	Process	Process Name	Proces
		Save Cancel	
Source Categor	y:Σ	ECOM (Verified)	
Mobile Source?	r:	🔍 Yes 🕷 Na	
Facility:*		AIR FORCE BASE	(Verified)
Start Date:* yyyy/mm/dd		2014/06/12	
Local Process	Name;"	BLDG 501 - BOILERS - NATURAL GAS - 21 MMBTU/HR	
Base Specific		EU 5	
			and a second

Process	Process	ocess Process Name	
Category	Туре		
	FUELS	COMBUSTING FUEL, FUEL OIL #2/DIESEL, EXTERNAL	1207
		COMBUSTING FUEL, FUEL OIL #4/KEROSENE, EXTERNAL	1209
		COMBUSTING FUEL, FUEL OIL #6/HEATING OIL, EXTERNAL	1210
INDUSTRIAL		COMBUSTING FUEL, ISOBUTANE	1211
INDUSTRIAL		COMBUSTING FUEL, NATURAL GAS, EXTERNAL	1218
		COMBUSTING FUEL, PROPANE (LPG), EXTERNAL	1220
		COMBUSTING WASTE OIL, EXTERNAL	1223
		FUELS, NOC	1501

#### Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, fuel used and size. Examples of process names are as follows:

- BLDG 501 BOILERS NATURAL GAS 21 MMBTU/HR
- BLDG 223 BOILER DIESEL 0.875 MMBTU/HR

The **Start Date** should be the date the unit became operational, if there is no possible way to determine the actual start date then use 1901/01/01 as a default start date. This date is very important as it can have regulatory implications.

The **Facility** name should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered a stationary source.

All external combustion sources are assigned to the ECOM **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.2.3.2.2.3 Dual Fuel Boilers

For dual fuel boilers a process for each fuel used will need to be configured. The emission factors used for natural gas are different from the emission factors used for diesel therefore there will need to be two different usage records and two different calculation methodologies, which requires two processes.

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

	iate Pr	OCCESS						
a to the								
records	Is four	d.						
		ords 1 - 2						
Actio	-	Unique ID Date Specific	Local Process Name	Source Cat Code	Ukla.Ko.	Start Date	End Date	Status.
		a distance of the second	BOILER - DUAL FIRED - DIESEL - BLOG 55510	ECOM	55010	100101/01		ACTIN
	1	160120	BOUFER - SAME LINED - CHEORE - BLOG 20810					
			BOILER - DUAL FIRED - MATURAL GAS - BLOG 55910	ECOM	55810	1901/01/01		ACTIV

Process Category:*	INDUSTRIAL T
Process Type:*	FUELS (Verified
Process Name:*	COMBUSTING FUEL, FUEL OIL #2/DIESEL, EXTERNAL
Base Specific:	
Local Process Name:*	BLDG 558 - DUAL FUEL - NATURAL GAS - 1.2 MMBTU/HR
Start Date:" yyyy/mm/dd	2012/06/05
Facility:*	AIR FORCE BASE
Mobile Source?*	○ Yes ● No
Source Category:Σ	ECOM

Process Category:*	INDUSTRIAL V
Process Type:*	
Process Name:*	COMBUSTING FUEL, FUEL OIL #2/DIESEL, EXTERNAL
Base Specific:	
Local Process Name:*	BLDG 558 - DUAL FUEL - DIESEL - 1.2 MMBTU/HR
Start Date:* yyyy/mm/dd	2012/06/05
Facility:*	AIR FORCE BASE
Mobile Source?*	◎ Yes ● No
Source Category:Σ	ECOM (Verified)

Process	Process	Process Name	Process ID	
Category	Туре			
		COMBUSTING FUEL, FUEL OIL #2/DIESEL, EXTERNAL	1207	
		COMBUSTING FUEL, FUEL OIL #4/KEROSENE, EXTERNAL	1209	
		COMBUSTING FUEL, FUEL OIL #6/HEATING OIL, EXTERNAL	1210	
		COMBUSTING FUEL, ISOBUTANE	1211	
INDUSTRIAL	FUELS	COMBUSTING FUEL, NATURAL GAS, EXTERNAL	1218	
		COMBUSTING FUEL, PROPANE (LPG), EXTERNAL	1220	
		COMBUSTING WASTE OIL, EXTERNAL	1223	
		FUELS, NOC	1501	

Use the table above to determine the appropriate **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is, fuel used and size. Examples of process names are as follows:

- BOILER DUAL FUEL DIESEL BLDG 12
- BOILER DUAL FUEL NG BLDG 12

The **Start Date** should be the date the unit became operational, if there is no possible way to determine the actual start date then use 1901/01/01 as a default start date. This date can have regulatory implications with the NSPS for boilers.

The **Facility** name should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered a stationary source.

All external combustion sources are assigned to the ECOM **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.2.4 Year-to-Year Maintenance

#### 3.2.4.1 Usage

The consumption for external combustion sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the Usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the Create Consumption hyperlink.

IFU1218645004	(Verified)	
2016/01/01 0000		
2016/12/31 2359		
NATURAL GAS	(Verified)	
CAGE Code: EMC PNI: A EESOH Product Detail ID:	Preparation Date: 1901/01/01	
197.851	MMCUFT - MILLION CUBIC FEET	
Yes O No		
(	(Unverified)	
L		
	2016/01/01 0000 2016/12/31 2359 NATURAL GAS CAGE Code: EMC PNI: A EESOH Product Detail ID: 197.851	2016/01/01 0000       Image: Control of the second se

The consumption record should span the entire reporting period as shown above.

The material (NSN) should be the type of fuel used.

The **Amount** should be the total amount of fuel used, if this is for multiple boilers it needs to be the total amount of fuel used by all the boilers.

Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

Repeat this step for all the external combustion processes.

If the unit did not operate during the year but was still an active source, enter a consumption record with zero usage and a comment as to why it did not operate. This type of documentation ensures that all equipment is accounted for from year to year and can be used to account for differences in AEI reporting from year to year.

#### 3.2.4.2 Parameters

The RATED CAPACITY parameter should be reviewed and updated every year. This is especially important for processes that have multiple boilers associated. As boilers are added and removed from the installation the total rated capacity of all the boilers will fluctuate.

The calculations for actual emissions do not require parameters; however, the RATED CAPACITY is required to complete any PTE calculations.

To review the RATED CAPACITY parameter, navigate to the *Calculations* tab of the Unique Process record.

Process Algorithm Ass	signment					
Greate Process Algorithm	Anignment					
records tound						-
Activos Millionale -	CONDUCTIONER	ENNION EACTORN CHECK	LLION BTURN / WALL FIRED		NumDets 1901/01/01	Ent Cete
	2400 001/032 FT					
	Assignment					
and and an internet						
Create Calculation Paran	when Assignment					
Create Calculation Paran	ew.eoc.autorit.	Parameter Wate	Bearster UDM	MartDule		Dete

If this parameter needs to be adjusted, DO NOT DELETE or EDIT the parameter value. Instead end date the previous year and create a new parameter record for the current year.

To end date the current parameter, click the corresponding edit 🚧 icon.

Process Equipment Calculations Repu	atory Authorized Materials Industrial	Contacta Zones Records Assessments Statu
Parameter Name:	RATED CAPACITY	
Ipdating the parameter value will effect old er	visitions calculations if calculated again.	
Parameter Value:*	14.025	MMBTU/HR
Start Date:" yyy/mm/dd	1901/01/01	
ind Date: yyy/mm/dd	2015/12/31	
	Save Cancel	

Enter the last day of the year as the end date. Click the **Save** button.

Process Algorithm Ass	griment.					
Create Process Algorithm	Assignment					
Actions Avand	Farmala	Emission Factor Criterio	(c)		Start Date	Dist Car
ECON-01	CONSUMPTIONER		LLON BTURR / WALL FIRED		Helener.	
	ssignment					
Calculation Parameter /	ter Assonment					
Calculation Parameter /	ter Assonment					
Calculation Parameter /	ter Assonment	Parameter Wear	Expansion (DOM	Start Date	(cm	inin -

The next step is to create a new parameter with the current RATED CAPACITY of the boilers. Click the <u>Create Calculation Parameter Assignment</u> hyperlink.

	RATED CAPACITY		(Venified)		
Parameter Value:"	13.850	MMBTU/HR			
Start Date:" yyyimm/dd	2016/01/01				
End Date: yyyy/mm/dd					

Select the **Parameter Name**, RATED CAPACITY from the list of values.

Enter the rated capacity (heat input) of the boiler, or if this is for multiple boilers enter the total rated capacity of all the boilers in the **Parameter Value** field.

Enter the **Start Date** for the parameter; this date should the first day of the calendar year.

Click the **Save & Finish** button.

Process Algorithm Ass	signment				
Gruate Process Algorithm	n Akadonneot				
records found.					
Actions Accounting	Earmada	Entimation Factor Criteria	É.	Start Date	End Dat
Econ ()	CONDUMPTION/EF	NATURIAL (\$40) ++ 133 M	TTOP BLARE IN VIT SHED	198110101	3.
Calculation Parameter	Assignment	NATURIA, GAB ++ 183 M			-
Calculation Parameter	Assignment neter Assignment	NATURIAL GABIN 193 M	ELICH BTUHH I WALL FRED Paramèter DUM		Ent See
Calculation Parameter Create Calculation Param Precords found	Assignment neter Assignment				Enst Date

### 3.2.4.3 Emissions Calculation

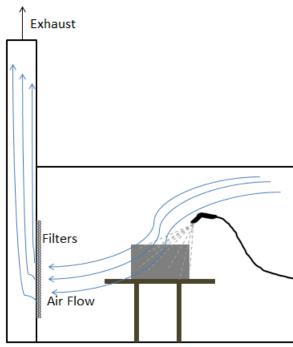
To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation**. Reference Section 2.7 Emissions Calculation for additional instructions and details.

# 3.3 Surface Coating (SURF)

# 3.3.1 Source Types

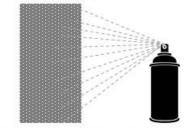
Surface coating operations are conducted on all Air Force Installations and involve a wide range of coating materials and application processes. Surface coating operations are defined as those that involve the application of paints, primers, thinners, stains, varnishes, shellacs, glazes, etc. in liquid or powder form to a substrate for decorative and/or protective purposes. These materials typically contain solvents that are emitted to the air as they evaporate. Conventional coatings contain a minimum of 30% solvents by volume but can commonly contain as much as 70% to 85% solvents by volume. Coatings with 30% solvent by volume or less are referred to as low solvent or "high solid" coatings. These coatings reduce the amount of VOC emissions but will increase the emissions of PM from overspray.

Emissions from surface coating operations are dependent on the operation type, application method, and presence of an emissions control device. Coating applications include conventional spraying, airless spraying, air assisted airless spray, electrostatic spray, roller coating, dip coating, flow coating and brush coating. With the exception of touch-up painting, coating operations involving spray applications (e.g. conventional spraying, electrostatic spraying, airless spraying, etc.) are conducted either in a paint booth or hangar. A typical spray booth/hangar is equipped with a ventilation system that draws air either across or downward onto the object being coated, and through a PM/inorganic HAP control device, such as a dry filter system or water-wash system. After passing through the PM/inorganic HAP control device, the air is either vented directly into the atmosphere or is vented to a VOC/organic HAP control device such as a carbon absorption system or an incinerator.

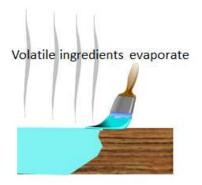


Paint Booth





Solid ingredients can be aerosolized



There are various NESHAPs applicable to surface coating outlined in the bullets below:

- 40 CFR 63 Subpart GG, National Emission Standards for Aerospace Manufacturing and Rework Facilities; outlines those standards for aerospace vehicles and components that are considered major sources. This NESHAP applies to any method of surface coating when the item being treated is an aerospace vehicle or component.
- 40 CFR 63 Subpart MMMM, National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products; applies to the coating of metal components.
- 40 CFR 63 Subpart PPPP, National Emission Standards for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products; applies to the coating of plastic components.

### 3.3.2 Potential Data Sources

Surface coating materials are considered hazardous materials and are typically procured through the Enterprise Environment, Safety, and Occupational Health Management Information System (EESOH-MIS), which is the authoritative data source for the Air Force. There are a few approaches to best handle the information that can be obtained from EESOH-MIS. It is important to work with the Hazardous Materials Management personnel to configure the best approach for the installation.

The best method for collecting usage data for activities not conducted in a paint booth or hangar is to segregate different surface coating application types (aerosol, brush, etc.) into distinct processes. The processes should also only have the materials that are used with painting (e.g. paints, thinners, primers etc.) authorized and not all the materials used in the shop.

The next option for collecting usage data for activities not conducted in a paint booth or hangar is to segregate the materials that are used with painting (e.g. paints, thinners, primers etc.) and the rest of the materials used in the shop.

The best method for collecting usage data for activities conducted in a paint booth or hangar is to utilize manual paint logs that record the material, actual amount, and date/time the material was used. EESOH-MIS often does not track material usage to this level of granularity, it usually is configured to "consume on receipt." This method only tracks the container to the shop level and reports the entire container as usage on that day, not the actual amount used during that day or subsequent days. This type of log is often required by permits or other regulations. If this option is used the processes in EESOH-MIS that track the purchases of these materials will need to be identified so the consumption can be excluded from the interface.

The next option for collecting usage data for activities conducted in a paint booth or hangar is to identify the processes in EESOH-MIS that are authorized for the materials used in the paint booth and group them together as sub-processes to an APIMS process.

The most common shops that have surface coating operations fall under the following office symbols:

- Aircraft Structural Maintenance (MXS)
- CE Vertical Structures

- CE Pavements and Equipments
- Corrosion Control (MXS)
- Vehicle Maintenance (LGRV)
- Repair and Reclamation
- Aerospace Ground Equipment (MXMG)

For all operations that are conducted in a paint booth or hangar the control equipment information will need to be collected. The equipment information needed is the control type and control efficiency. This information should be available from product literature provided by the manufacturer. If this information is not readily available it is recommended that the booth or hangar is inspected to determine the exact control equipment and contact the manufacturer directly to gather this information.

The material information is also essential to the surface coating emissions calculations. For all usage information that is imported from EESOH-MIS there should also be material records that contain most if not all the required information. For manual paint logs, the Safety Data Sheets will need to be obtained. Most shops maintain Hazard Communication folders that contain all the Safety Data Sheets for materials used. If the Safety Data Sheets are not available in the shop, most are available on manufacturer websites. All materials will need the following information populated in APIMS.

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content
- % Solids (thinners and solvents will not need this info)
- Mix Ratio (if the paint logs specify the total amount of the kit used and not component specific amounts)

The EESOH-MIS interface will populate most of this data, however if the VOC or % solids is not readily available on the SDS it may not be entered into EESOH-MIS. Since the EESOH-MIS interface inserts so many material records at one time it is not feasible to review each record for completeness, therefore it is recommended to initially assume the data required is present and run the initial calculations. Once the calculations have been run, there is a tab that will provide error messages that will identify all the records that are missing VOC, % Solids or ingredient information. Refer to Section 2.7 Emission Calculations for details on the calculation error messages. For those materials that the VOC can be calculated based on the ingredients, a general knowledge of chemistry will be required. If the VOC or % Solids cannot be obtained from the SDS or the manufacturer, the Air Emissions Guide for Air Force Stationary Sources provides estimated values in Table 22-1.

# 3.3.3 Standard Source Identification/Characterization

# 3.3.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab. In the **Source Category** search field, type "SURF" then select the row for Surface Coating from the dropdown results. Click the Search button.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	SURF C
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value v
Permitted Source?	O Yes ○ No ● Both
Mobile Source?	○ Yes ○ No ○ Unsure ● All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both
	Search

The search results grid will now display all the surface coating material use processes currently in APIMS. To further filter out the EESOH-MIS processes, use the APIMS Entered Records radio button on the Data Source field in the Search criteria. This will then only display the Next Higher Process.

	ai Gi	1116	sults						
٥	Creat	e Pro	C655						
5 rec	ords	found							
Disp	laying	) reco	rds 1 - 5.						
1	Action	•	Unique Base ID Specific	Local Process Name	Source Cat Code	Blog No.	Start Date	End Date	Status
68	-	1	641656 UMP	BASEWIDE SURFACE COATING	SURF	BASEWIDE	1901/01/01	2012/12/31	MACTIVE
1	10	3	641645 P9009	BLDG 1071 - SPRAY BOOTH - CORROSION CONTROL	SURF	1071	1901/01/01		ACTIVE
10	1.6	100	641764 P9007	HVLP SPRAY BOOTH - 9TH TRANSPORTATION SQUADRON	SURF	2488	1901/01/01		ACTIVE
		(3)	<u>641765</u> ₱9009	SPRAY BOOTH - CES PAINT SHOP	SURF	2530	1901/01/01		PERMANENTLY SHUTDOWN
100	-		641786 P9010	SPRAY BOOTH - HOUSTON FEARLESS	SURP	2140	1901/01/01		ACTIVE

### 3.3.3.1.1 Status

If the status of a process needs to be changed, click the edit 🚧 icon next to the process. If this is a process that was entered into APIMS via the EESOH-MIS interface, the process status must be altered in EESOH-MIS.

Process Equipment	Calculations	Regulatory a	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
Change Current S	tatus									
1 records found										
Displaying records 1 - 1	1									
Actions Status		Start Date	10 C			End Date			C	omment
ACTIVE		1901/01/0	it .							
Page 1										

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
itart Date:" yyy/mm/dd	2016/06/12
Comments	Unit no longer in use.
and a second	

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year the emissions will only be calculated for the part of the year the source was active.

### 3.3.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Process Equipment Calculations Regulatory Authorize	d Materials Industrial Contacts Zones Records Assessments Status
Definition Information Sub-Processes	
Building No.:Σ	507
Location:2	BUILDING 507 (Verified)
Complete Location Name:	BUILDING 507
Office Symbol:Σ	MXSG (Verified)
Unit/Organization:	MXSG
Shop:	Z250 (Verified)
Shop Name:	LANDING GEAR PAINT SHOP
Source Type:Σ	POINT V
Permitted Source?Σ	● Yes ○ No
Emission Point:	ATMOSPHERE V
Usage Interval:	ANNUAL T
Next Higher Process:	(Unverified)
Next Higher Process Name:	
EPA Source Class Code:	40200101
EPA Industry Group:	
GHG Scope:	Select Value V
Assessment Barcode:	
Exclude Consumption records from EESOH-MIS Interface?	○ Yes ● No
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr
Comments:	
	Save Cancel

The Building No. field can be used to specify a general location or area of the emission source.

The **Location** field is very important to effectively manage the location and mission of the emission source. This information will be important for knowing where the source is, in case it needs to be inspected or if the source owner needs to be contact for pertinent information. For the instructions on how to create a location, reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit.

Surface coating operations conducted in a paint booth should be designated as POINT in the **Source Type** field. Operations conducted outside a paint booth should be designated as AREA in the **Source Type** field.

The **Emission Point** should be ATMOSPHERE for operations conducted outside a paint booth. The **Emission Point** should be STACK for operations conducted in a paint booth.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on a MONTHLY basis especially for operations conducted in a paint booth. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

# 3.3.3.1.2.1 Paint Booths with Manual Logs

For the Paint Booth processes that will use manual paint logs, it is important to identify the EESOH-MIS processes that are used to supply paints to the booth. Those processes should be linked as sub-processes to record the relationship between the processes; however, an additional step is required to make sure the consumption is not double counted. In each sub-process associated to the paint booth process, navigate to the *Information* sub tab. As shown in the screen below, the Exclude Consumption records from EESOH-MIS Interface? should be "YES." This will ensure in all future runs of the EESOH-MIS interface the usage data for these processes will not be imported.

Process Equipment Calculations Regulatory Authorize	ed Materials Industrial Contacts Zones Records Assessments Status
Definition Information Sub-Processes	
Building No.:Σ	507
Location:2	BUILDING 507 (Verified)
Complete Location Name:	BUILDING 507
Office Symbol:Σ	MXSG (Verified)
Unit/Organization:	MXSG
Shop:	Z250 (Verified)
Shop Name:	LANDING GEAR PAINT SHOP
Source Type:Σ	POINT T
Permitted Source?Σ	Yes No
Emission Point:	ATMOSPHERE T
Usage Interval:	ANNUAL
Next Higher Process:	(Unverified)
Next Higher Process Name:	
EPA Source Class Code:	40200101
EPA Industry Group:	
GHG Scope:	Select Value 🔻
Assessment Barcode:	
Exclude Consumption records from EESOH-MIS Inter	rface? 💿 Yes 🔍 No
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr
Comments:	
	Save Cancel

The final step is to delete the existing consumption records for these processes in the consumption log.

Consul	mption Log					
. Seam	in Consumption					
Ulubai Filt	pet 2	Capple Filter				
1000						
Creation of the local states of the local stat	Computeretter					
	n Generature. 195 of 193 an order brand					
Septaying	e Consumption 1959 of 1959 records found Local Process Name	Start Date/Time	End Date/Time	Material Name	Amount	Amnunt UOA
Septaying	165 of 168 records haund	Start Date/Time 2011/05/19 1444	End Date/Date 2011/03/19 1444	Material Name 0214-392, SO-SURE AEROSOL PRIMER	Amount 0.6563	

To delete a record, click the kicon next to the row. These extra steps are only required on the initial configuration of these processes.

### 3.3.3.1.3 Sub-Processes

For Next Higher Process and paint booth process configuration, navigate to the Sub-Processes sub tab.

	a service of the serv						
Create	Sub-Process Association						
	CADACT INCOME CONTRACTOR						
3 nearby 1	tounit.						
Deplaying	records 1 - 3.						
Actions	Unitary ID Base Specific	Local Process Name	Boaroe Cat Code	Gala.Mo.	Mart Date:	End Outp	Status.
Actions	and the house of succession of the succession of	LIGHT TEACHER NAME FAITT (ENCLE & COMPONENTS WITH HILDFOLD)	Bearce Cat Code (2.44	Gala Mo.	Mart Date 2010/07/23	End Oxfor	
Col.	United ID Base Specific	A CONTRACTOR OF A CONTRACTOR OFTA CONTRACTOR O	and a second sec	Baha Ma		End Oxfe	acm)
Col.	Unicada 30 Base Specific 10173	Public ENCLE & COMPONENTS WITH HILLP OLDS	35.84	Onta Ma	2011/07/02	End Date	20100 ACTIV ACTIV

This sub tab is used to specify which processes should have their consumption rolled up to this next higher process. This list should only include EESOH-MIS processes that match the next higher process, specific guidance shown below.

Next Higher Process	Sub-Process Criteria
Basewide by application type	<ul> <li>Painting operations not conducted in a paint booth.</li> </ul>
	<ul> <li>Surface coating materials authorized.</li> </ul>
	<ul> <li>Application type matches next higher process application type.</li> </ul>
Basewide all application	<ul> <li>Painting operations not conducted in a paint booth.</li> </ul>
types	<ul> <li>Surface coating materials authorized.</li> </ul>
Paint Booth	• Painting operations conducted in the paint booth specified in the next
	higher process.

To add a process or processes, click the <u>Create Sub-Process Association</u> hyperlink.

- 34	arch.Processes								
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91	tattes:		Select Value +	1					
150	surce Category		SURF	_1+ H	Null Source Category				
5.0	ACTION:								
					Aug. 1.55				
	ermitted Processes		C Yes # No						
1	ermitted Processes		© Yes ≢No						
10			© Yes # No						
record	die found:								
record	die found:	Land Process Name	Search Clear Search		Source Set Code	Balar Mas.	Mart Sola	Datibate	Jistas.
record	is food	Lated Powens Name CORPOSICY CONT	Search   Clear Search		Bosone Cat Code	Hitta Ma, pica	Mart Salar Hore ver	Entline	Jistas ACTI-E
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Use the Search Processes fields to refine the search to find only the surface coating processes. Select the checkbox next to the appropriate process(es), then click the **Save** button.

# 3.3.3.1.4 Equipment

The next tab is the *Equipment* tab. This is especially important for surface coating processes as the calculation in APIMS uses the control efficiency on the equipment associated to the process to accurately calculate emissions. To link the equipment to the process the equipment must already be entered in APIMS.

In the *Control* tab of the equipment record, the control efficiency for the device needs to be created for PM, PM<sub>10</sub>, PM<sub>2.5</sub> and particulate HAPs if the paint booth has a fabric filter or waterfall filter. Additionally, if the booth also has a carbon filter the control efficiency will need to be created for VOC and organic HAPs. Refer to Section 2.4 Equipment for specifics on how to properly document equipment in APIMS.

	ol Efficiencies			
	10 3881X		Titel Date 2007/09/05	
	0.58852 CISD-SWF-15.5.10	13 NCP Model Description	PRINT BOOTH End Date	
NUMBER OF	Clab-suit-roro av	CHCP LINE CERTIFIC	PARE BOOK	
-	Baarentipe	Prices August 1022016 Easted Test Owns		
	Caretonia Caretonia			
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	- HADS - HARD - HARD - HARTSON - HARTSON	INNER CLARE AND THE COMMENDER INNER CLARE AND THE COMMENDER INNER CLARE WATER INNER COMMENDER	9 87 83 83	
	Halts Harts Harts Hartson Hartson Hartson Trouget	INNERGANE ANTER O MARINES INNERGANE ANTER O MARINES ANTEGANE ANTER O MARINES INFORMATION I COMMENT OLI OF 12	(H ) 2017 2015 2015 2015 2015 2015 2015 2015 2015	
	- 9425 - 9465 - 949 - 1477008 - 157708 - 175600 - 175600	INFECTUARE NOT THE CONVERTING INFECTUARE NOT THE FORM OWNED FARMING AND AND THE INFECTION OF THE REPORT OF THE INFECTION INFECTION OF THE INFECTION OF THE ANNET HELIOPERS	91 2427 2422 2422 2422 2422 2422 2422	
	94035 Part0 Per 9607000 PECT-08 700800 TOSE00 TOSE00	INFOCULATION TOPICS WARTED CONVERSES INFOCULATE NATURE FORM (INFOCU DATACOUNTS AND TOPICS INFOCULATE NATURE INFOCULATE NATURE INFOCULATE INFORMATION INFOCULATION (INFOCULATE)	10 202 202 202 202 202 202 202 202 202 2	

Navigate to the *Equipment* tab of the Unique Process record.

	Calculations	Authorities stateman	Inchestisal	Syntacts	Zines Heim	15 Assessments	titations	
Create Eq.	upment Association							
records found								
Splaying reco								
Actions 21	ent to	Secial #	Model #		Manufacturer		Start Date	Entri Darte
				No record	to Bracket			Start March 199

To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Process Equipment Calculations Regulatory Autho	rized Materials Industrial Contacts Zones Records Assessments Status
Equipment ID:* Serial #: Model #: Manufacturer: Description:	38852 U-38852 CISD-SWP-13.5-10-13-NCP ROHNER PAINT BOOTH
Equipment Start Date: yyyy/mm/dd Equipment End Date: yyyy/mm/dd	2007/09/05
Start Date:* yyyy/mm/dd End Date: yyyy/mm/dd	
Comments:	
	Save & Create Another Save & Finish Cancel

Search for the **Equipment ID** in the list of values, enter the start date and click the **Save & Finish** button.

Create, Equipment, Association					
e ords Aoand					
raving ecords 1-1					
	A	Machel A	Macadinationers	Blact Date	and the second
tore Engenerally	Sensi 8	BOOK A CONTRACTOR AND A CONTRACTOR	and the second s		

# 3.3.3.1.5 Calculations

The next tab is the *Calculations* tab.

rocess Algorithm Assignm	ant		
ocess Algorithm Assignm			
Create Process Algorithm Assign	ment		

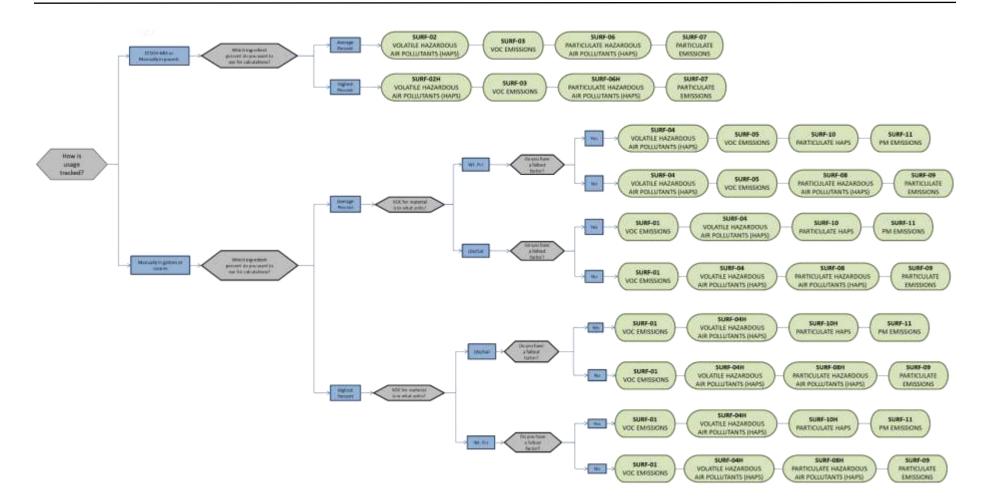
To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Process Equipment Calculations	Regulatory Authorized Materials Industrial Contacts Zones Records Assessments	Status
Algorithm Code:" Formula: Algorithm Start Date: Algorithm End Date:	SURF-02 (Verified) CONSUMPTION*INGREDIENT PCT (AVERAGE) 1901/01/01	
Emission Factor Characteristic:* Emission Factor Criteria: Emission Factor Set ID: Emission Factor Set Start Date: Emission Factor Set End Date:	EMISSION TYPE (Verified) VOLATILE HAZARDOUS AIR POLLUTANTS (HAPS) 1403 1901/01/01	
Start Date:* yyyy/mm/dd End Date: yyyy/mm/dd	1901/01/01	

Select the **Algorithm Code** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Create Another** button to associate another algorithm or click **Save & Finish** button to save and return to the Calculations tab. Use the flowchart below to find the correct Algorithm Code and Emission Factor set.

Surface coating emissions are calculated utilizing the material VOC, the material solids content and a mass balance based on volatile and particulate HAP ingredients. Therefore, there are 4 algorithms that need to be associated to each surface coating process.

# **APIMS AEI Procedure**



If your permit or regulatory agency requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

The next step on this tab is to enter the Calculation Parameters required to complete the calculations. If the process is using any of the following algorithms the corresponding parameters are required for calculations:

Algorithm Code	Parameter(s)
SURF-06	TRANSFER EFFICIENCY
SURF-06H	TRANSFER EFFICIENCY
SURF-07	TRANSFER EFFICIENCY
SURF-08	TRANSFER EFFICIENCY
SURF-08H	TRANSFER EFFICIENCY
SURF-09	TRANSFER EFFICIENCY
SURF-10	TRANSFER EFFICIENCY & FALLOUT FACTOR
SURF-10H	TRANSFER EFFICIENCY & FALLOUT FACTOR
SURF-11	TRANSFER EFFICIENCY & FALLOUT FACTOR

To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Process Algorithm	Assignment				
Create Process Algo	eltin Augustet				
records burid					
Artiste Division in the	Martin Contraction of the Contra	Emission Factor Con		BattDate	Contraction of
a 1,47-C	CORPUSET(OWINGHEDBUT PCT (CORVER)		VEINE POLIUTINITO (MPI)	180.010	
a in Note of	costautemponey.vic.doettamintata	>DC Bamarónia		TROCOFIEM	
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R records trans	22-5-5 (A				
Reflects Control of Control of	(*) Camatin Mar	Facerative (JGM	Bach Dair	End Adver	-

To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Parameter Name:	TRANSFER EFFICIENCY	(Verified)
Parameter Value:"	65 W	TPCT
Start Date:* /yyy/mm/dd	1901/01/01	
End Date: /yyy/mm/dd		

Select the **Parameter Name**, either TRANSFER EFFICIENCY or FALLOUT FACTOR from the list of values.

Enter the transfer efficiency percent in the **Parameter Value** field. The TRANSFER EFFICIENCY parameter value is dependent upon the application type. If the process is for multiple application types, use a transfer efficiency of 65%, which is based on a standard distribution of application types and transfer efficiencies. Specific transfer efficiencies are listed below:

Coating Application Method	Typical Transfer Efficiency (%)
Air Atomizing	30
Airless	40
Air-Assisted Airless	45
High Volume, Low Pressure (HVLP)	65
Electrostatic	65
Dip Coating	85
Flow Coating	85
Electrodeposition	95
Brush Coating	99

The FALLOUT FACTOR parameter value is usually specified by the regulatory agency.

Enter the **Start Date** for the parameter, this date should match the start date of the algorithm or use 1901/01/01 as a default.

Click the Save & Finish button.

Process	s Algorithm	Assignment						
Diese	in Process Algar	itm Assgared						
4 records		29-02 III					1000	2000
	Appress	famile			Emission Factor Criteria		Martillate	Endline
10.14	31025-04	CONSUMPTION/DENSITY/INCREDENT PCT (4)	68406)		VOLATAE HADARODUS AR	EPOLLUTAR7 BIH 4PSI	10010101	
12 14	BURF-01	CONSUMPTION DEVELOPMENT PROFILE VO			VGC EMBERGIND		19010101	
10.00	RUPP-DR	CONTUNETION DENSITY IN ORECENT FOT UP	CHAOSINI TRANSPERSITION	Y1970	PURTICULATE HAZAROOU	NAK-POLOUTANTRIHAPIN	7907101.01	
10.14	31377-08	CONSUMPTION DENSITY (PCT SOLDE/1201)	TRANDEDRIGE FICKING INTERPORT		PARTICULATE EMODORE	in a state of the	10010101	
Calcula		ter Assignment						

# 3.3.3.1.6 Materials

The last step in setting up the Unique Process record is to setup the authorized materials on the *Authorized Materials* tab. This step is only required for processes that use manual logs to track usage in APIMS. All processes that use the consumption data from EESOH-MIS are configured at the sub-process level by the interface.

Create Authorized Material			
micoids found			Save
Actions with a	CAGE CHIN	Ebil Material Name	Authoria Plag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regulatory	Authorized Materials Industrial Contacts Zones Records Assessments Status
NSN:*	8010002906158
CAGE Code:	58963
PNI:	0
Material Name:	A-A-1452B #17038 GLOSS BLACK
Authorize?	Yes ONO
	Save & Create Another Save & Finish Cancel

Select the material record from the list of values, using the **NSN** or Material Name. If the material is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then click the **Save & Finish** or **Save & Create Another** button. Repeat this step for all materials used by the process.

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25 rec	onds found				lan (
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G	1011000000(11H)		- 1	A A NEOR # TOR BUTTOR BLACK	×
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	001094620020230	HT (20) 111,200	- R.	EDDRALD PURINESS	*
14	HUT (PPAA00000 0009)	H1.80	1	COLORBULD PLUS HARDERER HON SHICHRI	*
14	10110-0000011275	H1,000	1	HARDER # 20	*
14	(010944400000000)	H1/00	1 C	HEALHERDER #2	×
120	(010PHW0000E1WE)	E969		HAPERIER 24,0001240	*

For material records used in surface coating, several data elements must be populated. To review the material record, navigate to Material Product module.

Use the search fields to filter the results to find the material record.

Search Material Product	
NSN:	8010013316109
CAGE Code:	
PNI:	
Prep Date: yyyy/mm/dd	From: To:
Trade Name:	
Material Name:	
Description of Material:	
ODC Tracked?	O Yes O No ● Both
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Bo
Status	Active Inactive Both
Standard?	◎ Yes ◎ No ● Both
	Search

Once the search criteria, such as NSN has been entered, click the Search button.

	h Results						0
	ale Malerial Product						
29 Hectro	ts found a records 1 - 10						
	NIM	CAGECODE	191	Himi Date	Material Statue	Mandacu?	\$12115.A
12.14	80-0013310108	OFTE	В	1962/10/01	ENAMEL AEROBAL, RED WOR-ECO SURE RED WOR YOC-COMPLAINT PAINT	http	Active
	62-00133-0109	047718	.0	1003083011	ECO GURE INDUITTICAL ENAME, AEROSOL PANYT GLUBB RECIPITION	his.	ACTIVE
1.14	801001132-0108	UPTTS	8	10059428	EDIT SURE RED 11536 (#314-111)	No.	agrine.
10.10	1011001331610E	OFTER	-0	2000/11/01	B074-H1, A.A., 2167 THPE LEDO SLIRE RED (11136) MOLISTRIAL	Ha.	ACTIVE
10.00	82-00123-8106	10071710	н.	2088/1125	BUT2-E-H1 A-W2701 7+PE+ELD DCRE RED (+++80)	hit.	ACTIVE
10.10	8010013210.000	UPTTS	.0	2002/09/11	8514-111, A.A.(2107 TV#E), RED 11138	No.	ACTIVE
	80-00128-8108	OPTTE	0	2003/02/10	A-ADTRY TYPE L RED HIDE	No.	scme.
10.10	90-00130-0100	05118	8	206596-95	1671-YE ECO-RURE MOURTRIAL ENANGL ACHOSOL PART	No	ACTIVE
12:14	#E10013319308	097715	10	20078219	1014-111 EDD-80REINDUSTING, ENVIRE: JEROSOL PARVI	NO	ACTIVE
14 14	9810013310108	0P115	в	2008/03/06	0074-111, EGD-9URE INDUSTRIAL ENABLE. AEROSOL PARIT	hu	ACTIVE.
Page 12	3 / View all results						Previous (New

To view the material record details, click the edit 🔽 icon next to the material record. Once in the material record navigate to the *Physical Characteristics* tab.

Specific Gravity (Min):	Materials Physical Characteristics	Constituents	Pollutant Content	Material Type		
Reid Vapor Pressure (Avg): psia	Specific Gravity (Max): Vapor Pressure (Min): Vapor Pressure (Max): Vapor Pressure Temp: Bulk Density: Reid Vapor Pressure (Max):				UOM:Select Value  UOM: LBS/GAL	Calculate Density

As shown above the **Bulk Density** must be populated in LBS/GAL if the usage is entered in volumetric units.

Next is the *Constituents* tab that will contain all the ingredient information used in the mass balance HAP calculations.

	onts found. syng records 5 - 10			
	III FALL	Cherson Mena	Minits Maxis	Eminatory Calls
12	100873	BUTWKE	3.0	1
14	A 1078/74	2.404744246	3.0	1
2	110120	METWIL BOWIN, KETONE	4.0	23
10.0	aisten a	VEDENTIN, ACETATE	30	
1.1	. 101422	e-monoxi-aletimi, 2Pentavole	3.0	
14	121404	WEUTYL ACETATE	14.0	1
14	87641	ACETONE	36.0	2
10	P1361	1-BUTANOL	3.0	1
12.1	TAObe	PROFILE	17.0	11
2	2 71213	IDOBUTANE.	0.0	

On this tab, make sure all the ingredients for the material are entered and have an **Emission Calc %**. The **Emission Calc %** field is utilized in the calculation of HAPs on the algorithms that use the average ingredient percent. If the highest ingredient percent algorithm is utilized the **Max %** field must be populated.

Next, navigate to the *Pollutant Content* tab.

National Product Distantioners Condition	and Roman Canadi Calana Spe			
Create Palktant Context				
0 records found Displaying records 0 - 0				
Deploying records 0 - 0 Actives Ethnicities	Deacoxiaan		ContextAmount Context UDM	Balaceous
Page		Serves of New		« Previous   Next

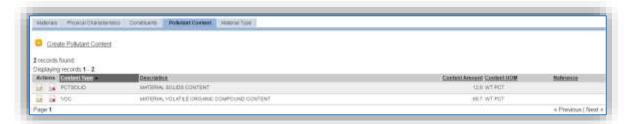
Click on the Create Pollutant hyperlink to add the Material Volatile Organic Compound Content or the Material Solids Content.

Materials	Physical Characteristics	Constituents	Pollutant Content Material Type
Content Type	:*		
Description: Content Amo			MATERIAL VOLATILE ORGANIC COMPOUND CONTENT 68.7 WT PCT - WEIGHT PERCENT
Content UON Reference:	1.		
			Save

Enter VOC or PCT SOLID in the **Content Type** field and select the associated value.

Enter the VOC content of the material in LBS/GAL or WT PCT depending upon the algorithm utilized or enter the PCT SOLID in WT PCT in the **Content Amount** and **Content UOM** fields.

Click the Save button to return to the *Pollutant Content* tab.



The VOC value is required for the algorithm that calculates the total VOC emissions from surface coating.

The PCT SOLID value is required for the algorithm that calculates the PM,  $PM_{10}$  and  $PM_{2.5}$  emissions from surface coating.

### 3.3.3.2 New Sources

### 3.3.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Surface Coating Data Collection Worksheet

GENERAL INFORMATION	
[3FNFKAI INF(]KIVIAII(]N	

		GENERAL INFORMATION	
Building Nun	nber	Mission/Purpose	
			ization
		Longitude:	
			Northing 🛛 Feet 🛛 Meters
	e in any of your permit		
If yes, does i	t have an emission un	it number or other designation?	
		EQUIPMENT INFORMATION	
What type o	f surface coating is co	nducted?	
I	Enclosed Paint Boo	oth	
ļ	Unenclosed, All ap	oplication types	
I	Unenclosed, Brush	n and Roller	
I	Unenclosed, Aeros	sol	
I	□ Unenclosed, Othe	r – Specify:	
Is there a co	ntrol device or devices	s? □Yes □ No	
If yes, list the	e control devices with	their pollutant control efficiencies	
Manufacture	er		
Model Num	oer	Serial Number	
Control		Efficiencies	
Control		Efficiencies	
If possible co	ollect a copy of the spe	ec sheet that specifies the control e	fficiency and pollutants controlled.
		USAGE INFORMATION	
Does this sho If yes,	op require manual pai	nt logs for regulatory purposes?	lYes □ No
-	s the shop track indivi	dual kit part usage or total kit as us	ed? 🛛 Kit Parts 🗖 Total Kit
	•	ogs along with all product Safety Da	

If no, are the materials pure	chased through EESOH-MIS?	□ Yes	□ No	
If Yes, specify the shop and	process designation in EESOH-	MIS.		
Shop Code	Process Code/N	ame		

# 3.3.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be at least one Unique Process record. If the EESOH-MIS processes are configured to have each application type segregated into separate processes, a next higher process for each application type needs to be configured. If the surface coating processes are not segregated by application type then a single next higher process will need to be configured. For the surface coating activities that occur in paint booths a process for each paint booth will need to be configured.

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Create Process		
Process Category:*		
Process Type:"	COATING/PAINTING OPERATIONS	· × (Venfied)
Process Name:*	COATING/PAINTING, SPRAY/AEROSOL	· × (Venfied)
Base Specific:		
Local Process Name:"	BASEWIDE SURFACE COATING - AEROSOLS	
Start Date:" yyyyimm/dd	1901/01/01	
Facility:*	AIR FORCE BASE	· × (Venfied)
Mobile Source?"	© Yes ⊛ No	
Source Category I	SURF (Vonified)	
	Save Cancel	

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	COATING/PAINTING	COATING, POWDER	ICP1175
	OPERATIONS		
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING OPERATIONS, NOC	ICP1189
	OPERATIONS		
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING, AIRBRUSHING	ICP1190
	OPERATIONS		
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING, AIRLESS SPRAYING	ICP1191
	OPERATIONS		
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING, BRUSH/ROLLER	ICP1192
	OPERATIONS		
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING, DIP	ICP1194
	OPERATIONS		
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING, MULTIPLE	ICP1196
	OPERATIONS	OPERATIONS	
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING, SPRAY -	ICP1198
	OPERATIONS	ELECTROSTATIC AUTOMATIC	
INDUSTRIAL	COATING/PAINTING	COATING/PAINTING, SPRAY -	ICP1199
	OPERATIONS	ELECTROSTATIC MANUAL	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, SPRAY – HVLP GUN	ICP1200
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, SPRAY – STANDARD GUN	ICP1201
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, SPRAY/AEROSOL	ICP1202
The following	g codes should only be	used by bases subject to the Aerospace NESH	AP
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, AEROSPACE NESHAP – SPRAY	ICP2164
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, AEROSPACE NESHAP – NON-SPRAY	ICP2165
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, FACILITIES/BUILDINGS – SPRAY	ICP2166
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, FACILITIES/BUILDINGS – NON-SPRAY	ICP2167
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, AEROSPACE NESHAP - SPRAY	ICP2168
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, GROUND SUPPORT EQUIPMENT – NON-SPRAY	ICP2169
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, MOTOR VEHICLES – SPRAY	ICP2170
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, MOTOR VEHICLES – NON-SPRAY	ICP2171
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, MISC METAL PARTS, NON-AEROSPACE NESHAP - SPRAY	ICP2172
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, MISC METAL PARTS, NON-AEROSAPCE NESHAP – NON-SPRAY	ICP2173
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, MISC NON-METAL PARTS, NON-AEROSPACE NESHAP – SPRAY	ICP2174
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, MISC NON-METAL PARTS, NON-AEROSPACE NESHAP – NON- SPRAY	ICP2175
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, AEROSPACE NESHAP EXEMPT (AVIONICS, INCOMPLETE ASSEMBLIES) - SPRAY	ICP2176
INDUSTRIAL	COATING/PAINTING OPERATIONS	COATING/PAINTING, AEROSPACE NESHAP EXEMPT (AVIONICS, INCOMPLETE ASSEMBLIES) – NON-SPRAY	ICP2177

Use the table above to determine the appropriate **Process Category**, **Process Type** and **Process Name**. The codes that are specified for installations subject to the Aerospace NESHAP allow for the separation of regulated and non-regulated painting operations based on the object being painted.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify what the process is, where it is and any other unique attribute. Examples of process names for each type of surface coating process can be found below.

Next higher process by application type:

- BASEWIDE SURFACE COATING AEROSOLS
- BASEWIDE SURFACE COATING BRUSH/ROLLER

General next higher process:

• BASEWIDE SURFACE COATING – ALL APPLICATIONS

Paint booth process:

- BLDG 159 VEHICLE MAINT PAINT BOOTH
- BLDG 7 508<sup>TH</sup> MXS AGE PAINT BOOTH

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The Facility Name should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered a stationary source.

All surface coating activities are stationary sources that are assigned to the SURF **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

### 3.3.4 Year-to-Year Maintenance

### 3.3.4.1 Usage

The consumption for surface coating sources usually needs to be tracked monthly unless a different reporting period is required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption module for the paint booths using manual paint logs.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	(CP1189619051 ) (Ventied)	
Start Date/Time:* yyyy/mm/dd hhmm	2016/01/01 0000	
End Date/Time:* vyvy/imm/dd hhmm	2016/01/31 2359	
NSN:*	MS-461 (Ventied)	
	CAGE Code: EMC PNI: KT Preparation Date: 1990/12/04 EESOH Product Detail ID:	
Amount:"	6 GAL - GALLONS	12
Validate Consumption?	🖲 Yes 💿 No	
Part:	(Unverified)	
Issue #		
Comments:		

The consumption record should span the entire reporting period as shown above. The **Amount** should be recorded in gallons or pounds depending upon the algorithm selected. Make sure to select "Yes" to **Validate Consumption**. If the consumption is not validated it will not be included in the emissions calculation. Click the **Save** button or **Save & Create Another** button to add additional consumption records. Repeat these steps for all the different materials used during the reporting period.

If the unit did not operate during the year but was still an active source, enter a consumption record with zero usage and a comment as to why it did not operate. This type of documentation ensures that all equipment is accounted for from year to year and can be used to account for differences in AEI reporting from year to year.

For the Next Higher Process configuration, the consumption is already imported from the EESOH-MIS interface, however it is not validated. The consumption must be validated in the Consumption log.

	ddition to View and Data Source is required to perform a search.
Search Consumption	
Process ID:	
Usage Timeframe: yyyy/mm/dd hhmm	From: To:
Year: УУУУ	2016
Building:	
Source Category:	SURF C
NSN:	
APIMS Facility:	
Shop:	
Issue #:	
View:	Validated Records Unvalidated Records Obtended
Data Source:	● EESOH-MIS Interface Records ○ APIMS Entered Records ○ Both
	Search Clear Search
Create Consumption	

Use the search criteria to narrow the search results. It is suggested to use the Source Category, Data Source and Year or Usage Timeframe to filter the results.

• Searc	h Consumption									
Global Filte	e		Clear Filter							
Creat	e.Comumption									
Displaying	210 of 210 records found								1 fb	AUT
Actions	Local Process Name	Start Date/Time	End Date/Time	Material Name	Amount	Amount UDM	Issuell	Validate	8	1
10.00	PANTING	2016/12/07 1105	2016/12/07 1105	0054-390, SO-SURE INDUSRTIAL ENA.	0.6563	LBS	2258634		ю.	2
12.04	COATING/PAINTING . SPRA	2016/12/13 1300	2016/12/13 1300	80ND0 - GLASS REINFORCED FILLER	3.1295	LBS	2184039		*	J
-	COATING PAINTING - SPRA	2016/12/13 1250	2016/12/13 1250	YELLOW ZINC PHOSPHATE	0.75	LBS	2180235		ie.	
12.22	COATING PAINTING - SPRA	2016/12/13 1250	2016/12/13 1250	YELLOW ZINC PHOSPHATE	0.75	LBS	2180230		ж	
10.00	COATING/PAINTING SPRA	2010/12/15 1244	2010/12/13 1244	POLYURETHANE AEROSOL COLORS	9.375	LBS	2150146		8	
1212	COATING/PAINTING, MULTIP	2016/06/08 1359	2016/06/08 1359	SELF ETCHING PRIMER	0.75	LBS	2278750		ie.	
10.00	COATING/PWINTING, MULTIP	2010/04/27 1259	2016/04/27 1259	JET GLO-CATALYST	2.0238	185	2228000		2	
10.00	PAINTING OPERATIONS	2018/07/12 1422	2010/07/12 1422	STRIPE ATHLETIC FIELD WHITE	1,125	185 :	2204364		10	
89	PAINTING OPERATIONS	2010/07/12 1422	2016/07/12 1422	12PK STRIPE MARK 1 WHITE	0.1125	185	2183813			

Check the checkbox next to each material then click **Save** to validate the consumption. Only consumption that is validated will be included in emissions calculations. The simplest use case for validating rows is to start by checking the top box in the grid to validate all rows present. After all boxes are checked, click **Save**.

# 3.3.4.2 Emissions Calculations

If the process utilizes EESOH-MIS data then it should be included in the **EESOH-MIS Calculation**, otherwise this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.4 Solvent Operations (DEGR, CLN, GSOL, FCLN, HCLN, SGUN)

# 3.4.1 Source Types

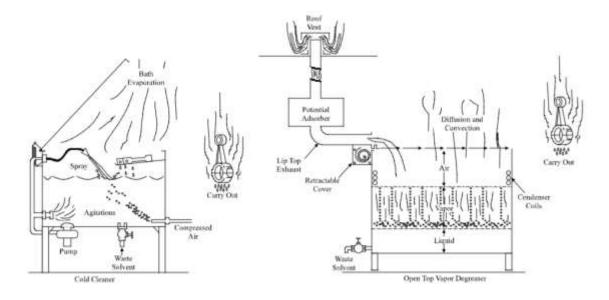
Solvent operations include several specific source types: Degreasing (DEGR), Cleaning (CLN), General Solvent Use (GSOL), Flush Cleaning (FCLN), Hand Wipe Cleaning (HCLN), and Spray Gun Cleaning (SGUN). Most installations do not have the regulatory reporting requirements that would require their chemical and solvent use to be broken down to this level of granularity; however, installations that are subject to the Aerospace NESHAP regulations may find this useful. The following paragraphs will describe in detail the types of sources that fall into the above-mentioned source categories.

# 3.4.1.1 Degreasing (DEGR)

Degreasing solvent operations are commonly used by Air Force maintenance organizations to remove grease, oils, lubricants, soils, waxes, carbon deposits, fluxes, tars, and other contaminants from a variety of parts and equipment, that include aircraft, automobiles and Aerospace Ground Equipment (AGE). At Air Force installations these solvent operations are usually conducted in batch cold or batch vapor cleaning machines. Cold cleaning machines use liquid, non-boiling solvent, while vapor cleaning machines boil liquid solvent to generate solvent vapor to clean parts.

In cold cleaners the parts are usually cleaned manually and then placed in the tank to soak until adequately clean. The solvent is allowed to drain from the parts before removing. The cover of the machine is intended to be securely closed whenever the parts are not being handled to minimize emissions from evaporation.

In vapor cleaners the solvent is heated to a temperature that is at or above the solvent's boiling point. As the solvent boils, the denser solvent vapors rise and displace the air within the tank. Coolant is circulated in condensing coils at the top of the tank, creating a controlled vapor zone. Parts are lowered into the vapor zone and are cleaned when the solvent vapors condense onto the surface of the parts. Cleaning is often enhanced by either spraying the parts with the hot solvent or by immersing the parts in the solvent. Most are equipped with a lip-mounted ventilation system that carries solvent vapors away from the operating personnel. The vapors may then be passed through a control device prior to being vented into the atmosphere. The next figure illustrates these two cleaning methods.



# 3.4.1.2 Cleaning (CLN)

Most Air Force Bases offer some sort of dry-cleaning service that is in some instances performed on-base. Dry cleaning involves the cleaning of fabrics with a variety of solvents. Depending upon the type of solvent used, the emissions may be VOCs and/or organic HAPs. The most common of theses solvents is perchloroethylene. Emissions result from the evaporation of the solvent which occurs during the operation of the machine. These emissions may or may not be vented. Control devices may also be applied, such as, refrigerated condensers and carbon adsorbers. After separating out the water, the solvent is captured by a refrigerated condenser and placed back into the solvent supply tank. Carbon absorbers are used to capture the solvent, after which the solvent can be desorbed using steam. The water and solvent are then separated, and the solvent is returned to the solvent tank.

# 3.4.1.3 General Solvent Use (GSOL)

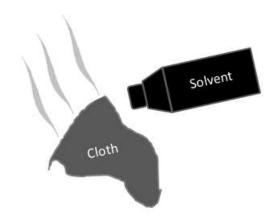
This is used for solvents that do not fall into the other solvent categories. Separating activities that use solvents from general chemical use is important for installations that fall under the Aerospace NESHAP that regulates the types of solvents that may be used and the specific work practices that must be employed when handling these solvents. Emissions of VOCs and organic HAPs result from the evaporation of solvent during use.

# 3.4.1.4 Flush Cleaning (FCLN)

Flush Cleaning operations are regulated by the Aerospace NESHAP and separating these materials from other source categories is essential to ensuring compliance with the Aerospace NESHAP. Flush cleaning is defined as the removal of contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component or coating equipment by passing solvent over, into or through the item being cleaned. The solvent may simply be poured into the item being cleaned and then drained, or be assisted by air or hydraulic pressure, or by pumping. Emissions of VOCs and organic HAPs result from the evaporation of solvent during use.

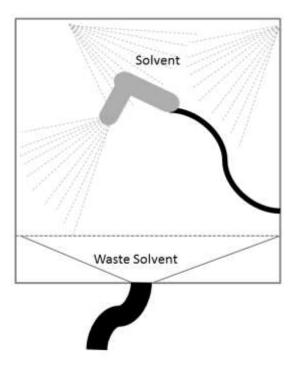
# 3.4.1.5 Hand Wipe Cleaning (HCLN)

Hand Wipe Cleaning operations are regulated by the Aerospace NESHAP. Separating these materials from other source categories is essential to ensuring compliance with the Aerospace NESHAP. Hand wipe cleaning is defined as the removal of contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component by physically rubbing it with a material such as a rag, paper, or cotton swab that has been moistened with a cleaning solvent. Emissions of VOCs and organic HAPs result from the evaporation of solvent during use.



# 3.4.1.6 Spray Gun Cleaning (SGUN)

Spray Gun Cleaning operations are regulated by the Aerospace NESHAP. Separating these materials from other source categories is essential to ensuring compliance with the Aerospace NESHAP. Spray gun cleaning is conducted in an enclosed system that is closed at all times except when inserting or removing the spray gun. The solvent is then forced through the spray gun to remove the paint or coating material in the spray gun. Emissions of VOCs and organic HAPs result from the evaporation of solvent during use.



# 3.4.2 Potential Data Sources

# 3.4.2.1 Degreasing (DEGR)

Degreasing solvents are considered hazardous materials and are typically procured in one of two ways. The first is to have an independent contractor that services the various degreasers on base. The contractor usually comes once a quarter and collects the waste solvent and refills the degreaser tank with new solvent to the level required. Some provide a report that documents the amount of solvent added to each degreaser while others provide a total amount of solvent for the entire base. The other way solvent is procured is through the Hazardous Materials Management System (EESOH-MIS). It is important to work with the Hazardous Materials Management personnel to configure the processes and material authorizations to separate the degreasers and degreasing solvents from other material and activities. The data required for degreasing processes is the net loss of solvent. This is the amount of new solvent added minus the amount of waste solvent collected. The specific solvent used and the Safety Data Sheet (SDS) for the solvent that should include the following information:

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

For all usage information that is imported from EESOH-MIS there should also be material records that contain most if not all the required information. For manually entered usage, the Safety Data Sheets will need to be obtained. Most shops maintain Hazard Communication folders that contain all the Safety Data Sheets for materials used. If the Safety Data Sheets are not available in the shop, most are available on manufacturer websites or bioenvironmental engineering office.

The most common shops that have degreasing operations fall under the following office symbols:

- Aerospace Ground Equipment (MXMG)
- Aircraft Structural Maintenance (MXS)
- Vehicle Maintenance & Allied Trades (LGRV)
- Auto Hobby Shop
- Wheel and Tire Shop (MXS)
- Security Forces Armory (SFS)
- HVAC
- Golf Course Maintenance
- Power Pro
- CE Horizontal

# 3.4.2.2 Cleaning (CLN)

Dry cleaning solvents are considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). It is important to work with the Hazardous Materials Management personnel to configure the processes and material authorizations to separate the dry-cleaning solvents from other material and activities. The data required for dry cleaning processes is

the net loss of solvent. This is the amount of new solvent added minus the amount of waste solvent collected. The specific solvent used and the SDS for the solvent should include the following information:

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

Since the usage information that is most likely imported from EESOH-MIS there should also be material records that contain most if not all the required information.

The most common shops that have degreasing operations fall under the following office symbols:

• Dry Cleaning Service

# 3.4.2.3 General Solvent Use (GSOL)

Solvents are considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). It is important to work with the Hazardous Materials Management personnel to configure the processes and material authorizations to separate the solvents from other materials and activities. The data required for solvent use processes is the net loss of solvent. This is the amount of new solvent added minus the amount of waste solvent collected if any. Additionally, the specific solvent used and the SDS for the solvent should include the following information:

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

Since the usage information that is most likely imported from EESOH-MIS there should also be material records that contain most if not all the required information.

The most common shops that have general solvent operations fall under the following office symbols:

- Aerospace Ground Equipment (MXMG)
- Aircraft Structural Maintenance (MXS)
- Vehicle Maintenance & Allied Trades (LGRV)
- Auto Hobby Shop
- Wheel and Tire Shop (MXS)
- CE Horizontal
- CE Vertical

# 3.4.2.4 Flush Cleaning (FCLN)

Flush cleaning solvents are considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). It is important to work with the Hazardous Materials Management personnel to configure the processes and material authorizations to separate the solvents used in flush cleaning activities from other materials and activities. The data required for solvent use processes is the net loss of solvent. This is the amount of new solvent added minus the amount of waste solvent collected, if any. Additionally, the specific solvent used and the SDS for the solvent should include the following information:

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

Since the usage information that is most likely imported from EESOH-MIS there should also be material records that contain most if not all the required information.

The most common shops that have flush cleaning operations fall under the following office symbols:

- Aerospace Ground Equipment (MXMG)
- Aircraft Structural Maintenance (MXS)
- Vehicle Maintenance & Allied Trades (LGRV)
- Corrosion Control
- Wheel and Tire Shop (MXS)

# 3.4.2.5 Hand Wipe Cleaning (HCLN)

Hand wipe cleaning solvents are considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). It is important to work with the Hazardous Materials Management personnel to configure the processes and material authorizations to separate the solvents used in hand wipe cleaning operations from other materials and activities. The data required for solvent use processes is the net loss of solvent. This is the amount of new solvent added minus the amount of waste solvent collected if any. Additionally, the specific solvent used and the SDS for the solvent should include the following information:

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

Since the usage information that is most likely imported from EESOH-MIS there should also be material records that contain most if not all the required information.

The most common shops that have hand wipe cleaning operations fall under the following office symbols:

• Aerospace Ground Equipment (MXMG)

- Aircraft Structural Maintenance (MXS)
- Vehicle Maintenance & Allied Trades (LGRV)
- Corrosion Control
- Wheel and Tire Shop (MXS)

# 3.4.2.6 Spray Gun Cleaning (SGUN)

Spray gun cleaning solvents are considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). It is important to work with the Hazardous Materials Management personnel to configure the processes and material authorizations to separate the solvents used in spray gun cleaning operations from other materials and activities. The data required for solvent use processes is the net loss of solvent. This is the amount of new solvent added minus the amount of waste solvent collected if any. Additionally, the specific solvent used and the SDS for the solvent should include the following information:

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

Since the usage information that is most likely imported from EESOH-MIS there should also be material records that contain most if not all the required information.

The most common shops that have spray gun cleaning operations fall under the following office symbols:

- Aircraft Structural Maintenance (MXS)
- CE Vertical Structures
- CE Horizontal
- Corrosion Control (MXS)
- Vehicle Maintenance (LGRV)
- Repair and Reclamation
- Aerospace Ground Equipment (MXMG)

### 3.4.3 Standard Source Identification/Characterization

### 3.4.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab. In the **Source Category** search field, type "DEGR" or "CLN" or "GSOL" or "FCLN" or "HCLN" or "SGUN" then select the row for the source category from the dropdown results. Click the Search button.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	DEGR 🔁 🗸
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status	Select Value T
Permitted Source?	○ Yes ○ No ● Both
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	◎ EESOH-MIS Interface Records ◎ APIMS Entered Records ● Both
	Search

The search results grid will now display all the solvent use processes currently in APIMS.

	arci	i Re	sults						
۵	Creek	e Pro	0.055						
9 100	onds.	found	11						
			rds 1 - 9						
- 7	Action	5	Unique ID Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Date	Status
14	-	D.	64576A	BLDIG 119 - 302 AGE - DIP TANK	DEOR		1901/01/01		ACTIVE
-		12	644969	BLDG 200 - GOLF COURSE	DEGR	200	1901/01/01		ACTIVE
-		10	644952	BLDG 582 - 302 PROPULSION	0698	502	1901/01/01		ACTIVE
1.8	(IN		644957	BLDG 135 - AERO CLUB - COLD DIP	DEGR	813	1901/01/01		ACTIVE
	I.H.	12	644351	BLDG 140 - DYN CORP - COLD DIP	DEGR	140	1901/01/01		ACTIVE
10	-	B	644950	BLDG 214 - 302 TAW PLIGHT LINE	DEGR	214	1901/01/01		ACTIVE
10	1.	12	644961	BLDG 215 - 302 MXG	DEGR	216	1901/01/01		AUTIVE
100	(A	12	644963	BLDG 503 - TEXMARA - COLD DIP	DEGR	603	1901/01/01		ACTIVE
0	-		644975	BLDG 1960 - AAFES - COLD DIP	DEGR	1360	1901/01/01	2012/07/01	INACTIN

### 3.4.3.1.1 Status

If the status of a process needs to be changed, click the edit 🚧 icon next to the process. If this is a process that was entered into APIMS via the EESOH-MIS interface, the process status must be altered in EESOH-MIS.

Process Equipment Calcu	lations Regulatory Authorized Materia	its Industrial Contacts Zones	Records Assessments	Status
Change Current Status				
1 records found				
Displaying records 1 - 1				
Actions Status	Start Date	End Date		Comment
ACTIVE	1901/01/01			
Page 1				

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
Start Date:* /yyy/mm/dd	2016/06/12
Comments:	Unit no Junger in use.

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

### 3.4.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

uilding No. 2	726	
scation,Σ	BUILDING 726	(Verified)
omplete Location Name	AFB \ BUILDING 726	
ffice Symbol Σ	C	(Unventied)
nit/Organization:		
hop:	924A1 (Verified)	
hop Name	VEHICLE MAINT	
ource Type I	AREA 🔻	
ermitted Sourc∈?Σ	🕘 Yes 🛞 No	
mission Point.	ATMOSPHERE •	
sage Interval.	ANNUAL +	
ext Higher Process	(Unvenfied)	
ext Higher Process Name		
PA Source Class Code		
PA Industry Group:		
HG Scope	Select Value *	
ssessment Barcode:		
xclude Consumption records from EESOH-MI terface?	S 💿 Yes 🛎 No	
perating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr	
omments		

The **Building No**. field can be used to specify a general location or area of the emission source. For instance, if this is for multiple degreasers spread across the installation, specify BASEWIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This information will be important for knowing where the source is, in case it needs to be inspected or if the source owner needs to be contact for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit.

Solvent operations are categorized as an AREA sources in the **Source Type**.

The **Emission Point** would be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

# APIMS AEI Procedure

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis but may be required to be on a different schedule if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.4.3.1.3 Sub-Processes

This source does not utilize this functionality.

#### 3.4.3.1.4 Equipment

The next tab is the *Equipment* tab.

This is only used if the actual degreasers are also tracked for permit or inventory purposes. Also, if the degreaser has a specific control device, this tab should be configured.

The equipment records should have the following attributes populated. The Specifications subtab of the Equipment record should have the total volume entered in the Capacity field.

Capacity:	50		
Rated Capacity:		- UOM: GAL	(Verified)
faximum Capacity:			
ength:		UOM:	Unverified)
leight:	5	UOM:	Unverified)
Diameter;		UOM:	Unverified)
Vidth:	1	UOM:	Unvenfied

Knowing the size of a particular unit can be very helpful in determining if the usage reported is correct and what impact this equipment will have on overall emissions.

In the *Control* tab of the equipment record, the control efficiency for the device needs to be created for VOC and volatile HAPs if the degreaser has a carbon capture.

Control Equipm	ent Contro	Efficiencies				
Control Equipme	nt Type Code:		CA			× (Verified)
Control Equipme	nt Description	B	CARBO	N ADSORF	TION	
Maximum Pressu	re Drop:				UOM:	(Unverified

The *Control Equipment* subtab specifies the type of control equipment. Select the type from the list of values. Click the **Save** button.

Next, navigate to the Control Efficiencies subtab.

Correct Environment Type Process Correct Environment Control Efficiencies	Regulated Ont Group	Control Su	ci. Strike		
Create Control Efficiency					
0 records found. Displaying records 0 - 0					
Actions (MASSTe	Pellutant Name			No records faunt	Control±Ricenczithi Comment
Page					

To create a control efficiency for a particular pollutant, click the <u>Create Control Efficiency</u> hyperlink.

Equipment Equipment Type	Process	Regulated Unit Group	Control	Stack	Status
Control Equipment Control	Efficiencies				
CAS #:*		Voc			Verified)
Pollutant Name:		VOLATI			IPOUNDS
Control Efficiency (%):*		95			
		per manu	facturer spec	ifications	
Comments:					
					7
		Save	Cancel		

Enter the pollutant CAS # in the **CAS** # field or select the pollutant from the LOV. Next enter the control efficiency for the pollutant in percent in the **Control Efficiency** field. Click the **Save** button to finalize the control efficiency. Repeat this step as needed until all the chemicals controlled by this device are accounted for.

Navigate to the *Equipment* tab of the Unique Process record.

To link the equipment to the process the equipment must already be entered in APIMS.

Process Equi	calculations	Aegulations	Autoritied Materials	Industrial	Syntacts	Zunes	Nimi ords	Assessments :	titatius		_
Create Equip	ment Association										
records found											
hisplaying record	5 <b>0</b> - 0										
lations 2	0		Serial #	Model #		Manufact	vier		Start Date	End Date	
					No means	de linetel					

To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Equipment ID:*	(726-DEGR ) (Venfied)
Serial #	D8592S
Model #.	ROTIMAT 3/U
Manufacturer:	PERO
Description:	DEGREASER
Equipment Start Date: yyyy/mm/dd	1901/01/01
Equipment End Date: /yyy/mm/dd	
Start Date:" yyyy/mm/dd	1901/01/01
End Date yvyy/mm/dd	
Comments:	

Search for the **Equipment ID** in the list of values, enter the **Start Date** and click the **Save & Finish** button.

Process Equipmen	Calculations	Regulatory Authorized N	fatorials industrial Contac	ta Zones Records Asse	samenta Status
Create Equipment	t Association				
1 records found					
Displaying records 1 -	1.				
Actions Equipmental	2	Serial #	Model #	Manufacturer	Start Date
		D85928	ROTIMAT 3/U	PERG	1901/01/01
A 725-DEOR					

The screen above shows a completed equipment association.

#### 3.4.3.1.5 Calculations

The next tab is the *Calculations* tab.

Prixels Equipment Calculate	ans Regulatory Authory	eed Materials Industrian Con	tacts Zonet R	ecords Ateessheets	Status	
rocess Algorithm Assign						
Create Process Algorithm Ass						
records found.	Formula	Emission Factor Cimina	14		tart Date	End Oxfa
2000 AM 200		540	records /sund			

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

Algorithm Code:"	DEGR-04 (Venfied)						
Formula	CONSUMPTION*DENSITY*INGREDIENT PCT (AVERAGE) 1901/01/01						
Algorithm Start Date:							
Algorithm End Date.							
Emission Factor Characteristic:"	EMISSION TYPE						
Emission Factor Criteria	VOLATILE HAZARDOUS AIR POLLUTANTS (HAPS)						
Emission Factor Set ID:	1175						
Emission Factor Set Start Date:	1901/01/01						
Emission Factor Set End Date:							
Start Date:"	1901/01/01						
End Date yyyyimm/dd							
	Save & Create Another Save & Finish Cancel						

For solvent operations there is only one standard calculation methodology recommended by the Air Force. Emissions are calculated utilizing the material VOC and a mass balance approach based on ingredients. If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

Select the **Algorithm Code** from the list of values. Next select the **Emission Factor Characteristic** that most closely matches the activity. Enter the **Start Date** to match the start date of the process.

For the solvent mass balance approach, there are **two algorithms** that need to be associated to each solvent use process. The algorithms depend upon using manually tracked consumption or EESOH-MIS consumption. Additionally, there is a choice of using the average ingredient percent or the most conservative method of using the maximum ingredient percent. The average ingredient percent is the recommended method.

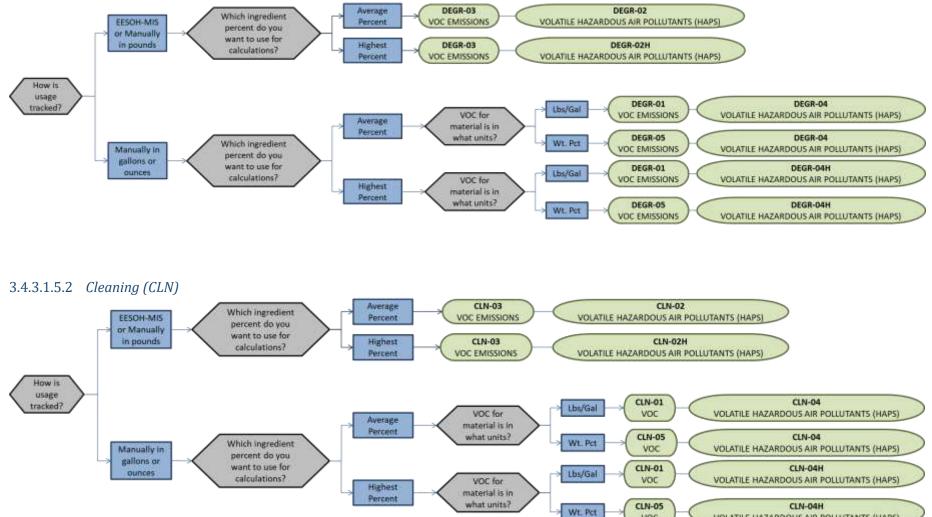
If your permit or regulatory agency requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

Use the flowcharts below to find the correct Algorithm Code and Emission Factor Characteristic.

## **APIMS AEI Procedure**

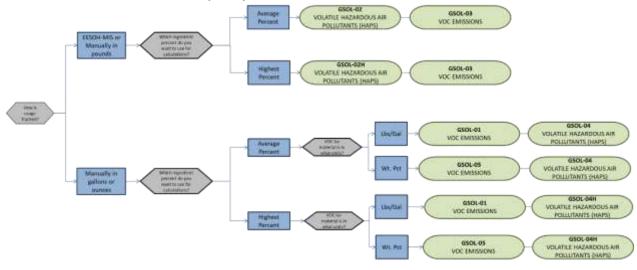
VOLATILE HAZARDOUS AIR POLLUTANTS (HAPS)

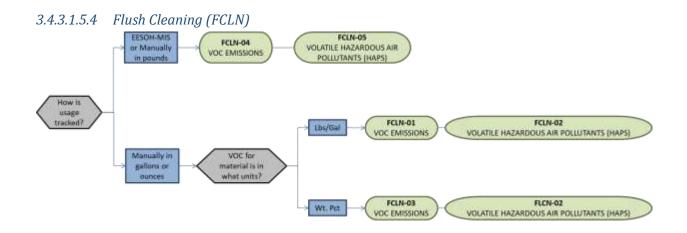
#### 3.4.3.1.5.1 Degreasing (DEGR)



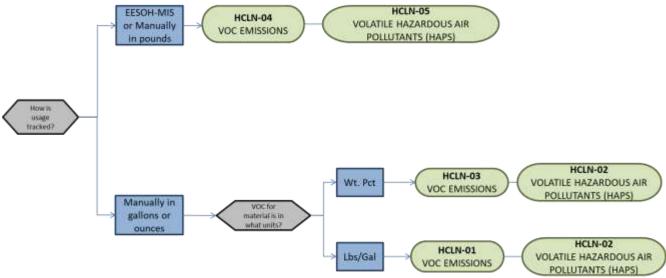
VOC

3.4.3.1.5.3 General Solvent Use (GSOL)

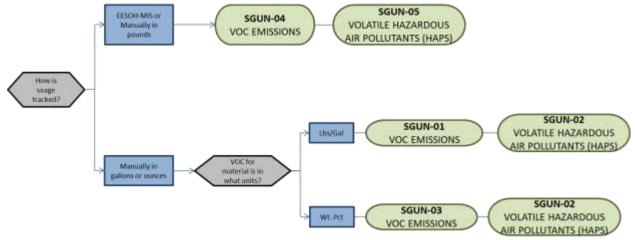




### 3.4.3.1.5.5 Hand Wipe Cleaning (HCLN)







#### 3.4.3.1.6 Materials

The last step in setting up the Unique Process record is to include the authorized materials on the *Authorized Materials* tab. This step is only required for processes that use manual logs to track usage in APIMS. All processes that use the consumption data from EESOH-MIS are configured by the interface.

and the second se	and an interaction of the	Contraction of the Contraction		Contraction of the second s	
Create Authorized Mat	erial				
0 moords found					
					Sav
Contraction of the second		2257			Authoriz
Actions 1.117	CAGE CHA	EN	Naterial Name		1.00
		No Peoplets found			
					Sav

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regu	tory Authorized Materials Industrial Contacts Zones Records Assessments Statu
NSN:	SK-PREMIUM 6638
CAGE Code	EMC
PNI	A
Material Name:	SAFETY KLEEN PREMIUM SOLVENT 6638
Authorize?	🖲 Yes 🔍 No
	Save & Create Another   Save & Finish   Cancel

Select the material record from the list of values, using the **NSN** or Material Name. If the material is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish** or **Save & Create Another** to repeat this step for all materials used by the process.

Point Bugrate Catalant I	Headary Autorities Mutarian Inc.		June Amatis Addition Table	
Country Autorities ( Material				
1 records Numb				
				Save
he was a second s				
Actual Alter	CAUE Code	1995	Notesia Name	Autorita Filia
Actions STA	CAUE Code	1991	Response Names Sand ETV # LEEN PRESERVE DOLVENT 0058	Authors

#### 3.4.3.2 New Sources

#### 3.4.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Solvent Data Collection Worksheet

	GENERAL INFORMATION
Building Number	Mission/Purpose
	Management Organization
Coordinates: Latitude:	Longitude:
UTM Zone	Easting Northing 🗆 Feet 🗆 Meters
Is this source in any of your permits?	
If yes, does it have an emission unit n	umber or other designation?
What type of solvent usage is conduc	ted?
Degreaser	Flush Cleaning
Dry Cleaning	Hand Wipe Cleaning
General Solvent Use	Spray Gun Cleaning
	EQUIPMENT INFORMATION
	Serial Number
	USAGE INFORMATION
Are the solvents purchased through E	ESOH-MIS? 🗆 Yes 🗖 No
Specify the shop and process	
Shop Code	Process Code/Name
f Yes $\prec$ Is there a waste stream in EE	SOH-MIS that tracks the waste solvent collected?
If Yes, specify the Waste Site	and Waste Stream.
Waste Site	Waste Stream
	records from the service contractor?  Yes  No
	orts along with all product Safety Data Sheets for the solvents used.
f No	
	= Solvent Added – Waste Solvent Collected
Solvent Usage =	Gallons
Lif no, contact the service con	tractor to get accurate records.

## 3.4.3.2.2 New Source Configuration

## 3.4.3.2.2.1 Degreasing (DEGR)

There are a few ways to properly document these emission sources in APIMS depending upon how the usage is tracked for each type of source. If the EESOH-MIS processes are configured properly to provide segregation of the various solvent operations then they can be configured to calculate emissions. If the solvent is not procured through EESOH-MIS but is obtained from a contactor then at least one Unique Process record will need to be configured.

#### 3.4.3.2.2.1.1 Manually Tracked Solvent Degreaser

Navigate to the **Solvent Cleaning New Source Wizard** module in APIMS under the **Emission Unit** tab.

Select the type of solvent cleaning equipment from the dropdown list (COLD DIP TANK, SOLVENT DEGREASER, SPRAY GUN CLEANER, REMOTE RESERVIOR and PARTS WASHER).

Source Details	Help Desk: (800) 274-4406 Email: help@apims-support.com
Solvent Cleaning Equipment Type:*	SOLVENT DEGREASER V
Model #:	48HGF024AB-611AF
Serial #:*	D8592S
Equipment Description:	DEGREASER
Management Group:	(Unverified)
Solvent Used:*	6850002745421
Material Name:	A-A-59601E TYPE II
Usage Interval:	MONTHLY ¥
Capacity:	30 gallons
Do you have a spec sheet?*	⊖Yes  ●No
Source equipped with air emission controls?*	⊖Yes  ●No
Are the emissions released through a stack?*	⊖Yes  ●No
	Save and Continue Cancel

The **Model #** can be selected from the list of values (LOV) or created within the LOV popup window. Click the folder icon the Model Search popup.

Sea	rch:		in Model #	Search
0	Create Model			
295	records found.			
Disp	playing records 1 - 10.	Manufacturer	Description	Action
0	113RNA048-C	UNKNOWN	Description	
0	1357 MBTU/HR	WEIL MCCLAIN		
0	13ACX03023010	LENNOX		
0	13ACX-030-230-10	LENNOX	BLDG. 425 DX UNIT, MAIN GATE	
0	2136 MBH	BURNHAM		
0	24ABB336A610	CARRIER	8	
0	2TTA0036A3000AA	TRANE	BLDG 332 DX UNIT 4	
	2TTA0072A3000AA	TRANE	BLDG 306 DX UNIT	
0	2TTA2060A3000AA	TRANE	BLDG 245 AC UNIT 4	
0	2TTA2060A3000AA CU1	TRANE		2
Pag	ie: <b>1</b> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u>   Viev	v all results		« Previous   <u>Next</u> »

This screen manages all operations to select, edit or create a model. The search can be used to locate a specific model record. To select the model record, click the corresponding radio button. This will cause the popup window to close and will populate the **Model #** field with the selected record.

To create a new model record, click the <u>Create Model</u> hyperlink. This will open the Create Model popup.

Create Model	
Model #:*	ROTIMAT 3/U
Manufacturer:	PERO
Model Description:	DEGREASER
	Save Cancel

Enter the actual **Model #** if known, if the model number is unknown, a standard convention to easily identify the equipment can be used, (i.e. DEGR, DIP TANK etc.). Click the **Save** button to close the window.

Source Details	Help Desk: (800) 274-4406 Email: help@apims-support.com
Solvent Cleaning Equipment Type:*	SOLVENT DEGREASER V
Model #:	48HGF024AB-611AF
Serial #:*	D8592S
Equipment Description:	DEGREASER
Management Group:	(Unverified)
Solvent Used:*	6850002745421
Material Name:	A-A-59601E TYPE II
Usage Interval:	MONTHLY V
Capacity:	30 gallons
Do you have a spec sheet?*	⊖Yes  ●No
Source equipped with air emission controls?*	⊖Yes  ●No
Are the emissions released through a stack?*	⊖Yes ●No
	Save and Continue Cancel

The **Serial #** field can be used to enter the serial number for the equipment. If the serial number of the equipment is not known, a standard convention can be used to easily identify the equipment.

The **Equipment Description** is intended to be used to easily identify the equipment, such as degreaser or cold dip tank.

The **Solvent Used** field should be used to identify the solvent used by NSN and/or material name.

The **Usage Interval** should be designated. This source is usually documented on an Annual basis but may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **Capacity** field should be the total amount of solvent that is contained in the degreaser, including the remote reservoir if applicable.

Select the appropriate radio button to indicate if there is a specification sheet for the equipment. If the Yes radio button is selected a document upload field will appear.

Select the radio button to indicate if the degreaser has air emissions controls. Most degreasers do not have emission controls.

Select the radio button to indicate if the degreaser emissions are released through a stack. The most common degreasers do not have a stack.

Click the Save and Continue button.

Source Source Details Operation		
Source Operation		
Are you tracking the solvent added/removed from tank?"	• Yes ONO	
Are you using an MSDS to determine ingredients?"	🖲 Yes 🔘 No	
Installation Date:*	1901/01/01	
Facility:"	AIR FORCE	Ventied
Location:*	BLDG 130	Cy-x (Venfied
Complete Location Name:	BLDG 130	
	Save and Continue	

Select the tracking method, to accurately track this emission source the solvent added and removed should be tracked.

Are you using an MSDS to determine ingredients?*	O Yes  No
VOC Content Expressed in:*	LBS/GAL

The next question indicates if there is a Safety Data Sheet for solvent. If the answer is NO, it will prompt you to indicate if the VOC for the solvent is tracked in LBS/GAL or Weight (%).

The **Installation Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

Select the Facility from the list of values. Click the Save and Continue button.

The **Location** field is very important to effectively manage the location of the emission source. This information will be important for knowing where the source is, in case it needs to be inspected or if the source owner needs to be contact for pertinent information.

Click the Save and Continue button.

Source Details	Source Operation	Regulatory Information	Emission Calculations
Regulatory	Information	ı	
Permitted?* Emission Unit ID Source Classifica			© Yes ● No U 03
		S	Save and Continue

The **Permitted?** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Emission Unit ID** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

-	-					
Source Details	Source Operation	Regulatory Information	Control Information	Emission Calculations		
Control Inf	ormation					0 =
Control Device	Type:"		ARBON ADSORPT			
		0	records found.			
Controlled Poli	dants?		ctions [C.T.F.F	Polutant Name	All meanity humat	Control Efficiency (%)
		P	906.			= Previous   Next =
		6	Save and Cramiture	Skip		

This control page will only appear only if the source is specified to be equipped with air emission controls on the Source Details page.

Select **Control Device Type** utilized by the equipment: CARBON ADSORPTION, COVER/ENCLOSED, or HIGH FREEBOARD.

Click the <u>Add Pollutant(s)</u> hyperlink to configure the control efficiency.

Add Po	llutant(s)			
Search	n Pollutant(s)	00		
230 record	e found	99	Apply to Empl	y Clear All
CAS#	Pollutant Name		Control Efficiency (	(%)
100027	PHENOL, 4-NITRO-		99	
1002671	DIETHYLENE GLYCOL METHYL ETHYL ETHER		99	
100414	ETHYLBENZENE		99	
100425	STYRENE		99	
100447	BENZYL CHLORIDE		99	
10137969	ETHYLENEGLYCOL MONO-2-METHYLPENTYL ETHER		99	
10137981	ETHYLENEGLYCOLMONO-2.6.8-TRIMETHYL-4-NONYL ET		99	
10143530	ETHENE, [2-(2-ETHOXYETHOXY)ETHOXY]-		99	
10143541	DIETHYLENE GLYCOL MONO-2-CYANOETHYL ETHER		99	
10143563	DIETHYLENE GLYCOL MONO-2-METHYLPENTYL ETHER		99	
10215335	PROPYLENE GLYCOL MONO-N-BUTYL ETHER		99	
104687	DIETHYLENE GLYCOL PHENYL ETHER		99	
105602	CAPROLACTAM		99	
106423	P-XYLENE		99	
105445	P-CRESOL		99	
106467	P-DICHLOROBENZENE		99	•

The pollutants for solvent degreasing will appear in the grid automatically; however, the Search Pollutant(s) area can be used to refine the list of pollutants.

Enter the control efficiency for each of the pollutants in the **Control Efficiency** column, or if the control efficiency is the same for all pollutants, enter the efficiency in the field at the top of the grid and click the **Apply to Empty** button. This will populate the specified control efficiency for all rows in the grid. Click the **Save and Continue** to associate the control efficiencies to the equipment.

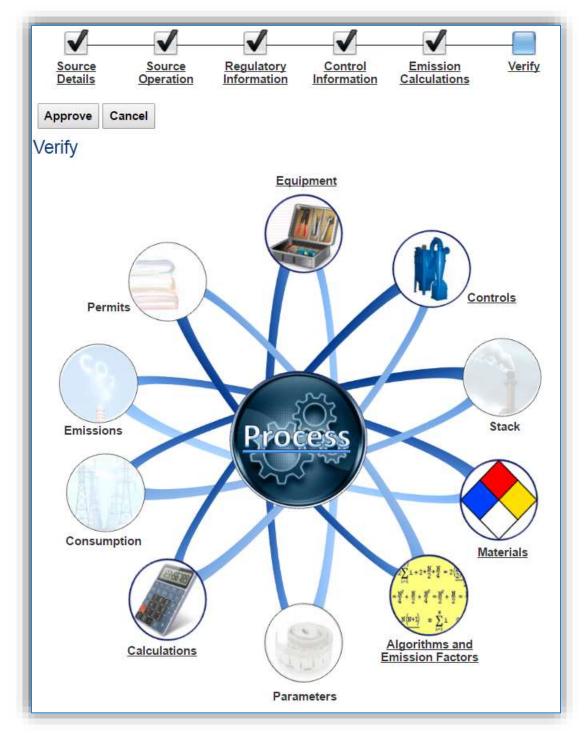
		ontrol emation		Regulatory Information	Source Operation	Source Details
0 =					formation	Control Info
		ADSORPTION	CARBON	3	Type:"	Control Device 1
		Polintant(s)	Add			
		eds found.				
Control Efficiency	0 Potytant Name	g records 1 -				
	PHENOL 4 NITRO-	100027			utants?"	Controlled Pollu
	DIETHYLENE GLYCOL METHYL ETHYL ETHER	1002671	1			
	ETHYLBENZENE	100414	10	1		
	BTYRENE	100425	10 10			
	BENZYL CHLORIDE	100447	10 100			
	ETHYLENEGLYCOL MONO-2-METHYLPENTYL ETHER	10137968	-			
	ETHYLENEGLYCOLMONO-2.6.8-TRINETHYL-4-MONYL ET	10137981	16 10			
		10143530		1		
	ETHENE, [2-(2-ETHOXYETHOXY]ETHOXY]-	interaction.	_			
	ETHERE, D-(2-ETHOXYETHOXY)ETHOXY) DIETHYLERE GLYCOL MONO 3 CYMVOETHYL, ETHER	10143541		6		
			10	-		

Click the Save and Continue button to proceed.

Bource	-	~	1			
Details	Source Operation	Regulatory Information	Control Information	Emission Galculations		
Emission Ca	alculations	8				
Algorithms an	nd Emission	Factors				
The carulation meth	IODI STOWS HIS: 35	NUMBER OF STREET	y your remarprise. )	is possible that your reca	Industry agency insules if	her methods. Cloving Accept will associate these suggested calour
rtae service.						
8. 1994 (NY)	111121072		243			
Accept or Reject /	Algorithms;"		· Accep	t 🔍 Reject		
2 records found Alconition	Formula				EF Set	Emission Factor Criteria
		DENSITY WOREDH	NT POT AVERAGE	5	EMISSION TYPE	VOLATILE HAZARDOUB AIR POLLUTANTS (HAPS)
DEGR-05		DENSITY VOC DOM			EWISSION TYPE	VOC EMBBIONS

The final step is Emission Calculations where you choose to **Accept or Reject Algorithms**, the algorithm is based on the usage method selected and the media used.

The Emission Calculation also appears, one or more calculations will appear, select the checkbox or checkboxes next to the calculation this process should be added to. Click the **Save and Continue** button once those steps have been completed.



This is the process summary. The details behind the Calculations, Equipment, Algorithms and Emission Factors, Materials and Controls can be viewed by clicking on the hyperlink or picture. Click the **Approve** button to finalize the new source configuration process.

#### 3.4.3.2.2.1.2 EESOH-MIS Imported Process

If the process was imported into APIMS via the EESOH-MIS interface it will be in the Unique Process module. For more information on identifying these processes refer to Section 2.6 EESOH-MIS Interface.

Process Category:*	INDUSTRIAL •	
Process Type:"	CLEANING- CHEMICAL, & DEGREASING	(Verified)
Process Name:"	DEGREASING, DIP TANK; COLD	Verified)
Unique ID	20170	
Base Specific		
Process ID.	ICD130220170-	
Local Process Name:"	DEGREASING TANK	
Start Date:* yyyyimmidd	2014/06/18	
End Date: yyyy/immidd		
Facility:*		(Unverified)
Mobile Source?"	🔘 Yes 🔘 No	
Source Category 2	(Unverified)	
	DEGREASE BY SOAKING AND SCRUBBING PARTS IN DEGREASING TANK	
Description:	Decine Asing them	

For processes imported via the EESOH-MIS interface some of the key fields will already be populated, however additional fields are still required in APIMS. If you change the data in these fields (Process Category, Process Type, Process Name, Local Process Name, Description) it will remain that way until the next time the interface is run. At that point the data in those fields will be overwritten to match the values in EESOH-MIS. Therefore, if changes need to be made to these fields they must be completed in EESOH-MIS.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, Location/Shop – Type of Solvent Use – Solvent (BLDG 726 – COLD DIP TANK – PD680, VEHICLE MAINT – OPEN TOP VAPOR – ENSOLV)

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility that is responsible for the source.

The Mobile Source? flag should be "NO" as this is considered as stationary source.

All degreaser operations are assigned to DEGR in the **Source Category** field.

For the population of all other tabs, refer to the Existing Sources sections.

## 3.4.3.2.2.2 *Cleaning (CLN)*

There are a few ways to properly document these emission sources in APIMS depending upon how the usage is tracked for each type of source. If the EESOH-MIS processes are configured properly to provide segregation of the various solvent operations then they can be configured to calculate emissions. If the solvent is not procured through EESOH-MIS but is obtained from a contactor then at least one Unique Process record will need to be configured.

#### 3.4.3.2.2.2.1 Manually Tracked Solvent Cleaning

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:"	INDUSTRIAL T	
Process Type:"	LAUNDRY SERVICES	Verified
Process Name:*	DRY CLEANING	Venfied
Base Specific		
Local Process Name:"	BLDG 1123 - DRY CLEANING OPERATIONS	
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:"	AIR FORCE BASE	Verified
Mobile Source?"	Yes   No	
Source Category:Σ	CLN (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	LAUNDRY SERVICES	DRY CLEANING	ILS1383

For new process configuration use the table above to determine the appropriate **Process Category**, **Process Type**, and **Process Name**.

#### 3.4.3.2.2.2.2 EESOH-MIS Imported Process

For EESOH-MIS imported processes, navigate to the Unique Process module, and use the search functionality to identify the process(es). For more details on how to identify EESOH-MIS imported processes refer to Section 2.6 EESOH-MIS Interface.

Process Category:"	INDUSTRIAL	
Process Type:"	CLEANING- CHEMICAL & DEGREASING	(Verified)
Process Name;"	DEGREASING DIP TANK COLD	(Verified)
Unique ID	20170	
Base Specific		
Process ID:	ICD130220170-	
Local Process Name:"	DEGREASING TANK	
Start Date:" yvyy/imm/dd	2014/06/16	
End Date: yyyy/mm/dd		
Facility:*		(Unverified)
Mobile Source?"	Yes      No	
Source Category 2	(Unverified)	
Description:	DEGREASE BY SOAKING AND SCRUBBING PARTS IN DEGREASING TANK	

For processes imported via the EESOH-MIS interface some of the key fields will be already be populated, however additional fields are still required in APIMS. If you change the data in these fields (**Process Category**, **Process Type**, **Process Name**, **Local Process Name**, **Description**) it will remain that way until the next time the interface is run. At that point the data in those fields will be overwritten to match the values in EESOH-MIS. Therefore, if changes need to be made to these fields they must be completed in EESOH-MIS.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, Location/Shop – Type of Solvent Use – Solvent (BLDG 1123 – DRY CLEANING OPERATIONS).

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All dry-cleaning operations are assigned to the CLN Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.4.3.2.2.3 General Solvent Use (GSOL)

There are a few ways to properly document these emission sources in APIMS depending upon how the usage is tracked for each type of source. If the EESOH-MIS processes are configured properly to provide

## APIMS AEI Procedure

segregation of the various solvent operations then they can be configured to calculate emissions. If the solvent is not procured through EESOH-MIS but is obtained from a contactor then at least one Unique Process record will need to be configured.

#### 3.4.3.2.2.3.1 Manually Tracked General Solvent Use

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:"	INDUSTRIAL Y	
Process Type:"	CLEANING- OTHER	Verified
Process Name:*	CLEANING, OTHER - ALL USAGES	Venfied
Base Specific:		
Local Process Name:"	BLDG 645 - SOLVENT USE, AGE SHOP - SOLVENT USE	
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:"	BEALE AIR FORCE BASE	Verified
Mobile Source?"	🔘 Yes 🖲 No	
Source Category:Σ	GSOL (Venfied)	
	Save Cancel	

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	CLEANING, OTHER	CLEANING, OTHER – ALL	ICO1153
		USAGES	
INDUSTRIAL	CLEANING, OTHER	CLEANING, OTHER – MULTIPLE	ICO1161
		OPERATIONS	
INDUSTRIAL	CLEANING – CHEMICAL &	CLEANING, CHEMICAL	ICD1150
	DEGREASING		
INDUSTRIAL	CLEANING – CHEMICAL &	CLEANING, CHEMICAL,	ICD1152
	DEGREASING	MULTIPLE OPERATIONS	

For new process configuration use the table above to determine the appropriate **Process Category**, **Process Type**, and **Process Name**.

#### 3.4.3.2.2.3.2 EESOH-MIS Imported Process

For EESOH-MIS imported processes, navigate to the Unique Process module and use the search functionality to identify the process(es). For more details on how to identify EESOH-MIS imported processes refer to Section 2.6 EESOH-MIS Interface.

2	CANADA ADDRESS A	
Process Category:"		A CONTRACTOR OF A CONTRACTOR
Process Type:"	CLEANING- CHEMICAL & DEGREASING	(Verified)
Process Name:"	DEGREASING, DIP TANK, COLD	Verified)
Unique ID	20170	
Base Specific		
Process ID:	ICD130220170-	
Local Process Name:"	DEGREASING TANK	
Start Date:" yyyyimmeidd	2014/06/16	
End Date: yyyy/mm/dd		
Facility:*		(Unverified)
Mobile Source?	Yes ONO	
Source Category 2	(Unverified)	
Description:	DEGREASE BY SOAKING AND SCRUBBING PARTS IN DEGREASING TANK	

For processes imported via the EESOH-MIS interface some of the key fields will be already be populated, however additional fields are still required in APIMS. If you change the data in these fields (**Process Category**, **Process Type**, **Process Name**, **Local Process Name**, **Description**) it will remain that way until the next time the interface is run. At that point the data in those fields will be overwritten to match the values in EESOH-MIS. Therefore, if changes need to be made to these fields they must be completed in EESOH-MIS.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, Location/Shop – Type of Solvent Use – Solvent (BLDG 645 – SOLVENT USE, AGE SHOP – SOLVENT USE).

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility Name** should be the facility that is responsible for the source.

The Mobile Source? flag should be "NO" as this is considered as stationary source.

All general solvent operations are assigned to the GSOL **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

## 3.4.3.2.2.4 Flush Cleaning (FCLN)

There are a few ways to properly document these emission sources in APIMS depending upon how the usage is tracked for each type of source. If the EESOH-MIS processes are configured properly to provide segregation of the various solvent operations then they can be configured to calculate emissions. If the solvent is not procured through EESOH-MIS but is obtained from a contactor then at least one Unique Process record will need to be configured.

## 3.4.3.2.2.4.1 Manually Tracked Flush Cleaning

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:"	INDUSTRIAL *	
Process Type:"	CLEANING- CHEMICAL, & DEGREASING	Venfied)
Process Name:*	DEGREASING, FLUSH CLEANING	Verified
Base Specific:		
Local Process Name:"	BLDG 726 - FLUSH CLEANER - BREAKTHROUGH	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:"	AIR FORCE BASE	(Verified
Mobile Source?*	G Yes 🖲 No	
Source Category:2	FCLN (Venfied)	

Process	Process Type				Process Name		Process ID
Category							
INDUSTRIAL	CLEANING	_	CHEMICAL	&	CLEANING/WASHING, FLU	SH	ICD1170
	DEGREASING				CLEANING		
INDUSTRIAL	CLEANING	_	CHEMICAL	&	DEGREASING, FLUSH CLEANIN	G	ICD1305
	DEGREASING						

For new process configuration use the table above to determine the appropriate **Process Category**, **Process Type**, and **Process Name**.

#### 3.4.3.2.2.4.2 EESOH-MIS Imported Process

For EESOH-MIS imported processes, navigate to the Unique Process module and use the search functionality to identify the process(es). For more details on how to identify EESOH-MIS imported processes refer to Section 2.6 EESOH-MIS Interface.

2	CANADA ADDRESS A	
Process Category:"		A CONTRACTOR OF A CONTRACTOR
Process Type:"	CLEANING- CHEMICAL & DEGREASING	(Verified)
Process Name:"	DEGREASING, DIP TANK, COLD	Verified)
Unique ID	20170	
Base Specific		
Process ID:	ICD130220170-	
Local Process Name:"	DEGREASING TANK	
Start Date:" yyyyimmeidd	2014/06/16	
End Date: yyyy/mm/dd		
Facility:*		(Unverified)
Mobile Source?	Yes ONO	
Source Category 2	(Unverified)	
Description:	DEGREASE BY SOAKING AND SCRUBBING PARTS IN DEGREASING TANK	

For processes imported via the EESOH-MIS interface some of the key fields will be already be populated, however additional fields are still required in APIMS. If you change the data in these fields (**Process Category**, **Process Type**, **Process Name**, **Local Process Name**, **Description**) it will remain that way until the next time the interface is run. At that point the data in those fields will be overwritten to match the values in EESOH-MIS. Therefore, if changes need to be made to these fields they must be completed in EESOH-MIS.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, Location/Shop – Type of Solvent Use – Solvent (BLDG 158 – FLUSH CLEANING – BREAKTHROUGH, WHEEL & TIRE – FLUSH CLEANING – MIL-PRF-680).

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility Name** should be the facility that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All flush cleaning operations are assigned to the FCLN Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

## 3.4.3.2.2.5 Hand Wipe Cleaning (HCLN)

There are a few ways to properly document these emission sources in APIMS depending upon how the usage is tracked for each type of source. If the EESOH-MIS processes are configured properly to provide segregation of the various solvent operations then they can be configured to calculate emissions. If the solvent is not procured through EESOH-MIS but is obtained from a contactor then at least one Unique Process record will need to be configured.

## 3.4.3.2.2.5.1 Manually Tracked Hand Wipe Cleaning

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:"	INDUSTRIAL •	
Process Type:"	CLEANING-OTHER	(Verified
Process Name:"	CLEANING, OTHER - HAND WIPE	(Venfied)
Base Specific:		
Local Process Name:*	AVIONICS - HAND WIPE - ISOPROPLY ALCOHOL	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:"	AIR FORCE	(Venfied)
Mobile Source?*	Yes  No	
Source Category 2	HCLN (Ventied)	
	Save Cancel	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	CLEANING, OTHER	CLEANING, OTHER – HAND WIPE	ICO1157
INDUSTRIAL	CLEANING – CHEMICAL & DEGREASING	CLEANING, CHEMICAL, MANUAL WIPING	ICD1151
INDUSTRIAL	CLEANING – CHEMICAL & DEGREASING	DEGREASING, WIPE CLEANING	ICD1315

For new process configuration use the table above to determine the appropriate **Process Category**, **Process Type**, and **Process Name**.

#### 3.4.3.2.2.5.2 EESOH-MIS Imported Process

For EESOH-MIS imported processes, navigate to the Unique Process module and use the search functionality to identify the process(es). For more details on how to identify EESOH-MIS imported processes refer to Section 2.6 EESOH-MIS Interface.

Process Category:"	INDUSTRIAL	
Process Type:"	CLEANING- CHEMICAL & DEGREASING	(Verified)
Process Name:"	DEGREASING: DIP TANK, COLD	Verified)
Unique ID	20170	
Base Specific		
Process ID:	ICD130220170-	
Local Process Name:"	DEGREASING TANK	
Start Date:" yyyyimmidd	2014/06/16	
End Date: yyyy/mm/dd		
Facility:*		(Unverified)
Mobile Source?'	Yes      No	
Source Category 2	Unverified)	
Description:	DEGREASE BY SOAKING AND SCRUBBING PARTS IN DEGREASING TANK	

For processes imported via the EESOH-MIS interface some of the key fields will be already be populated, however additional fields are still required in APIMS. If you change the data in these fields (**Process Category**, **Process Type**, **Process Name**, **Local Process Name**, **Description**) it will remain that way until the next time the interface is run. At that point the data in those fields will be overwritten to match the values in EESOH-MIS. Therefore, if changes need to be made to these fields they must be completed in EESOH-MIS.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, Location/Shop – Type of Solvent Use – Solvent (AVIONICS – HAND WIPE – ISOPROPLY ALCOHOL, BLDG 245 – HAND WIPE).

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The Facility Name should be the facility that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All hand wipe cleaning operations are assigned to the HCLN **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

## 3.4.3.2.2.6 Spray Gun Cleaning (SGUN)

There are a few ways to properly document these emission sources in APIMS depending upon how the usage is tracked for each type of source. If the EESOH-MIS processes are configured properly to provide segregation of the various solvent operations then they can be configured to calculate emissions. If the solvent is not procured through EESOH-MIS but is obtained from a contactor then at least one Unique Process record will need to be configured.

## 3.4.3.2.2.6.1 Manually Tracked Spray Gun Cleaning

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:*	INDUSTRIAL	
Process Type:"	CLEANING- CHEMICAL, & DEGREASING	Venfied
Process Name:"	CLEANING/WASHING, ENCLOSED WASHER	Venfied
Base Specific:		
Local Process Name:"	BLDG 514 - SPRAY GUN CLEANING	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:"	AIR FORCE	Verified
Mobile Source?"	Yes  No	
Source Category:Σ	SGUN	
	Save Cancel	

Process	Process Type		Process Name	Process ID
Category				
INDUSTRIAL	CLEANING –	CHEMICAL &	CLEANING/WASHING,	ICD1169
	DEGREASING		ENCLOSED WASHER	
INDUSTRIAL	CLEANING, OTHER		CLEANING, OTHER – GUN	ICO1154

For new process configuration use the table above to determine the appropriate **Process Category**, **Process Type**, and **Process Name**.

#### 3.4.3.2.2.6.2 EESOH-MIS Imported Process

For EESOH-MIS imported processes, navigate to the Unique Process module and use the search functionality to identify the process(es). For more details on how to identify EESOH-MIS imported processes refer to Section 2.6 EESOH-MIS Interface.

Process Category:"	INDUSTRIAL *	
Process Type:"	CLEANING- CHEMICAL, & DEGREASING	(Venfied)
Process Name:"	DEGREASING, DIP TANK, COLD	(Verified)
Unique ID	20170	
Base Specific		
Process ID:	ICD130220170-	
Local Process Name:"	DEGREASING TANK	
Start Date:" yyyyimmedd	2014/06/16	
End Date: yyyy/mm/dd		
Facility:*		(Unverified)
Mobile Source?"	Yes      No	
Source Category 2	(Unverified)	
Description:	DEGREASE BY SOAKING AND SCRUBBING PARTS IN DEGREASING TANK	

For processes imported via the EESOH-MIS interface some of the key fields will be already be populated, however additional fields are still required in APIMS. If you change the data in these fields (**Process Category**, **Process Type**, **Process Name**, **Local Process Name**, **Description**) it will remain that way until the next time the interface is run. At that point the data in those fields will be overwritten to match the values in EESOH-MIS. Therefore, if changes need to be made to these fields they must be completed in EESOH-MIS.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The Local Process Name should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, Location/Shop – Type of Solvent Use – Solvent (BLDG 514 – SPRAY GUN CLEANING, LANDING GEAR – SPRAY GUN CLEANING)

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All spray gun cleaning operations are assigned to the SGUN **Source Category**.

#### 3.4.4 Year-to-Year Maintenance

#### 3.4.4.1 Usage

The consumption for solvent operations usually needs to be tracked annually or as required by a regulatory agency. The most common method is to use the usage data that is imported from the EESOH-MIS interface. However, if using manual logs to document the solvent usage, the consumption should be entered in the Consumption log.

#### 3.4.4.1.1 EESOH-MIS Tracked Usage

For the consumption already imported from the EESOH-MIS interface run, the consumption must be validated in the Consumption log for it to be included in the emissions calculations.

At least one search criterion in addition	on to View and Data Source is required to perform a search.
Search Consumption	
Process ID:	
Usage Timeframe: yyyy/mm/dd hhmm	From: To:
Year. УУУУУ	2016
Building:	
Source Category:	
NSN:	
APIMS Facility:	
Shop:	
Issue #:	
View:	Validated Records Unvalidated Records Solution
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both
	Search Clear Search

Use the search criteria to narrow the search results. It is suggested to use the Source Category, Data Source and Year or Usage Timeframe to filter the results.

Consu	mption Log								
. Searc	h Consumption								
Skoul Filt	e .		Clear Filter	l.					
Creat	e Consumption								
Distaying	1,000 of 1,000 records found week r	nore							(inter
Actions	Local Process Name	Start Dofe/Time	End Date/Time	Material Name		Amount UOM		Vocadade 🔤	1
	The second second second second								
12.28	DEGR REMOTE RESERVOR	2010/05/04 1745	2016/05/04 1746	NEWI	7.90	LBS	9990934711		- 1
10.04	DEGR - REMOTE RESERVOIR	2010/06/04 1745	2016/05/04 1745	NEW 8	7.96	685	9660934711		
10.04	DEGR. REMOTE RESERVOR	2010/04/28 2016	2010/04/29 2016	ARPOLSO(5/ 680 TY 8 (ML PRF-680 TY 8)		LBS	9660500548		
12.14	DEOR - REMOTE RESERVOR	2010/04/20 2016	2016/04/28 2016	ARPOLISCEV 680 TV II (ML-PRF-680 TV II)		LRS	200000048		
10.10	DEGR - REMOTE RESERVOR	2010/04/28 2016	2016/04/28 2018	ARPOLSOLV 680 TY II (ML-PRF-690 TY II)	6	LBS	1090000648		
12.00	DEGR - REMOTE RESERVOR	anaparate treat	2016/04/28 2016	ARPCILSOLV 680 TV # MAL PRF-680 TV ID		LBS	200000048		

Check the checkbox next to each material then click **Save** to validate the consumption. Only consumption that is validated will be included in emissions calculations. The simplest use case for validating rows is to start by checking the top box in the grid to validate all rows present. After all boxes are checked, click **Save**.

This method will assume all the solvent purchased is emitted, which is a conservative overestimation as most solvent processes generate waste solvent that is then disposed of as hazardous waste. It is possible to locate the waste stream in EESOH-MIS to account for the waste solvent. To accurately account for the waste solvent a negative usage record will need to be entered in APIMS. Work with the Hazardous Materials management group to determine the total amount of waste solvent collected during the year.

Process ID:"	[ICD 1302641934P9016 (Vorified)	
Start Date/Time:" yyy/mm/dd hhmm	2016/01/01 0000	
ind Date/Time:" yyy/mm/dd hhimm	2016/12/31 2359	
ISN:4	SAFETY-KLEEN PREMIUM (Verified)	
	CAGE Code: 1PPC8 PNI: 1 Preparation Date: 2012/01/20 EESOH Product Detail ID:	
Amount:*	-30 GAL - GALLONS	
/alidate Consumption?	🖲 Yes 💮 No	
Part.	(Unverified)	
ssue #		
Comments		

#### 3.4.4.1.2 Manually Tracked Usage

If the solvent is not procured through EESOH-MIS but is provided by an independent contractor the usage should be entered in the Consumption log based on contractor reports or invoices. These reports/invoices

usually provide the amount of solvent added and the amount of waste solvent collected. To accurately input the usage the amount of waste solvent collected should be subtracted from the amount of solvent added.

Solvent Usage = Solvent Added - Waste Solvent Collected

Navigate to the Consumption module and click the Create Consumption hyperlink.

Process ID:*	ICD1302641934P9016 (Verified)	
Start Date/Time:" /yyy/mm/dd hhmm	2016/01/01 0000	
End Date/Time:* /yyy/mm/dd hhmm	2016/12/31 2359	
NSN:"	SAFETY-KLEEN PREMIUM (Ventied)	
	CAGE Code: 1PPC8 PNI: 1 Preparation Date: 2012/01/20 EESOH Product Detail ID:	
Amount:"	8 GAL - GALLONS	
/alidate Consumption?	🖲 Yes 🕕 No	
Part.	(Unverified)	
ssue #		
Comments		

The consumption record should span the entire reporting period as shown above. The material should be the solvent and the amount should be Solvent Usage as calculated using the formula above. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

## 3.4.4.2 Emissions Calculation

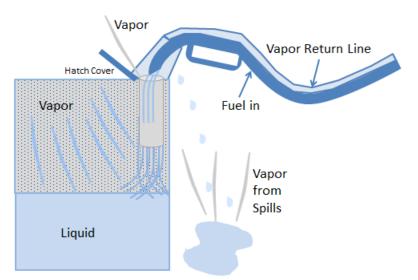
If the process utilizes EESOH-MIS data then it should be included in the **EESOH-MIS Calculation**, otherwise this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.5 Fuel Dispensing (FDSP)

## 3.5.1 Source Types

Fuel Dispensing refers to the refueling of vehicles at fuel service stations. At Air Force installations there are usually one or more fuel service stations. One is usually commercially run by AAFES and the other is a fuel service station for military fleet vehicles. At most installations the AAFES station has been disaggregated from the base and therefore should not be included in the Air Force AEI, however if the Title V permit does not allow for this disaggregation then the AAFES station emissions may be included.

The emissions from fuel service stations are the result of vapors displaced as fuel is added to the fuel tank of the vehicle. The amount of vapor released to the atmosphere is a function of the gas and fuel tank temperatures, the vapor pressure of the fuel, the dispensing rate, and the presence of vapor emission control devices. Additionally, emissions may result from incidental spills that occur during the refueling process. As the fuel is spilled, it will then evaporate and create additional emissions. The vapor that is emitted into the atmosphere is composed of both Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs). Some refueling stations utilized a control device, Stage II Vapor Recovery; this control device will capture some of the vapor that has been displaced from the fuel tank and return it to the source tank. The diagram below illustrates the emissions that can occur during fuel dispensing operations.



As the liquid is poured into the tank, vapor is generated. Additionally as the liquid level goes up the vapor space gets smaller and causes the pressure to increase. Some of the vapor returns to the source tank through the Stage II Vapor Recovery, some may escape to the atmosphere.

Overall there are three separate activities that are part of the fuel dispensing operation.

- 1) The filling of underground storage tanks
- 2) The fueling of motor vehicles

## 3) Resulting fuel spills that occur during fueling

The first activity, filling of storage tanks, is calculated as part of the emissions associated with the storage tank in the UST or AST source categories.

The second activity, the fueling of motor vehicles, is the emission of vapors that are displaced from the vehicle gas tank as it is filled. These emissions are accounted for in the VEHE source category, unless these emissions are specified as stationary source emissions by the regulatory agency.

The third activity, fuel spills, is accounted for in this source category, FDSP. This is not to be used for significant spills that are the result of a fuel transfer incident that requires the notification of the spill to the installation Environmental Management or Hazardous Materials Response Team. Significant spills are accounted for as transient sources in the Spills and Releases (SPRL) source category.

#### 3.5.2 Potential Data Sources

The most common areas that have fuel dispensing operations are the commercially run AAFES stations and the military fueling station for fleet vehicles.

- LRS (Military Fleet Vehicle Refueling)
- AAFES Station

The data that needs to be collected is the total amount of gasoline that is dispensed. If the total amount of gasoline dispensed is not known, then they total tank throughputs can be assumed to be the same as the amount dispensed.

## 3.5.3 Standard Source Identification/Characterization

## 3.5.3.1 Existing Sources

It is important to review the existing dispensing activities in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	FDSP
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 🖲 All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	○ EESOH-MIS Interface Records ○ APIMS Entered Records ● Both
	Search

In the **Source Category** search field, type "FDSP" then select the row for Fuel Dispensing from the dropdown results. Click the Search button at the bottom of the module window.

200	IICI	Re	sults						
	Cristal	e Proc	855						
rec	ords	bund							
		-	51-4						
A	ction		Unique ID + Base Specific	Local Process Name	Source Cat Code	Bild No.	Start Date	End Date	Status
100	10	120	041050 P9012	PDSP+BLDG 2498-GABOLINE - MIL BVC STATION	FDSP	2499	10101081		ACTOE
- 24			541674 P9040	FDSP - BLDD 2340 - GAS - DOLF COURSE INC STATION	FDSP	2240	100101/01		ACTIVE
	18	Max.							
	-	Q.	041583 /94044	FEOP-BLDG 11700-DASDUNE-MIL BVC BTATION	FOSF	11700	1901/01/01		ACTIVE

The search results grid will now display all the fuel dispensing processes currently in APIMS.

The Local Process Name, Base Specific and Bldg No. can all be used to identify a specific source. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current.

#### 3.5.3.1.1 Status

If the status of a unit needs to be changed, click the edit  $\bowtie$  icon next to the process. Navigate to the *Status* tab.

Proces	s Equipment Calculations	Regulatory Authorized Materials	Industrial Contacts Zor	ies Records Assessments	Status
Ch Ch	ange Current Status				
1 record	is found				
and the second	ing records 1 - 1				
Displayi					
Actions		Start Date	End	Date	Comments

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

status:"	INACT - INACTIVE .
itart Date:" 'yyy/mm/dd	2016/06/12
Comments	Unit no longer in use.

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.5.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 2	2499	
Location 2	BUILDING 2499	(Verified)
Complete Location Name	AFB \ BUILDING 2499	
Office Symbol 2		Unverified)
Unit/Organization		
Shop	(Unverified)	
Shop Name		
Source Type: D	AREA 🔹	
Permitted Source?2	🖲 Yes 🔘 No	
Emission Point:	ATMOSPHERE •	
Usage Interval:	ANNUAL •	
Next Higher Process	(Unventied)	
Next Higher Process Name:		
EPA Source Class Code:		
EPA Industry Group		
GHG Scope:	Select Value •	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	© Yes ♥ No	
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr	
Comments:		

The **Building No**. field can be used to specify a general location or area of the emission source.

The **Location** field is very important to effectively manage the location and mission of the emission source. This information will be important for knowing where the source is, in case it needs to be inspected or if the source owner needs to be contact for pertinent information. For the instructions on how to create a location, reference Section 2.2 Location.

Fuel loading operations are categorized as AREA source in the **Source Type**.

The **Emission Point** would be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an Annual basis. However, if it is a permitted source, reporting intervals may be different. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.5.3.1.3 Sub-Processes

This source does not utilize this functionality.

#### 3.5.3.1.4 Equipment

The next tab is the *Equipment* tab. This is only applicable if the activity has a vapor recovery unit that is tracked in APIMS. To link the equipment to the process the equipment must already be entered in APIMS. Refer to the Equipment section for specifics on how to properly document equipment in APIMS.

Create Equipy	sent Association					
0 records Tound						
Displaying records Actions		 Serial #	Model #	Manufacturer	Start Date	The second second

To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Process Equipment Calculations Regu	iatory Authonzed Materials Industrial Contacts Zones Records Assessments Status
Equipment ID:"	(P-9012-02 )Cy+(x) (Venfied)
Senal #	U-FDSP-15002
Model #	DISP-VC-98
Manufacturer	
Description:	FUEL DISPENSING USING PHASE I VAPOR RECOVERY SYSTEM ON TANK
Equipment Start Date: yyyy/mm/dd	1901/01/01
Equipment End Date: yyyyimm/dd	
Start Date:* yyyy/mm/dd	1901/01/01
End Date: yyy/mm/dd	
Comments	
	A
	Save & Create Another Save & Finish Cancel

Search for the **Equipment ID** in the list of values, enter the start date and click the Save & Finish button.

Create Equipment Aroun often					
records found					
isolaying seconds 1 - 1					
Actions Directoritities	Secula	Michil #	Watafacturer	StatiOate	Unit Data
LA CRUCH	W P210P110002	D/SP = C-88		100101801	

#### 3.5.3.1.5 Calculation

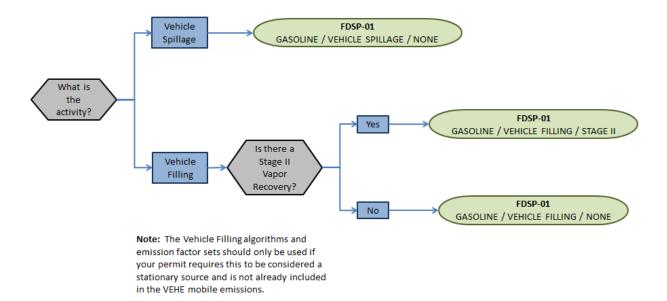
The next tab is the *Calculations* tab.

Process Equipment	Calculations Rep.		Statenati Induktria	Contacts Zon	e Recordi	Alterativents	Statute	
rocess Algorithm	Assignment							
Create Process Alg								
records tound.		Formula	Emission Factor	Cimena			Start Date	End Oute

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Algorithm Code:"	FDSP-01 (Verified)				
ormula:	EMISSION FACTOR*(GASOLINE THROUGHPUT/1000)				
Agonthm Start Date:	1901/01/01				
Ngorithm End Date:					
mission Factor Characteristic:*	FUEL/ACTIVITY/CONTROLS				
mission Factor Citteria:	GASOLINE / VEHICLE SPILLAGE / NONE				
mission Factor Set ID:	4458				
mission Factor Set Start Date:	1901/01/01				
mission Factor Set End Date					
itart Date:"	1901/01/01				
ind Date: www.mm/dd					

Select the **Algorithm Codes** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Finish** button to save and return to the Calculations tab. Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



If the permit specifies that the emissions caused by the vapor displacement in the vehicle fuel tank are stationary sources and are not included in the VEHE emission calculation then there will need to be two algorithms associated. The first one to account for the fuel that is spilled during filling and one to account for the vapor displaced during vehicle filling. If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.5.3.1.6 Materials

The last step in setting up the Unique Process record is to the authorized materials on the *Authorized Materials* tab.

Create Authorized Ma	demat		
records found			
			Save
Actions Inter	CAGE Com	Phi Material Name	Authoria Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

NSN:"	GASOLINE (Ventied)
CAGE Code:	EMC
PNI	A
Material Name	GASOLINE (INCLUDES E85)
Authorize?	🖲 Yes 🔍 No
	Save & Create Another   Save & Finish   Cancel

Select the fuel transferred from the list of values as shown above. Next select "Yes" to **Authorize** the material, then click the **Save & Finish** button.

Create Autorized Statenal				
1 records Round				Sav
March 1				Sav Asthory Flag Z
Actions 1535	CARECODE	ENI	Material Nature	

#### 3.5.3.2 New Sources

#### 3.5.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Fuel Dispensing Data Collection Worksheet

		GENERAL INF	ORMATION					
Building Num	ber	Mission/Purp	ose					
Shop Name/F	unction	Ma	nagement Orga	anization				
UTM:	Zone	Easting		Northing 🛛 Feet 🗆 Meters				
Is this source	in any of your permits?	□ Yes □ N	0					
If yes, does it have an emission unit number or other designation?								
		EQUIPMENT IN	EORMATION					
			FORMATION					
Is there Stage	II Vapor Recovery?	Yes 🗆 N	0					
Manufacturer								
Model Numbe	er	Ser	ial Number					
		USAGE INFO	RMATION					
Does your per	mit consider vehicle ref	ueling a station	ary source? 🗖	Yes 🗆 No				
What is the a	nnual amount of fuel tra	insferred in gallo	ons?					

#### 3.5.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each service station.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL 🔻	
Process Type:*	FUELS	× (Verified)
Process Name:*	DISPENSE/LOAD, PUMP/NOZZLE	× (Verified)
Base Specific:		
Local Process Name:*	BLDG 224 - MIL SVC STATION - GASOLINE	
Start Date:* /yyy/mm/dd	1901/01/01	
Facility:*	AIR FORCE BASE	× (Verified)
Mobile Source?*	O Yes  No	
Source Category:Σ	FDSP (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	FUELS	DISPENSE/LOAD, POUR	IFU1353
INDUSTRIAL	FUELS	DISPENSE/LOAD, PUMP/NOZZLE	IFU1354
INDUSTRIAL	FUELS	DISPENSE/LOAD, RACK/ARM	IFU1355
INDUSTRIAL	FUELS	FUELS DISTRIBUTION	IFU1499

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify the location, station type, fuel type and any other unique attribute. For example, AAFES SVC STATION - GASOLINE.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility Name** should be the facility that is responsible for the source.

The Mobile Source? flag should be "NO" as this is considered as stationary source.

All fuel dispensing processes are assigned to the FDSP **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.5.4 Year-to-Year Maintenance

#### 3.5.4.1 Usage

The consumption for fuel dispensing sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:*	[FU1354641668P9012 ] (Verified)	
Start Date/Time:* yyyy/mm/dd hhmm	2016/01/01 0000	
End Date/Time:" yyyy/mm/dd hhmm	2016/12/31 2359	
NSN:	GASOLINE (Ventied)	
	CAGE Code: EMIC PNI: A Preparation Date: 1901/01/01 EESOH Product Detail ID:	
Amount."	60744 GAL-GALLONS	•
Validate Consumption?	* Yes 🔍 No	
Part.	Cisi+ x (Unverified)	
Issue #		
Comments:		

The consumption record should span the entire reporting period as shown above. The material should be the fuel transferred and the amount should be the amount of fuel transferred in gallons. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

#### 3.5.4.2 Emissions Calculation

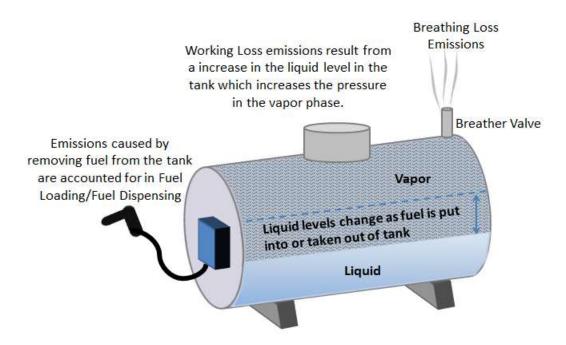
To correctly calculate emissions this emission source should be included in the **Stationary Source Calculation**. Refer to Section 2.7 Emissions Calculations for additional instructions and details.

# 3.6 Aboveground Storage Tanks (AST)

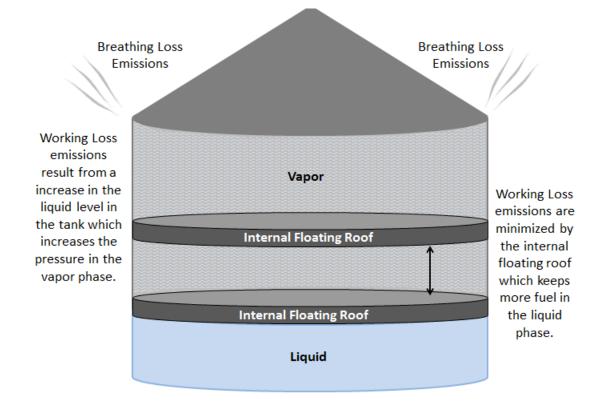
## 3.6.1 Source Types

Storage tanks can be found on almost all Air Force installations and are used for the storage of materials, including fuels such as JP-8, Jet A, automotive gasoline (MOGAS) and diesel, asphalt, or solvents. The storage tanks may contain anywhere from a few hundred to over a million gallons of material. Above ground storage tanks are defined as having more than 90% of their volume above the ground surface. There are several types of storage tanks, such as horizontal fixed roof, internal floating roof, external floating roof, vertical fixed roof, and domed external fixed roof. The most common types found on Air Force installations are horizontal fixed roof and internal floating roof tanks. The roof design of each storage tank will have a significant effect on the amount of vapor released into the atmosphere.

Emissions from storage tanks are generated as the vapor escapes from the higher-pressure environment inside the tank to the lower pressure of the outside atmosphere. The compounds generally stored are composed of VOCs and HAPs which are released to the atmosphere as the vapor escapes or is vented to regulate the pressure inside the tank.



Fixed roof tanks have breather valves that open in order to equalize the pressure when an imbalance occurs due to the changes in temperature. As the outside temperature increases the vapor expands and more liquid goes into the vapor phase, causing an increase in pressure. As the pressure increases vapor is release to keep the tank pressure at equilibrium with the atmospheric pressure. This is known as breathing loss or storage loss. Working losses are those emissions that result from the filling of the storage tanks. As the liquid level increases it causes an increase in the pressure of the vapor phase which creates an imbalance in the tank pressure and the atmospheric pressure. The breather valve is then opened to relieve the built-up pressure and bring the tank back to equilibrium. Some tanks may be fitted with a control device to recirculate and/or condense the vapors and capture much of the release.



Floating roof tanks have a roof that floats on top of the liquid level. By having a roof that floats on top of the liquid it minimizes the amount of liquid that evaporates by allowing the volume to change within the tank. However, some emissions do occur when the liquid level raises the floating roof high enough to create in increase in pressure in the tank. The vapor is then vented to reestablish equilibrium.

## 3.6.2 Potential Data Sources

A number of industrial areas around each installation may maintain storage tanks. Each installation has a Storage Tanks Manager; this may be their only duty or may be combined with Water Quality or Air Quality. The Air Force Storage Tank Accounting and Reporting (STAR) system should be configured with all the tanks located on the installation. STAR is a module within APIMS thus enabling the Air Quality Manager to view all the tanks and their specific properties, such as tank type, capacity, and location. However, Air Quality has additional data requirements regarding storage tanks such as dimensions and shell characteristics so some data collection may be required. These additional data requirements may be able to be obtained from the Storage Tank Manager or from the following shops:

- Fuels Management Flight (LGRF)
- Base Supply Fuels Management
- Civil Engineering Liquid Fuels
- AAFES Station
- DLA

## APIMS AEI Procedure

For Air Quality purposes the emissions from tanks smaller than 200 gallons are too insignificant to account for, therefore only tanks with a capacity of greater than 200 gallons should be configured for emissions calculations.

#### 3.6.3 Standard Source Identification/Characterization

#### 3.6.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Storage Tank module of APIMS. Use any of the Search criteria to narrow the search to a specific tank or group of tanks. To view all above ground tanks select the ABOVEGROUND radio button and click the **Search** button.

Search Storage Tank	
Tank Type:	Select Value 🔻
Tank ID:	
Air Tank ID:	
Real Property ID:	
Content:	
Location	
Status:	Select Value V
Volume:	gallons
Designation:	ABOVEGROUND OUNDERGROUND OBoth
	Search
Create Tank	
Meteorological Data	
Location	
Batch Process Tank Contacts	
Tanks Assessment Dashboard	

The search results grid will now display all the aboveground storage tanks currently in APIMS.

C Cr	este Tark									10
	ords trund. ing records 1 - 1	0								
	S Junk D	Az Jask El	Ras Properts El	Inth.Inte	Cooket	Locatee	90,0319	Queent	105Y2	Yolane dae
	4.84	U-49/48000187.#V		HFR	SISSED CAL	RV92849 STRE	\$1.500 (CE		file.	34
14.1	■ 11-92	182		HER	DECINO PUVID	BAR, DAND 4000	料心把粉水口把		990	300000
10.10	6.61	4080 884 - 4421 - 1484 8-83		1.000	ORDUNE	BUILDING 4421	#655M/52		We	. 30
18 1	5-04	43734 - TANK E-04		HER	GASCLINE	B152042-4073	94-007/000		The	25
10 5	£48	48738 - TANK 5-01		HER	DISTIST. FLIST.	BUS, DING, 6073	BV SERVICE		200	
	1.01	dalfasi (DANK E-DE		HPN	.m.e.	BUILDING 4974	Re-INCHINE HIS		THE .	25.06
18:1	. mat	49148-1404.5-01		HER	194	EU&3050-4974	NICENCOL		.986	37.00
	x 8-04	4979C		6473	394	BUILDING 4974	81-36 RV/006		10	25.00
10.1	1.64	U-066800016811		HER	OFFICE FUEL	BULDING S258	IN-SERVICE		340	1
12 6	E 10	0.088830018737		14970	DETEL FUEL	EV4.04/0.0378	94-8240-0CE		No	10

The **Tank ID** is how the Storage Tank Manager identifies the tank and the **Air Tank ID** is how the Air Quality Manager identifies the tank. The **Tank Type** indicates the type of tank for example; HFR is a horizontal fixed roof tank. Additional information about the tank is shown including the **Content**, **Location**, **Status**, and **Volume**. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current; this will require coordination with the Storage Tank Manager.

#### 3.6.3.1.1 Status

If the status of a unit needs to be changed, it must be completed by a person with the Storage Tank Manager role in APIMS. If you have that role, click the edit  $\boxed{2}$  icon next to the tank.

Navigate to the Status sub tab. Click the Change Current Status hyperlink.

tertination Characterites. Status		
CHUS-	(BUT-DF-BERVICE +)	
White Date "	2016/01/01	
All contracts	TANK RENEXED	
ortenerity.		

Select the appropriate status from the **Status** dropdown (i.e., IN-SERVICE or OUT-OF-SERVICE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time empty and possible causes or reasons for emptying the tank.

Click the **Save** button.

The emissions for a storage tank will only be calculated for the dates the tank was in an IN-SERVICE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.6.3.1.2 Air – Tank Data

There are basic data elements that are important to track and maintain for new and existing sources, such as the tank dimensions, shell characteristics and breather vent settings. This data can be maintained in the Storage Tank record on the *Air* tab *Tank Data* sub tab.

Tank	Compliance Information	Contacts	Records	Air		
Tank E	Data Contents					
Identif	ication					
Air Ta	ank ID:*			P901	-51	
Facili	ity:*			AIR	ORCE BASE	🔁 🗙 (Verified)

The **Air Tank ID** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Facility Name** should be the facility that is responsible for the source.

## 3.6.3.1.2.1 Horizontal Fixed Roof

The fields on the screen are dependent upon the tank type. The screen below displays the screen for a horizontal fixed roof tank.

Tank Compliance Information Tank Data Contents	Contacts Records	Air		
Identification				
Air Tank ID:*		P9017-51		
			1	) A lorified
Facility:*		AIR FORCE BASE		Verified
Dimensions				
Diameter:*		7.8	feet	
Length:*		15.3	feet	
is the tank heated?*		Yes No		
Shell Characteristics				
Paint Condition: *		🖲 Good 🔘 Poor		
Shell Color/Shade:*		WHITE/WHITE	T	
Breather Vent Settings				
Vacuum Setting:*		-0.03	psig	
Pressure Setting:*		0.03	psig	
Meteorological Data				
City:*		NEAREST CITY	(Verified)	
State:		STATE		
		Save Cancel		

The **Diameter** should be entered as the diameter in feet of the inner tank where the fuel is stored, not the shell diameter.

The **Length** should be the length in feet of the inner tank where the fuel is stored, not the shell length.

Select the correct answer to the **Is the tank heated?** Note that most tanks should be flagged "No" as they are not usually heated.

The **Paint Condition** should indicate how the paint on the exterior of the tank is holding up. For example, if the paint is missing in some spots or flaking off, select Poor.

The **Shell Color/Shade** should be selected to the closest available value. This field can affect the emissions calculations as paint color can affect how the sun or temperature affects the vapor pressure inside the tank. Most tanks are WHITE/WHITE.

The **Vacuum Setting** and **Pressure Setting** automatically default to the values used in the EPA Tanks 4.0.9D program. If these settings are known they can be altered to the actual values, otherwise utilize the default values.

The **City** selected should be the closest geographical location provided in the list. This will be used to model the atmospheric temperature used in emissions calculations.

## 3.6.3.1.2.2 Vertical Fixed Roof

The fields on the screen are dependent upon the tank type. The screen below displays the screen for a vertical fixed roof tank.

Tank Compliance Information Contacts Record	ds Air
Tank Data Contents	
Identification	
Air Tank ID:*	10527
Facility:*	AIR FORCE BASE
Dimensions	
Diameter:*	5 feet
Height*	8 feet
Maximum Liquid Height:*	7 feet
Average Liquid Height:*	4 feet
Is the tank heated?*	○ Yes ● No
Shell Characteristics	
Paint Condition:	Scool Operation Poor
Shell Color/Shade:	WHITE/WHITE •
Roof Characteristics	
Roof Color/Shade:	WHITE/WHITE
Roof Condition:	Sood Oppor
Roof Type:	DOME <b>T</b>
Radius:*	4 feet
Breather Vent Settings	
Vacuum Setting:*	-0.03 psig
Pressure Setting:*	0.03 psig
Meteorological Data	
City:*	NEAREST CITY (Verified)
State:	STATE
	Save Cancel

The **Diameter** should be entered as the diameter in feet of the inner tank where the fuel is stored, not the shell diameter.

The **Height** should be the height in feet of the inner tank where the fuel is stored, not the shell height.

The **Maximum Liquid Height** should be the height in feet that is the maximum level the liquid is allowed to reach in the tank. Tanks cannot be completely filled with liquid and must allow some room for vapor.

The **Average Liquid Height** should be the height in feed that is the level the tank is maintained at most often; this should be less than the Maximum Liquid Height.

Select the correct answer to the **Is the tank heated?** Note that most tanks should be flagged "No" as they are not usually heated.

The **Paint Condition** should indicate how the paint on the exterior of the tank is holding up. For example, if the paint is missing in some spots or flaking off, select Poor.

The **Shell Color/Shade** should be selected to the closest available value. This field can affect the emissions calculations as paint color can affect how the sun or temperature affects the vapor pressure inside the tank. Most tanks are WHITE/WHITE.

The **Roof Color/Shade** should be selected to the closest available value. This field can affect the emissions calculations as paint color can affect how the sun or temperature affects the vapor pressure inside the tank. The roof color may differ from the shell color and can have a significant impact on emissions for this type of tank. Most tanks are WHITE/WHITE.

The **Roof Condition** should indicate how the paint on the exterior of the tank roof is holding up. For example, if the paint is missing in some spots or flaking off, select Poor.

The **Roof Type** should be selected from the list of CONE or DOME.

If the **Roof Type** is CONE, the **Slope** and **Roof Height** will need to be specified.

If the **Roof Type** is DOME, the **Radius** will need to be specified.

The **Vacuum Setting** and **Pressure Setting** automatically default to the values used by common industrial applications. If these settings are known they can be altered to the actual values, otherwise utilize the default values.

The **City** selected should be the closest geographical location provided in the list. This will be used to model the atmospheric temperature used in emissions calculations.

## 3.6.3.1.2.3 Internal Floating Roof

The fields on the screen are dependent upon the tank type. The screen below displays the screen for an internal floating roof tank.

Tank         Compliance Information         Contacts           Tank Data         Contents         Fittings	Records Air
Air Tank ID:*	P9024-14
Facility:	AIR FORCE BASE
Dimensions	
Diameter:*	42.4 feet
Shell Characteristics	
Internal Shell Condition:*	LIGHT RUST V
Paint Condition:*	● Good ◎ Poor
Shell Color/Shade:*	WHITE/WHITE V
Roof Characteristics	
Roof Color/Shade:*	WHITE/WHITE •
Roof Paint Condition:	🖲 Good 🔘 Poor
Self Supported Roof?	YES
Rim Seal System	
Primary Seal:*	
Secondary Seal:	RIM-MOUNTED
Deck Characteristics	
Deck Type:*	WELDED 🔻
Meteorological Data	
City:*	NEAREST CITY (Verified)
State:	STATE
	Save Cancel

The **Diameter** should be entered as the diameter in feet of the inner tank where the fuel is stored, not the shell diameter.

The **Internal Shell Condition** should indicate if the internal shell has LIGHT RUST, DENSE RUST or a GUNITE LINING.

The **Paint Condition** should indicate how the paint on the exterior of the tank is holding up. For example, if the paint is missing in some spots or flaking off, select Poor.

The **Shell Color/Shade** should be selected to the closest available value. This field can affect the emissions calculations as paint color can affect how the sun or temperature affects the vapor pressure inside the tank. Most tanks are WHITE/WHITE.

The **Roof Color/Shade** should be selected to the closest available value. This field can affect the emissions calculations as paint color can affect how the sun or temperature affects the vapor pressure inside the tank. The roof color may differ from the shell color and can have a significant impact on emissions for this type of tank. Most tanks are WHITE/WHITE.

The **Roof Paint Condition** should indicate how the paint on the exterior of the tank roof is holding up. For example, if the paint is missing in some spots or flaking off, select Poor.

Self Supported Roof?	NO T
# of Columns:*	1 Calculate
Column Diameter:*	2 feet

Indicate if the floating roof is a **Self-Supported Roof**. If it is not, the **# of Columns** and the **Column Diameter** must be specified. A **Calculate** button can be used to determine the number of columns if unknown.

Floating roof tanks have a **Primary Seal** and **Secondary Seal** that must be specified as it can affect the emissions calculations.

The **Roof Type** should be selected from the list of CONE or DOME.

The **Vacuum Setting** and **Pressure Setting** automatically default to the values used by common industrial applications. If these settings are known they can be altered to the actual values, otherwise utilize the default values.

The **Deck Type** should be specified to be either BOLTED or WELDED. If the value selected is BOLTED additional fields will be displayed as shown below.

eck Characteristics	
Deck Type:*	BOLTED V
Deck Construction Code:*	Sheet Panel
Deck Seam:*	CONT. SHEET: 6 FT WIDE
Deck Seam Length:*	3 feet

The **Deck Construction Code** should be selected as either SHEET or PANEL.

The Deck Seam and Deck Seam Length should be specified according to tank specifications.

The **City** selected should be the closest geographical location provided in the list. This will be used to model the atmospheric temperature used in emissions calculations.

## 3.6.3.1.2.4 External Floating Roof

The fields on the screen are dependent upon the tank type. The screen below displays the screen for an external floating roof tank.

Tank Compliance Information Contacts Recon	ds Air	
Tank Data Contents Fittings		
Identification		
Air Tank ID:*	678087	
Facility:*	AIR FORCE BASE	Verified)
Dimensions		
Diameter:*	5 feet	
Shell Characteristics		
Internal Shell Condition:*	LIGHT RUST 🔻	
Paint Condition:*	Good Poor	
Paint Color/Shade:*	WHITE/WHITE •	
Roof Characteristics		
Roof Type:*	DOUBLE DECK V	
Tank Construction & Rim Seal System		
Tank Construction:*	RIVETED V	
Primary Seal:*	MECHANICAL SHOE (Verified)	
Secondary Seal:	NONE	
Meteorological Data		
City:*	NEAREST CITY (Verified)	
State:	STATE	
	Save Cancel	

The **Diameter** should be entered as the diameter in feet of the inner tank where the fuel is stored, not the shell diameter.

The **Internal Shell Condition** should indicate if the internal shell has LIGHT RUST, DENSE RUST or a GUNITE LINING.

The **Paint Condition** should indicate how the paint on the exterior of the tank is holding up. For example, if the paint is missing in some spots or flaking off, select Poor.

The **Paint Color/Shade** should be selected to the closest available value. This field can affect the emissions calculations as paint color can affect how the sun or temperature affects the vapor pressure inside the tank. Most tanks are WHITE/WHITE.

The **Roof Type** needs to be specified as DOUBLE DECK or PONTOON according to tank specifications.

The Tank Construction needs to be specified as RIVETED or WELDED according to tank specifications.

Floating roof tanks have a **Primary Seal** and **Secondary Seal** that must be specified as it can affect the emissions calculations.

The **City** selected should be the closest geographical location provided in the list. This will be used to model the atmospheric temperature used in emissions calculations.

## 3.6.3.1.2.5 Domed External Floating Roof

The fields on the screen are dependent upon the tank type. The screen below displays the screen for a domed external floating roof tank.

Tank Compliance Information Contacts R	ecords Air	
Tank Data Contents Fittings		
Identification		
Air Tank ID:*	38166	
Facility:*	AIR FORCE BASE	Verified
Dimensions	r falls and a state of the stat	
Diameter:*	3.8 feet	
Shell Characteristics		
Internal Shell Condition:*	LIGHT RUST 🔻	
Paint Condition:*	Good Open	
Paint Color/Shade:*	WHITE/WHITE <b>v</b>	
Roof Characteristics		
Roof Type:*	PONTOON V	
Tank Construction & Rim Seal System	m	
Tank Construction:*	WELDED V	
Primary Seal:*		
Secondary Seal:	RIM-MOUNTED	
Meteorological Data		
City:*	NEAREST CITY (Verified)	
State:*	STATE	
	Save Cancel	

The **Diameter** should be entered as the diameter in feet of the inner tank where the fuel is stored, not the shell diameter.

The **Internal Shell Condition** should indicate if the internal shell has LIGHT RUST, DENSE RUST or a GUNITE LINING.

The **Paint Condition** should indicate how the paint on the exterior of the tank is holding up. For example, if the paint is missing in some spots or flaking off, select Poor.

The **Paint Color/Shade** should be selected to the closest available value. This field can affect the emissions calculations as paint color can affect how the sun or temperature affects the vapor pressure inside the tank. Most tanks are WHITE/WHITE.

The **Roof Type** needs to be specified as DOUBLE DECK or PONTOON according to tank specifications.

The **Tank Construction** needs to be specified as RIVITED or WELDED according to tank specifications.

Floating roof tanks have a **Primary Seal** and **Secondary Seal** that must be specified as it can affect the emissions calculations.

The **City** selected should be the closest geographical location provided in the list. This will be used to model the atmospheric temperature used in emissions calculations.

#### 3.6.3.1.3 Air – Contents

The Contents sub tab is a read-only tab that shows the Tank Usage history for the tank.

Tert Date	Centente		
3 records found			
Displaying reto	m 1-3.		
Year	Manara Marra	Mintara El	Threesment in
2016	DESR, FUSI, NO 3718, OL1	(D2	An
	DESELFIES IND 2PIEL OLI	02	1
2018 2018	DRIEL FUEL HIG 2FUEL OLL DRIEL FUEL HIG 2FUEL OLL	03	2

The Year, Mixture Name, Mixture ID, and Throughput can be reviewed.

#### 3.6.3.1.4 Air – Fittings

Some tank types (Internal Floating Roof, External Floating Roof and Domed External Floating Roof) have an additional tab that can be used to specify fittings.

Tex Ion Lowers Fittings		
Contains		
Create Tark Fitting Association		
records found		
Displaying records 0 - 0		
Displaying records 0 - 0.		Typical Pitting
Actions (Formal) were	Eistang Correct Types Walan	Type at Pitting Gener
	Estang Corner Types Status	Quer
Displaying records 0 - 0 Access (0	Eistang Couver Types, Statan	

If the specific tank fittings are unknown, the Typical Fittings button can be used to associate the fittings that are normally associated to this tank as specified in the EPA Tanks 4.0.9D program.

To add a specific tank fitting, click the Create Tank Fitting Association hyperlink.

Tank Data Contents Fitting	IS	
Tank Data Contents Fitting	13	
itting Type:*		ROOF DRAIN (3-IN. DIAMETER)
Fitting Cover Type/Status:		90% CLOSED
Quantity:*		1
		Save Cancel

Select the **Fitting Type** from the list of values according to the tank specifications.

Enter the total number of this type of fitting in the Quantity field. Click the **Save** button.

Text Date: Centerie Fritings		
Text Date: Contents Prillings		
Create Term Filling Association		
6 records foard		
Second Faces September 2010		
		Chandad Pitting
Authorite Elithers Event	T.Alton Convert.Texter.TMate:	Quiet
ACCEBS HATCH (24-IN, (IAM))	UNBOUTED DOVER-UNDABRETED	
AUTOMATIC GAUGE FLOAT WELL	UNBOLTED CONTRIANGABRETED	
NDOF LED OR HWYGER WELL	ADUDSTABLE	
GAMPLE PRE ON WELL (24 MI OWN)	BUT FARRO SCAL 10% OPER	
TUE OFARI (1-PL OWNETER)	UNKNOWIN	
VACUUM BREAKER (10-AL EMAL)	WEIGHTED MECH ALT UKTION-DADK	
		Types at Pitting
		< Previous   Nex

Repeat the above steps for each type of tank fitting.

## 3.6.3.1.5 Records

The *Records* tab can be used to upload any pertinent information about the tank. This can be especially useful to upload tank specifications or repairs that may affect the tank configuration.

Taris Dangi and a Internation	Drawn Ritards w					
Crisate Record						
Precordo Rounil						
Direcordo Sounil Displaying records 0 - 0 Actions (Country of	Siart Data	Kirst, Data	Bacarol.Stetue	Commenta	Zele Landel	
Page	C LOCKER	NOL DOL	Ni excessioner	Kanna	- The later	

To add a document, click the Create Record hyperlink.

Category:*	SPEC SHEET	Verifie
Image Path:*	Choose File No file chosen	
	Max File Size is 25 MB	
Comments:		
Start Date:* yyyy/mm/dd	2017/04/19	
End Date: yyyy/mm/dd		
Date Loaded: yyyy/mm/dd	2017/04/19	

Select the type of document from the Category list of values, most commonly Schematic or Spec Sheet for this type of source.

Choose the file, using the Choose File button to open a file browser window. Click the **Save** button.

Tark Donaharica Miteriakan Contact	5/ Becanda 40				
Create Record					
resords found					
uplaying records 1 - 1					
Achieve Department	Mattinia	Exel Date	Necced Name	Contents	Deb Loated
👔 🔒 💼 sifec sheet	301760019		#138-101.44F		20/7ma//9
t up					a Pressay

## 3.6.3.2 New Source Configuration

#### 3.6.3.2.1 Data Collection Sheet

The input form on the two pages is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Aboveground Storage Data Collection Worksheet

	GENERAL INF	ORMATION		
Building Number	Mission/Purp	oose		
Shop Name/Function	Ma	nagement Org	anization	
Coordinates: Latitude:				
UTM: Zone	Easting		Northing 🛛 Feet 🗆 Met	ters
Is this source in any of your permi	ts? 🗆 Yes 🛛 No	D		
If yes, does it have an emission un	it number or other	designation?_		
	EQUIPMENTIN	FORMATION		
What is the Storage Tank Type?				
Horizontal Fixed F	Roof (HFR)	Exter	nal Floating Roof (EFR)	
Vertical Fixed Roc			ed External Floating Roof (DEF	R)
Internal Floating F	Roof (IFR)			
	Horizontal F	ixed Roof		
Is the tank heated?  Yes				
Diameter			feet	
What is the shell paint cond				
What is the shell color/sha				
White/White		liffuse	□ Gray/Medium	
Aluminum/Specular	□ Gray/Light		Red/Primer	
	Vertical Fi	xed Roof		
Is the tank heated? 🗆 Yes	🗆 No			
Diameter	feet	Height		feet
Max Liquid Height	feet	Average Lic	quid Height	feet
What is the shell paint cond	lition? 🗆 Good	Poor		
What is the shell color/sha				
□ White/White		liffuse	Grav/Medium	
Aluminum/Specular			Red/Primer	
What is the roof paint cond		Poor		
What is the roof color/shad				
White/White	□ Aluminum/[	Diffuse	□ Gray/Medium	
□ Aluminum/Specular			Red/Primer	
What is the roof type?	Dome	🗆 Con	e	
Rad	lius	Slop	e	
		Root	f Height	

# Internal Floating Roof

Di	ameter	feet
What is the internal shell con	dition? 🛛 Light Rus	st 🛛 Dense Rust 🖾 Gunite Lining
What is the shell color/shade	?	
White/White	□ Aluminum/Diff	fuse 🛛 Gray/Medium
Aluminum/Specular	□ Gray/Light	Red/Primer
What is the roof paint conditi	on? 🗆 Good	Poor
What is the roof color/shade	?	
White/White	Aluminum/Dif	fuse 🛛 Gray/Medium
Aluminum/Specular	□ Gray/Light	Red/Primer
Is the roof self-supported?	🗆 Yes	□ No
		# of ColumnsColumn Diameter
What is the Primary Seal?		
What is the Secondary Seal?		
Specify the Deck Type 🛛 🛙	BOLTED 🗆 WEI	.DED
Specify the Deck Constructio	n Code	
□ SHEET □ PANEL (	Deck Seam	DeckSeam Length)

# External Floating Roof & Domed External Floating Roof

Diam	eter	feet		
What is the internal shell conditi	ion? 🛛 Light Rus	t 🛛 Dense	Rust	Gunite Lining
What is the shell color/shade?				
□ White/White □	l Aluminum/Diff	use		Gray/Medium
Aluminum/Specular	l Gray/Light			Red/Primer
What is the paint condition?	Good 🗆	Poor		
What is the roof type? Dou	ible Deck	Pontoon		
What is the tank construction? [	Riveted	Welded		
What is the Primary Seal?				
What is the Secondary Seal?				

#### USAGE INFORMATION

What type of fuel	is stored in this tank?		
What is the tank t Yearly Total		ns) or Tank Turnovers	
Monthly Totals (g	allons)		
January	May		September
February	June		October
March	July		November
April	August		December

#### 3.6.3.2.2 New Source Configuration

Contact the Storage Tank Manager for configuration of a new storage tank in the STAR module of APIMS.

#### 3.6.4 Year-to-Year Maintenance

#### 3.6.4.1 Usage

The throughput for storage tanks will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the usage for this emission source the throughput should be entered in the Tank Usage Log. Navigate to the Tank Usage Log module in APIMS.

Search Storage Tanks Usage Log	
Air Tank ID:	
Mixture Year. (yyyy)	
Vixture ID:	
CAS #:	
Mixture Definition ID:	
	Search
Create Tank Usage Log Record	
1 Tank Mixture	
<u>Tank Speciation Set</u>	

Click the Create Tank Usage Log Record hyperlink.

Air Tank ID:*	1232-R-3U	Verifie
Model #:	U-HFR-999000046846	
Serial #:	U-999000058710	
Mixture ID:*	D2	
<b>Year:*</b> (yyyy)	2016	
Tank Chemical Category:*	PET - PETROLEUM DISTILLATES V	
Contents Designation:*	Single  Multiple	

Enter the **Air Tank ID** or search for the specific tank using the list of values. This will automatically populate the **Model #** and **Serial #** fields.

The **Mixture ID** is a designation used to quickly identify the contents of the tank. The most commonly used Mixture ID values are as follows: D2 for Diesel (No. 2 Fuel Oil), G for Gasoline, J8 for JP-8, JA for Jet A, BD for Bio-Diesel.

The **Year** should be the calendar year for the throughput.

The **Tank Chemical Category** should be entered according to the contents of the tank, which is most commonly a type of fuel. All fuels or refined petroleum stocks such as, gasoline, bio-diesel, diesel, JP-A and JET A are in the **PET – PETROLEUM DISTILLATES** category. The crude oils category should only be used for unrefined petroleum stocks. The organic liquids category should include all other organic compounds and mixtures.

The **Contents Designation** is used to indicate if liquid stored in the tank consists of a single component or a mixture of components. Petroleum distillates and crude oil are **MULTIPLE** component liquids.

Click the **Save** button.

The next tab is the *Mixture* tab. This tab specifies the fuel mixture and the emission speciation to be used.

Tank Usage Info Mixture Mixture Prop	erties Usage
Mixture Definition ID:*	DIESEL (Verified)
Mixture Name:	DIESEL FUEL (NO. 2 FUEL OIL)
Speciation Option:*	FULL - FULL SPECIATION
Speciation Set ID:*	DIESEL-001
Speciation Name:	SUMMARY SPECIATION FOR DIESEL FUEL
	Save Cancel

Select the Mixture Definition ID from the list of values that most closely matches the fuel in the tank. There are ten default fuel mixtures populated in APIMS available for use.

Select the Speciation Option of Full Speciation, Partial Speciation or Vapor Weight Speciation. The Air Force recommends selecting FULL – FULL SPECIATION.

- <u>Full Speciation</u> will provide the emissions for all the chemical components identified in the liquid. <u>Partial Speciation</u> will provide the emissions for only specified chemicals in the liquid.
- <u>Vapor Weight Speciation</u> is only used when the total vapor weight for chemicals is needed in the emissions report.

The Speciation Set ID should be used to identify the specific fuel speciation from the list of values. There are fifteen standard speciation profiles available for use. Below are the most common, with the recommended speciation for each mixture in bold.

Mixture	Mixture Name	Speciation ID	Speciation Name
<b>Definition ID</b>			
DIESEL	DIESEL FUEL	DIESEL-001	SUMMARY SPECIATION FOR DIESEL FUEL
	(NO. 2 FUEL OIL)		
DIESEL	DIESEL FUEL	DIESEL-002	EPA TANKS SPECIATION FOR DIESEL FUEL
	(NO. 2 FUEL OIL)		
GASOLINE	GASOLINE	GASOLINE-001	SUMMARY SPECIATION FOR GASOLINE FUEL
			OIL
GASOLINE	GASOLINE	GASOLINE-002	EPA TANKS SPECIATION FOR GASOLINE
GASOLINE	GASOLINE	GASOLINE-003	EPA TANKS FOR GASOLINE OXYGENATED WITH
			MTBE
GASOLINE	GASOLINE	GASOLINE-004	EPA TANKS SPECIATION FOR GASOLINE
			REFORMULATED WITH MTBE
GASOLINE	GASOLINE	GASOLINE-005	EPA TANKS SPECATIONS FOR GASOLINE
			OXYGENATED WITH ETHANOL
JET A	JET KEROSENE	JETA-001	EPA TANKS SPECIATION FOR JET KEROSENE
	(JET A)		
JP-8	JP-8	JP8-001	SUMMARY SPECIATION FOR JP-8

The next tab is the *Usage* tab.

Tamovérsi Year I	0.196							
en Throughput	392	gallyr						
	Chimbule 7	and the second second						
		HUNDRID MILL						
The usage for the month is cull 4 is	1. Present of the		the miniated it	the unage for 8	te month a served in anno	ned that the lask	a ful and stand	ing laises will be calls
f the usage for the month is cuil it is lier:	amoned that the task is emply [26.4		File raksland if Feb	the usage for 8 [29.6	e moth a zero d'a anar Igalore	ned that the lank Mac	25.3	Ing luises will be calco gallons
	assumed that the task in emply	ent na standing itease w					25.3	
lart.	annumed that the task is emply 26.6 26.3	Giggouité (Giggouité (Dissource)	Feb	29.6	gatore	Max		gallom

There are two ways to track usage using this usage log.

If the throughput is tracked monthly, enter the monthly throughput for each month in gallons in the appropriate field. Once the throughput is saved, the **Net Throughput** and **Turnovers/Year** will be calculated.

If the throughput is tracked annually, enter the total throughput in the **Net Throughput** field. Once the throughput is saved, the **Turnovers/Year** and the monthly throughputs will be calculated.

If the installation is in an area that has a designated ozone season, the throughputs should be entered monthly.

A blank usage field will calculate as if the tank is empty, a zero-usage entry will calculate as if the tank is full and still has breathing losses.

Once a single usage record has been created for a specific tank, if the tank contents and speciation profile have not changed from the previous year the copy  $\widehat{}$  icon can be utilized to create the next year's throughput record. Search for the specific tank, then click the copy  $\widehat{}$  icon next to the most recent year's row.

Sea	rch	Results						0 =
	) este	Tweek Lhange Log Re	1000					
	iedis to içving r	ont morde 1 - 4						
14	diale	ARTINET	754	Matain El CAN or Ma Def ID	Michard Netter	Supplications Carlout	Speciation Sectio	SetThroughout
147.1	1001	1014-2	2018	DE DENHI	DIESEL FLAL (ND 3) FLIEL DA.3	FILL SPECIATION	702581-852	19
14	1	0160	2018	00 Dillises	DIESEE FUELING 3 FUELOKS	FLAL SPECIATION	CHEREL-ROD	10
-		0.1094-2	2014	DE DESEL	DERELFUEL NO 2 FUEL OIL)	PULL SPECIATION	0/6560-000	10
14		1018-2	2012	D-C D-RUBEL	CHEDEL FUEL INC. 2 FUEL CA.)	FULL SPECKTION	DHE SEL. 002	10
	1							· Playous ( Next +

Search for the specific tank, then click the copy  $\widehat{\mathbb{P}}$  icon next to the most recent year's row.

Edit Tank Us	age In	formation	
Your record wa	s copied s	uccessfully.	
Tank Usage Info	Mixture	Mixture Properties	Usage
Air Tank ID:* Model #: Serial #: Mixture ID:* Year:* (yyyy)			1039-2 U-HFR-999000046681 2U-999000058545 D2 2017
Tank Chemical Cat Contents Designat			PET - PETROLEUM DISTILLATES V MULTIPLE Save Cancel

As shown above the values are auto-populated based on the previous year's values for the *Tank Usage Info, Mixture* and *Mixture Properties* tabs. Navigate to the *Usage* tab to enter the current year's throughputs.

#### 3.6.4.2 Emissions Calculation

The emissions calculations for storage tanks are not completed in the Emission Calculation area used by the other source categories, but has its own emissions calculation module. A new calculation for each calendar year needs to be created. Navigate to the Tank Emission Calculation module in APIMS.

Search Tank Calculations		
Emission Calculation Name:		
Calculation Year. (yyyy)		
	Search	
Create Tank Emission Calculation	Jealen	

Click the Create Tank Emission Calculation hyperlink to create a tank emission calculation.

Create Tank Emission Calci	
Emission Calculation Name:	2017 ANNUAL TANK EDRISHORS CALCULATION
Calculation Year:"	2017
Calculation Method:"	APMS calculation method - Uses monthly meteorological data and calculates emissions each month and then perform a sum for annual emission
	EPA method - Uses averages for meteorological data.
	Calculate for selected multiplicative only
	Save Cancel

The **Emission Calculation Name** should be a name that clearly identifies the calculation. For example, specify the year, the facility and the tanks that are included. Specifically, if there are tanks that are reported separately, they should be in a separate calculation. Possible names are:

- 2017 ANNUAL EMISSIONS ALL TANKS
- 2017 GSU TANKS
- 2017 PERMITTED TANKS MONTHLY EMISSIONS

The **Calculation Year** should be the calendar year for the emissions.

The **Calculation Method** should be selected according to your preferences. The APIMS calculation method is the recommended method for annual calculations as it takes into account the specific meteorological data for the specified location, instead of a national average. For monthly calculations, utilize the Calculate for selected monthly only, and then select All.

Next navigate to the *Tanks* tab to specify which tanks should be included in the calculation.

Emission Calculation Na Calculation Method: API	me: 2017 ANNUAL EWISSION: MS	S - ALL TANKS		Calculate	on Year 2017			
California (	Tanka							
Groute Tatk Assignt	next							
Preconts found Displaying records D - 0								
							c	Camata
	Taras Zune Code	Michael D	Model#	Secular No-secular based	Maderground2	WARM	Calculation Final Ionse	Canal

Click the <u>Create Tank Assignment</u> hyperlink to associate a tank.

Search Tanks										
tank Type:	54 80	1004	۲							
Ar Tahé tú	C									
Actual W.	( ·									
Apdei #										
JD8.8TW										
Sevignation:	(I) ABC									
	- CHEART	Clear Search								
leasteds touril		Centoratin								
Reserves Touried	0.000	Cent Seatta								
Save Carcel	Tank Inor Cole	Materia D	Nodel#	Second 2	Underground?	Volume	Calculation Read Access			
Bave Catcel			Nodel I U-1179-200522142214	Anima U HARRADORAZITA	Wednesstand?	Mahana	Concustos Asadices			
Emands found See   Carcel A TATAL STOR # 115-077-0000000-01 # 115-077-0000000-01 # 115-077-000000-01	Taxk Trac Cade	Motors D	and the second sec				Reato			
Baw   Cancel	Tank Tran Colle	Medica (D	U-1079-200000349214	0.464510062253	Ho	2000				
Bave   Cancel 6 0   4 10   4 10   4 10   4 10   4 10   4 10	Text Tree Code In 11 In 12	Metan D 112	U + 678 - 2000000402 (4 U + 678 - 2000000494	0.44483K064253 0.49423006ema	No.	12008 12008	Reats Reaty			
Bave   Catcet   // / / / / / / / / / / / / / / / / /	Tank Toon Code 11711 1478 1979	Metaor D 117 In Ja	U-479-20000040214 U-479-200000049298 U-479-20000048298	0-888380062253 0-888280068038 0-888300085321	No 160 160	52000 1,0000 400004	Reats Reaty Reath			
See   Carcel  6 fitterstille   9 115=errA-0C01000L-41   2 110=errA-0C040-4   4 110=errA-0040-4   4 110=errA-0040-4   4 110=errA-0040-0	Tank Door Calls 1719 1478 1710 1710 1710	Metaxa (2 112 11 10 10 10	U+879-990000349214 U+879-990000349398 U+878-99000034259 U+878-9900004250	U-1000000002253 U-000000000000 U-000000005321 U-000000005223	No No No No	5200 (400) 40204 81205	Ready Ready Ready Ready Ready			
Bare   Catcet 4 (An International 4 115-677-800 (2010) - 21 2 115-677-800 (2010) - 21 2 115-677-800 (2010) 2 115-677-875-07 2 115-677-875-07 2 115-677-875-07 2 115-677-875-07 2 115-677-875-07 2 115-677-875-07 2 115-677-875-07 2 115-677-875-07 2 115-677-800 2 115	Tank Tour Code arts arts arts fri fri fri fri fri fri	Metaor D 117 10 10 10 10 10 10 10 10 10 10 10 10 10	U+876-90000040214 U+878-9000004258 U+878-9000004259 U+878-9800004250 U+878-9800004250 U+878-9800004250	U-99930096253 U-99920066554 U-99930009521 U-99930009522 U-99930096323	No No No No No	0000 1,000 40004 8,0075 8,0075 56600	Reads Reads Reads Reads Reads			

A list of all the tanks that have usage recorded for the specified year will be listed in the results grid. Check the box next to each tank that needs to be associated to the calculation, click **Save**.

If the Calculation Readiness column does not specify "Ready" it means the storage tank record or usage record is missing data needed to complete calculations.

Cres	Ro Tark Assonnent							
	i found g records 1 - 0							
								Catolia
Autors	Ax Task D	Tank Team Code	Madain D	Module	SHM#	UnessatowseT	'KORENO	Cakamiton Beadmins
	135-4-FTH BIOD #362-85	HER.	717	U-HETH HOWKKOPEKITE	0-00000000251	No	12880	Reatly
- 04	339-9-FR MODARA	1179		V HER RECOOLERED	0.00800008934	THE .	12900	Ready
10	717-479-298-01	11	38	U-#11-300000340239	U-04900066321	ii.	402234	Preinty
10	107-AFR-JP0-02	19 C		U-#18-0000000x0008	0.068000060322	Her	0.02570	Really
	107-AFR-478-03	FR		U-ER-99000000081	0-066800006323	No	108332	Ready
	TET-MPR-JPR-DF	198		D PR-90000048082	1/-been0000e.8324	the last	010000	Pearly
100	TET AFT RUPPE OF	41.R.		12-#TR-800000040003	L-000000000325	He	010470	Téatr
1.0	107-AFR-JF8-08	FR.		U-FR-WINDOOMAUUSA	U-94400068330	The last	011800	Ready

The last step is to click the **Calculate** button, this will schedule the calculation run and may take several minutes before results ready. The refresh  $\overset{\circ}{\smile}$  icon can be clicked to update the results of the calculation. Once the calculation is completed for a tank an  $\overset{\otimes}{\leftarrow}$  icon will appear on the left side of the Actions column. To view the emission results for the tank, click the  $\overset{\otimes}{\leftarrow}$  icon. This will open a Tank Emission Results window as shown below which can be reviewed as the final step.

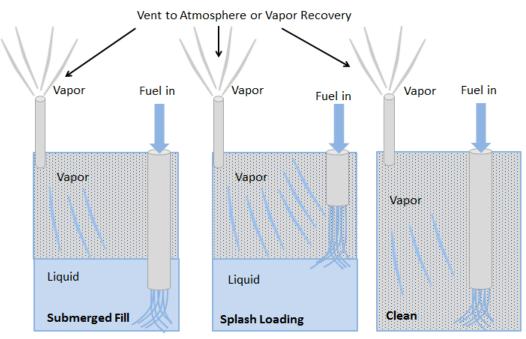
Tank Emissio	on Results													<b>U</b> =
10.11		SSIONS - AI	LL TAN	KS		Motor Net T	roughp	JET KI ut. 1619	EROSEI 124 LL SPE					
7 records found.				ALEM	Islotig ave	reconte	f ka pilumi	N -						
CASNumber	Mixture Name	Jan	Esb	Mar	AU	Max	Jun	Jul	Ave	Set	0ct	Nox	Dec	Total Emission
	VOC.	18	1.9	2	2.4	1.7	2.6	2	2.5	2.4	0	0	2	21
100414	ETHYLBENZENE	0.02	0.02	0.52	0.02	0.02	: 0.02	D.02	0.02	0.02	.0	0.0	D 02	1
	TOLUENE	0.04	0.04	0.85	8.05	0.06	0.07	0.07	0.67	0.07	U.	0	3.04	0.5
106683	HEXANE		0.01	6.01	0.02	0.02	0.02	0.02	0.02	0.02	1	0	0.01	2.1
106633	Colored and Colore		0.02	0.00	0.04	0.04	0.04	0.05	0.05	0.04	n	: 0	0.02	0.3
	XYLENE (MOXED)	0.02	0.04											
110543		0.02	0	U	Ð	Ø	.0	C	Ű.	Ð	- 10	0	0	

## 3.7 Fuel Loading (FLD)

## 3.7.1 Source Types

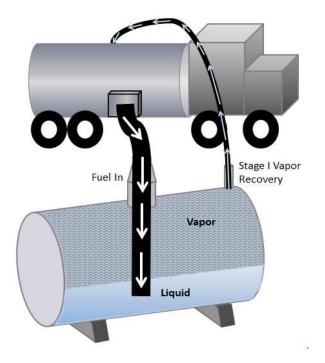
At Air Force installations fuel is transferred from large storage tanks into tanker trucks at fuel loading docks, also known as racks or fills stands. The tanker trucks distribute fuel to aircraft, tanks at fuel dispensing centers, non-road or stationary equipment, or smaller tanks. Fuel transfer activities include the transfer of liquid fuel from bulk storage to outlets such as fuel service stations or smaller tanks and the subsequent dispensing of fuel into aircraft and stationary internal and external combustion engines and non-road engines and equipment.

The primary source of evaporative emissions from fuel transfer is due to vapor displacement during fuel loading. These loading losses occur as the volume occupied by organic vapors in "empty" cargo tanks is supplanted by the liquid fuel loaded into the tank. The organic vapors are formed in the tank headspace through evaporation of residual product from previous loads, vapors transferred to the tank in vapor balance systems as product is being unloaded, and vapors generated in the tank as the new product is being loaded. The loading method used in the fuel transfer process has a significant effect on the amount of vapor emissions generated during the transfer activity. There are two main fuel loading methods: splash loading and submerged loading. The splash loading method involves the lowering of the fill pipe into the tank above the liquid level. The loading of the fuel using the splash method results in significant turbulence, which increases the amount of vapor released into the atmosphere. The submerged pipe method extents the fill pipe below the liquid level almost to the bottom of the storage tank. This minimizes the turbulence greatly reducing the vapor emissions.



As the liquid is poured into the tank, vapor is generated. Additionally as the liquid level goes up the vapor space gets smaller and causes the pressure to increase. This causes the vapor to escape through the fill tube or vent.

Often fuel transfers have controls such as vapor recovery or vapor balance systems utilized to minimize the amount of vapor released to the atmosphere. An example of a vapor balance system is shown below.



Vapor Recovery units can help reduce vapor losses by first capturing the vapors then controlling the captured vapors. Each stage has different control efficiencies, known as the capture efficiency and the control efficiency. The tables below show typical capture and control efficiencies.

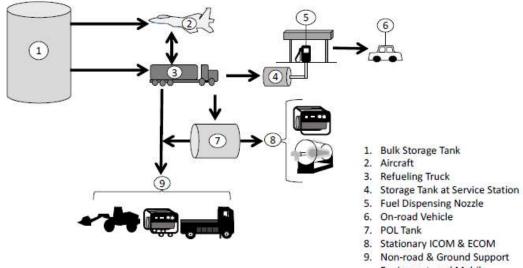
Typical	Capture	Efficien	cies

Fuel Truck Capture System	Capture Efficiency (%)
Untested	70.0
EPA standards (NSPS Subpart XX leak test)	98.7
MACT-level annual leak test	99.2
Trucks with installed blower system	100.0

#### **Typical Control Efficiencies**

Fuel Truck Capture System	Capture Efficiency (%)
Flares – Compounds ≤ 3 Carbon atoms	99.0
Flares – Other Organic Compounds	98.0
Thermal Oxidizers	99.0
Carbon Systems	98.0
Vapor Recovery Units	100.0

It is important to understand how fuel is moved around the base to understand the transactions that are calculated in the AST, UST, FDSP and VEHE source categories versus the FLD source category. The diagram below illustrates the various ways fuel is transferred around a typical base. The following table specifies where each transfer should be tracked and calculated.



Equipment, and Mobile Generators

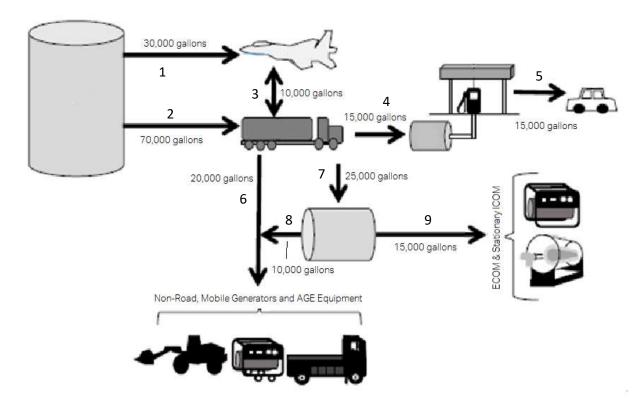
Fuel Source	<b>Fuel Destination</b>	Source	Source	Notes
		Category	Туре	
Bulk Storage Tank	Aircraft	FLD	Mobile	Do not calculate
Bulk Storage Tank	Tanker Truck	FLD	Mobile	Do not calculate
Tanker Truck	Aircraft	FLD	Mobile	Do not calculate
Tanker Truck	Service Station Tank	UST	Stationary	
Service Station Tank	On-Road Vehicle	VEHE and FDSP	Mobile	The vapor displacement emissions created by this are included in the Vehicle Emissions factors, however if regulators specify these need to be accounted for separately as stationary emissions FDSP should be used. Additionally, emissions from fuel that may be spilled is accounted for using FDSP.
Tanker Truck	Storage Tank	AST or UST	Stationary	If the tank is less than 3 ft diameter and 5 ft length, use FLD for breathing and working losses.
Tanker Truck	Equipment (AGE or Non-Road)	FLD	Mobile	Do not calculate
Tanker Truck	Stationary Generators	FLD	Stationary	
Storage Tank	Equipment (AGE or Non-Road)	FLD	Mobile	Do not calculate
Storage Tank	Stationary Generators or Boilers	FLD	Stationary	

## 3.7.2 Potential Data Sources

A number of industrial areas around each installation may maintain storage tanks. The first step in gathering the correct usage data is to understand how the different types of fuel are moved around the base. The simplest method is to sketch out a diagram similar to the one provided in the previous section, but with the specific details of your installation. Often the storage tank throughput will also be the fuel loading usage. The tanker truck throughputs and storage tank throughputs may be able to be obtained from the Storage Tank Manager or from the following shops:

- Fuels Management Flight (LGRF)
- Base Supply Fuels Management Purple HUB database
- Civil Engineering Liquid Fuels
- AAFES Station
- DLA

Often the total amount of fuel that goes from a bulk storage tank to a tanker may be known, but the tanker then distributes the amount around the base with no exact accounting of how much went to each smaller storage tank. In this case, it is best to determine all the storage tanks that use that same fuel and then prorate the usage compared to the size of the tank.



Fuel Loading Usage Records

- 1. Bulk Storage to Aircraft 30,000 gallons
- 2. Bulk Storage to Tanker Truck 70,000 gallons

- 3. Tanker Truck to Aircraft 10,000 gallons
- 4. This is calculated as part of the UST calculation Tanker Truck to Storage Tank 15,000 gallons
- 5. This is calculated as part of the VEHE calculation Storage Tank to Vehicle 15,000 gallons
- 6. Tanker Truck to Mobile Equipment 20,000 gallons
- 7. This is calculated as part of the AST calculation Tanker Truck to Storage Tank 25,000 gallons
- 8. Storage Tank to Mobile Equipment 10,000 gallons
- 9. Storage Tank to ECOM and Stationary ICOM 15,000 gallons

#### 3.7.3 Standard Source Identification/Characterization

#### 3.7.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking **Unique Process** under the **Emission Unit** tab. In the **Source Category** search field, type "FLD" then select the row for Fuel Loading Racks from the dropdown results. Click the Search button.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	FLD
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value v
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both
	Search

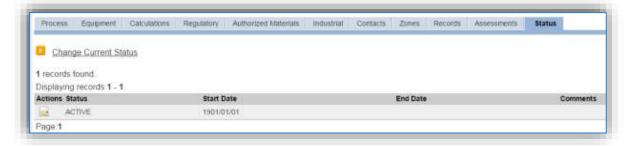
The search results grid will now display all the fuel loading processes currently in APIMS.

	Crea	te Pr	00838						
	icord laymp		nd. mds 1 - 10.						
1	letion		Unique ID Base Specific	Local Process Name	Source Cat Cade	inda.No.	Start Date	End Dain	Status
15		120	041002 P14104	FLD - BLDD 3304 - DIEBEL - AAFES NEW CAPEHART	FLD	3304	1901/01/05		ACTIVE
10	-	10	GAIZDS PM024	FLD - BLDG 1017 - JPE - LOADING AC FROM HYDRANTS	#LD	1017	1001/01/01		ACTIVE
10		11	541710 P0024	FLD - BLDG 419 - JPTS - LOADING REFULER TRUCKS	FLD	418	1981/01/01		PERMANENTLY SHUTDOWN
18	1	130	641711 16005	APRONS - JPTS - LOAD AC FROM REFUELER TRKS	FLD.	APRONS	1901/01/01		ACTINE
15	in.	60	041732 P0024	FLD BLDG 419+JPE-LOAD REFUELER TRUCKS AT RACKS	FLD	410	1901/01/01		ACTIVE
6	-	131	541713 16007	APRONE / JPS - LOAD AC FROM REFUELER TRKS	FLD	APRONS	1901/01/01		ACTIVE
1		13	<u>641714</u> 16001	BLDG 11709 - GADOLINE - WHOR BALANCE TROK LOADING	FLD.	11709	1001/01/01		ACTINE
128		10	<u>541715</u> 10032	BLDG 11709 - DIESEL - TRUCK LOADING	FLD	11709	1901/01/01		ACTIVE
14	-	19	841667 P0012	FLD - BLDD 2499 - DIESEL - ME, BVC STATION	FLD	2499	1981/01/01		ACTIVE
122	122	1291	641070 15008	BLDG 1225 - JPE - AGE GAS STATION	FLD	1226	1901/01/01		ACTIVE

The **Local Process Name**, **Base Specific** and **Bldg No**. can all be used to identify a specific source. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current.

#### 3.7.3.1.1 Status

If the status of a unit needs to be changed, click the edit  $\boxed{2}$  icon next to the process.



Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Process Equipment Calcul	dions Regulatory Authorized Materials Industrial Contacts Zones Records Assessments State
Status:"	INACT - INACTIVE V
Start Date:" /yyy/mm/dd	2016/06/12
	Unit no longer in use.
Comments	
	A
	Save Cancel

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, and/or reasons for the outage.

Click the Save button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.7.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Definition Information Sub-Processes	
Building No. 2	1232
Location 2	BUILDING 1232 POL YARD
Complete Location Name	AIR FORCE BASE \ BUILDING 1232 POL YARD
Office Symbol: 2	(Unvention
Unit/Organization:	
Shop	(Unverified)
Shop Name	
Source Type: 2	AREA 🔻
Permitted Source?2	O Yes ® No
Emission Point:	ATMOSPHERE •
Next Higher Process.	(Unvertied)
Next Higher Process Name:	
EPA Source Class Code.	
EPA Industry Group:	
GHG Scope:	Select Value *
Assessment Barcode:	
Exclude Consumption records from EESOH-MIS Interface?	© Yes ♥ No
Operating Schedule	His/Day, Day(s)/Wk, Wks/Yr
Comments:	
	Save Cancel

The **Building No**. field can be used to specify a general location or area of the emission source.

The **Location** field is very important to effectively manage the location and mission of the emission source. This information will be important for knowing where the source is, in case it needs to be inspected or if the source owner needs to be contact for pertinent information. For the instructions on how to create a location, reference Section 2.2 Location.

Fuel loading operations are categorized as AREA source in the **Source Type**.

The **Emission Point** would be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** field will only be viewable for stationary sources. For stationary sources this should be designated, this source is usually documented on an Annual basis however may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.7.3.1.3 Sub-Processes

This source does not utilize this functionality.

## 3.7.3.1.4 Equipment

This source does not utilize this functionality.

## 3.7.3.1.5 Calculation

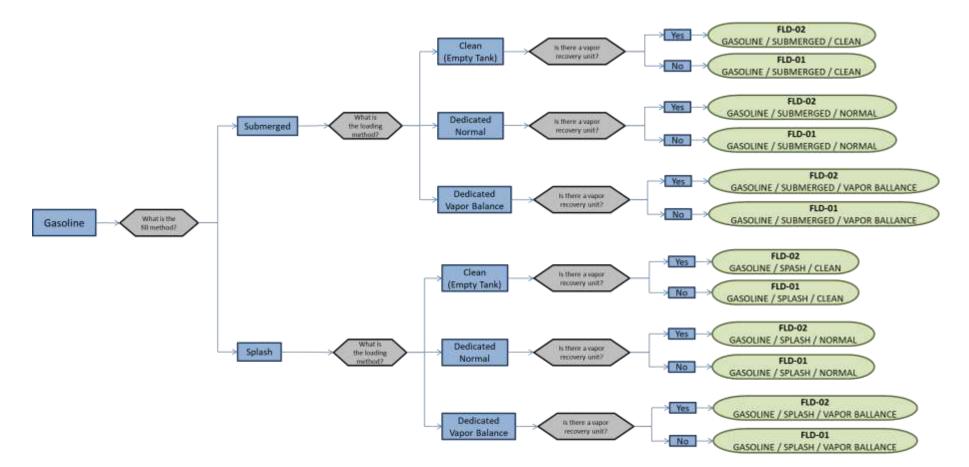
The next tab is the *Calculations* tab.

ocess Algorithm Assig			
Greate Process Algorithm Ar			
records found.			

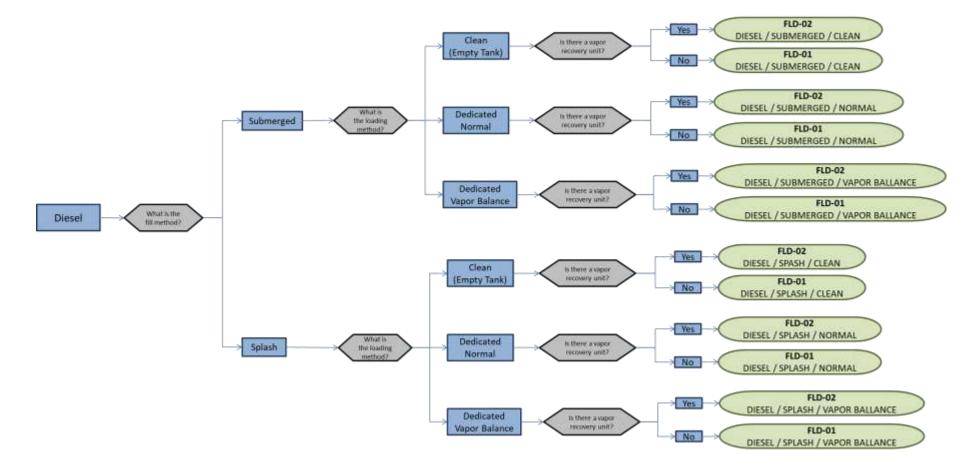
To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Algorithm Code:"	FLD01 (Verified)				
Formula Algorithm Start Date: Algorithm End Date:	(FUEL THROUGHPUT/1000)*(12.46*((EF*VAPORPRESSURE*MOLECULAR/WEIGHT)(FUELTEMPERATURE+4 1501/01/01				
Emission Factor Characteristic."	FUELIMETHOD/CONTROLS				
Emission Factor Criteria:	GASOLINE / SPLASH / VAPOR BALANCE 4464 1901/01/01				
Emission Factor Set ID. Emission Factor Set Start Date:					
Emission Factor Set End Date	19910-101				
Start Date:"	1901/01/01				
End Date: yyymmidd					
	Save & Create Another Save & Finish Cancel				

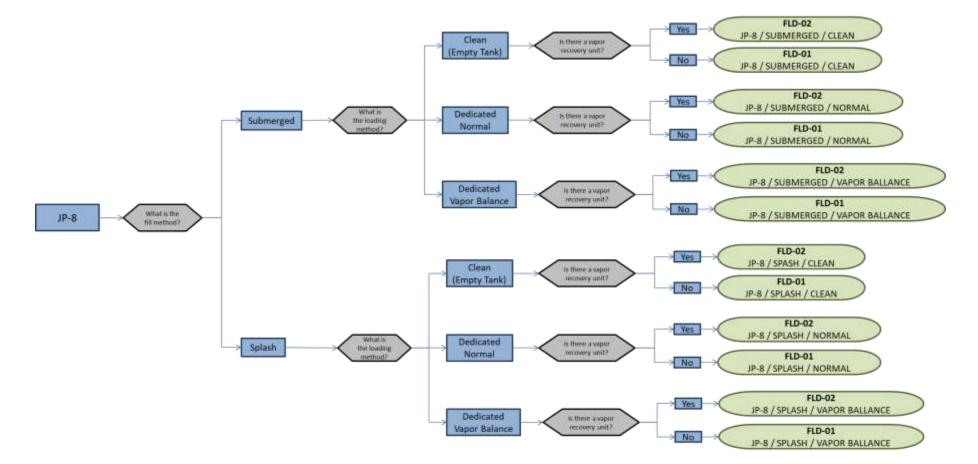
Select the **Algorithm Code** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the Save & Create Another button to associate another algorithm or click Save & Finish button to save and return to the Calculations tab. Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



## APIMS AEI Procedure



## APIMS AEI Procedure



If your permit or regulatory agency requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

The next step on this tab is to enter the Calculation Parameters required to complete the calculations. The algorithms require VAPOR PRESSURE, MOLECULAR WEIGHT and FUEL TEMPERATURE to calculate the emissions. The FUEL TEMPERATURE is input as a calculation parameter.

rocess Algorithe	m Assignment			
Create Process A	Aparithen, Assognment			
conti found.				
Sone Augusterne	n Earnala	Eminator, Factor, Extinctio	NULL DATE	COLUMN
10.1125-01	IFUEL THREE ADDRESS OF TA 48Y KEP SAME REPORTED AND REPORTED AT MERCHANING THREE TRAFFIC RE-450 (4)	GABOLINE / SPLASH / NAPOR BALAVCE	1001/0101	

To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Parameter Name:	FUEL TEMPERATURE		Verified)
Parameter Value:"	62.8	DEGF	
Start Date:" //yy/mm/dd	1901/01/01	-	
End Date: //yy/mm/dd		-	

Select the **Parameter Name**, FUEL TEMPERATURE from the list of values.

Enter the fuel temperature in the **Parameter Value** field. If the fuel temperature is not known, it can be assumed to be about the same as the annual average ambient temperature at the base. If the average annual temperature at the base is not known an assumed value of 68°F can be used.

Enter the **Start Date** for the parameter, this date should match the start date of the algorithm or use 1901/01/01 as a default.

Click the **Save & Finish** button.

#### 3.7.3.1.6 Materials

The last step in setting up the Unique Process record is to the authorized materials on the *Authorized Materials* tab.

Create Authorized Mater	114			
Theate Authorized Mater	Las			
tecords tound				Sa
COLUMN THE REAL PROPERTY AND INC.	CAGE Com	ENI	Waterial Name	Authori Flag
ctions	100000000000000000000000000000000000000			

To authorize a material for the process, click on the <u>Create Authorized Material</u> hyperlink.

Process Equipment Calculations Regulat	y Authorized Materials Industrial Contacts Zones Records Assessment	fs Status
NSN:*	DIESEL FUEL	
CAGE Code	EMC	
PNL	A	
Material Name	DIESEL FUEL (INCLUDES BIODIESEL)	
Authorize?	Yes O No	
	Save & Create Another Save & Finish Cancel	

Select the fuel transferred from the list of values as shown above. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

The fuel material product records that are associated to the process are required to have the MOLECULAR WEIGHT and VAPOR PRESSURE values populated on the *Pollutant Content* tab.

The standard fuel material records already have these values populated. To view the properties, navigate to the Manage Material Product page.

Search Material Product	
NSN:	
CAGE Code:	
PNI:	
Prep Date: yyyy/mm/dd	From: To:
Trade Name:	
Material Name:	
Description of Material:	
ODC Tracked?	O Yes O No ● Both
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Bo
Status	Active Inactive Both
Standard?	◎ Yes ◎ No ● Both
	Search

Type the name of the fuel (DIESEL, GASOLINE or JP-8) in the NSN field and click **Search**.

Search Results						9 =
Crouite Material Product						
1 records licand						
Draptoving records 1 - 1						
Actors 11	CAUS Lints	630	Etsp. Rate	Material Name	Associate and the	MASIA A
at an otherway	ENC.		restation	Desits FUEL INCLUDES BODESELI	744	ACTINE
Fage 1						+ Previous / Next

Click the edit icon to open the record and view the material properties. Click on the *Physical Characteristics* tab to view the VAPOR PRESSURE required for the emissions calculation.

NSN: DIESEL FUEL Prep Date: 1901/01/01		CAGE Code: E Material Name		(INCLU	PNI: DES BIODIESEL)	A
Materials Physical Characteristics	Constituents	Pollutant Content	Material Type			
Specific Gravity (Min)		1				
Specific Gravity (Max).						
Vapor Pressure (Min):		0.0065		UOM	PSI •	
Vapor Pressure (Max)				000	F0I •	
Vapor Pressure Temp:				UOM	-Select Value •	
Bulk Density:				NOU	-Select Value •	Calculate Density
Reid Vapor Pressure (Max)				psia		
Reid Vapor Pressure (Avg):		-		psia		

As shown above the **Vapor Pressure (Min)** field must be populated with the vapor pressure in PSI for the algorithm to accurately calculate emissions. If this value is not populated, find and enter the correct value for the fuel using the table provided below. This table can be found in the AFCEC Stationary Source Guide, Chapter 6, Table 6-2.

	Vapor Molecular			True Va	por Press	ure (psia)		
Petroleum Liquid	Weight (lb/lb-Mol)	40°F	50°F	60°F	70°F	80°F	90°F	100°F
Crude Oil RVP 5(1)	50	1.80	2,30	2,80	3.40	4.00	4.80	5,70
Gas RVP 6	69	1.90	2.37	2.93	3.60	4.38	5.29	6.35
Gas RVP 7	68	2.30	2.90	3.50	4.30	5.20	6.20	7.40
Gas RVP 7.8	68	2.59	3.21	3.94	4.79	5.79	6.96	8.30
Gas RVP 8	68	2.67	3.30	4.04	4.92	5.94	7.13	8.50
Gas RVP 8.3	68	2.79	3.44	4.22	5.13	6.19	7.42	8.83
Gas RVP 9	67	3.06	3.77	4.61	5.59	6.74	8.06	9.58
Gas RVP 10	66	3.40	4.20	5.20	6.20	7.40	8.80	10.50
Gas RVP 11	65	3.87	4.75	5,77	6.96	8.34	9.92	11.74
Gas RVP 11.5	65	4.09	5.00	6.07	7.31	8.75	10.41	12.29
Gas RVP 12	64	4.29	5.24	6.36	7.65	9.15	10.86	12.82
Gas RVP 13	62	4.70	5.70	6.90	8.30	9.90	11.70	13.80
Gas RVP 13.5	62	4.93	6.01	7.26	8.71	10.38	12.29	14.46
Gas RVP 15	60	5.58	6.77	8.16	9.77	11.61	13.71	16.09
Diesel	130	3.10E-03	4.50E-03	6.50E-03	9.00E-03	1.20E-02	1.60E-02	2.20E-02
JP-8/Jet A <sup>(2)</sup>	130	1.58E-02	2.19E-02	3.01E-02	4.08E-02	5.48E-02	7.27E-02	9.54E-02

Usually the True Vapor Pressure at 60°F is the value used.

Next to view the MOLECULAR WEIGHT, click on the *Pollutant Content* tab.

Pollutant Content			
NSN DIESEL FUEL Prop Date: 1901/01/01	CACE Code ENC FNE A Idated Name DESEL FUEL (INCLUDES BIDDIESEL)	Blandad? Yes	
Nakran Prova Chaurantins C	India ana Pakilani Canani Malana Tyan		
Greate Pullutant Content			
records found			
records found hisplaying records 1 - 3 Actions: Control Records	Descretion	Content Amount Content 00M	Bufferenze.
records found. Inplaying records 1 - 3 Actives: (#1111118-11-14 art or HEAT			
records found. Inplaying records 1 - 3 Actives: (#1111118-11-14 art or HEAT	Description	Content Amount Content UGM	Belleten te
Create Pututeni Cunteri Income found Dispanya recrete 1 - 3 Antonio Creation III Antonio Creation III Antonio Creation Antonio Creatio Antonio	Description Invited in the second part	EdistwittAtvisuid Content DOM 137.8 sault/COMD4L	Bufferenze.

As shown, the VAPOR MOLECULAR WEIGHT (LB/LB-MOLE) is entered as a Pollutant Content. This value can also be found in the AFCEC Stationary Source Guide, Chapter 6, Table 6-2 as provided above. To add this value, click on the <u>Create Pollutant Content</u> hyperlink.

NSN: DIESEL FUEL	CAGE Code: EMC PNI: A
Prep Date: <b>1901/01/01</b>	Material Name: DIESEL FUEL (INCLUDES BIODIESEL)
Materials <u>Physical Characteristics</u> Const	uents Pollutant Content Material Type
Content Type:*	MOLE WT
Description:	VAPOR MOLECULAR WEIGHT (LB/LB-MOLE)
Content Amount:	130
Content UOM:	LBS/LBMOL - POUNDS PER POUND MOLE
	AFCEC Stationary Source Guide, Table 6-2, Diesel
Reference:	

Select VAPOR MOLECULAR WEIGHT (LB/LB-MOLE) from the **Content Type** list of values.

Enter the **Content Amount** according to Table 6-2, select LBS/LBMOL from the **Content UOM** field.

It is a good practice to populate the **Reference** field to accurately track the data source for reporting or compliance.

Click Save.

#### 3.7.3.2 New Sources

#### 3.7.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Fuel Transfer Data Collection Worksheet

	GENER	AL INFO	RMA <sup>.</sup>	τιοι	N
Building Number	Missio	n/Purpo	se		
Shop Name/Function					
Coordinates: Latitude:					
UTM: Zone					
Is this source in any of your permits?					
If yes, does it have an emission unit nur	nber or	other de	esigna	atior	n?
E	QUIPM		ORM	ΑΤΙΟ	DN
Is there a vapor recovery unit? If yes, what is the capture efficiency?	ency?_				
What type of capture system is used? Untested – 70% EPA standards – 98.7%				-	T-level annual leak test – 99.2% ks with installed blower system – 100.0
<ul> <li>What type of control system is used?</li> <li>□ Flares – Compounds ≤ 3 Carbon a</li> <li>□ Flares – Other Organic Compounds</li> </ul>					Thermal Oxidizers – 99.0% Carbon Systems – 98.0% Vapor Recovery Units – 100.0%
Does the destination tank have a vapor	balance	e system	? 🗆	Yes	□ No
<ul> <li>What type of loading is happening?</li> <li>Submerged Fill</li> <li>Splash Loading</li> <li>Clean (Empty)</li> </ul>					
	USAG	E INFOR	MAT	ON	
What is the fuel being transferred?		Diesel			□ JP-8
Where is the fuel coming from?		Diesei		oro i	is the fuel going to?
Bulk Storage			VVII		Aircraft
Tanker Truck					Tanker Truck
□ Storage Tank					Mobile Equipment
					Stationary ICOM and ECOM Equipment
What is the annual amount of fuel trans	ferred	in gallon	ıs?		

#### 3.7.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of fuel transfer.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL V	
Process Type:*	FUELS	Verified
Process Name:*	FUEL/DEFUEL AIRCRAFT	Verified
Base Specific:		
ocal Process Name:*	TANKER TRUCK TO AIRCRAFT - JP-8	
Start Date:* /yyy/mm/dd	1901/01/01	
Facility:*	AIR FORCE BASE	Verified
Mobile Source?*	Yes ONO	
Source Category:Σ	FLD (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	FUELS	DISPENSE/LOAD, POUR	IFU1353
INDUSTRIAL	FUELS	DISPENSE/LOAD, PUMP/NOZZLE	IFU1354
INDUSTRIAL	FUELS	DISPENSE/LOAD, RACK/ARM	IFU1355
INDUSTRIAL	FUELS	FUEL/DEFUEL AIRCRAFT	IFU1496
INDUSTRIAL	FUELS	FUELING/DEFUELING, NON-AIRCRAFT	IFU1498

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify the fuel source, fuel destination and fuel type and any other unique attribute. For example, BULK STORAGE TO TANKER TRUCK – DIESEL.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** Name should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" for fuel with a stationary source as the fuel destination.

All fuel loading processes are assigned to the FLD **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

## 3.7.4 Year-to-Year Maintenance

#### 3.7.4.1 Usage

The consumption for fuel loading sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	IFU1496705109	(Venified)	
Start Date/Time:" ///y/imm/dd.hhmm	2016/01/01 0000		
End Date/Time:" /////inm/dd.hhmm	2016/12/31 2359		
NSN:"	(JP-8	Verified)	
	CAGE Code: EMC PN EESOH Product Detail	II: A Preparation Date: 1901/01/01 ID:	
Amount:"	1150100	GAL-GALLONS	
Validate Consumption?	🖷 Yes 🔍 No		
Part.		(Unverified)	
ssue #			
Comments:			

The consumption record should span the entire reporting period as shown above. The material should be the fuel transferred and the amount should be the amount of fuel transferred in gallons. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different media used.

## 3.7.4.2 Emissions Calculation

To correctly calculate emissions this emission source should be included the **Stationary Source Calculation**. For example, if the fuel is going into a mobile source, the fuel loading process should be mobile, and the emissions are not calculated. If the fuel is going into a stationary source, the fuel loading process should be stationary, and the emissions calculated as part of the Stationary AEI. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.8 Hazardous Material Use (CHEM, LAB, SEAD)

## 3.8.1 Source Types

Hazardous material use includes the use of general chemicals, laboratory chemical, sealants and adhesives. While these are different source categories in APIMS they are all handled in a similar manner so are grouped together in a single chapter. Hazardous material use includes a wide variety of items that are not specifically addressed in any other section of this document. The chemicals that fall into these categories are typically items commercially purchased in small quantities, such as household cleaners, adhesives, or sealants, but may also include lab chemicals. Though most general chemicals are typically exempt from regulatory considerations under federal, state, and local air pollution control agency air quality regulations, these agencies should be consulted prior to excluding the sources comprising this category. These sources are however part of the Air Force Air Emission Inventory.

The primary pollutants of concern for these sources are VOC and organic HAPs due to vapor displacement as the product evaporates. As a result, some organic chemical products, and most inorganic chemical products have extremely low vapor pressures (e.g., <0.1 mmHg), are usually not addressed in an air emissions inventories, and are considered insignificant. Examples include heavy lubricants/oils, greases, hydraulic fluids, glycol deicers, and non-solvent aqueous cleaners.

## 3.8.1.1 Miscellaneous Chemical Use (CHEM)

Any hazardous materials that are not included in any other source category should be included as miscellaneous chemical usage. These materials range from office cleaning supplies to materials used in various industrial shops.

## 3.8.1.2 Laboratory (LAB)

Chemical laboratories are commonly found at Air Force installations and are typically used for analytical, medical, and/or research purposes. A large variety of chemicals are used in these laboratories including solvents, acids/bases, and other various reagents. Typically, air emissions occur as the chemical reagents are used or prepared underneath a fume hood. Some fume hoods vent the air through a filter, which recovers emitted pollutants to allow for their disposal while other fume hoods vent pollutants directly into the atmosphere.

## 3.8.1.3 Sealants and Adhesives (SEAD)

Sealants and adhesives are used to bond two substrates together. They are used in a variety of applications including, but not limited to, the manufacture or repair of aircraft and aircraft parts, engines, HVAC systems, and on-road vehicles. The primary difference between sealants and adhesives is that sealants are more commonly used as a bonding agent between two substrates with different physical properties. This is due to the fact that sealants are not as strong as an adhesive but are more elastic, allow for more flexibility between substrates with different thermal coefficients of expansion. Sealants are often used to seal small openings and are effective in waterproofing processes. In the aerospace industry, sealants are commonly used for sealing fuel tanks, or repairing aircraft airframes or windshields. Sealants may also be exploited for their electrical conductivity or thermal and acoustical insulation properties. There are many types of sealants ranging from relatively high strength resin to low strength waxes and putties such as silicone. Adhesives may be categorized as either reactive or non-reactive. Reactive

adhesives are those that harden through chemical reaction while non-reactive adhesives do not. Reactive adhesives may be either multi-part, which require the mixing of two compounds that chemically react and harden or single-part which harden through chemical reactions with heat, radiation, or moisture. Non-reactive adhesives include solvent based drying adhesives that harden as the solvent evaporates. Segregating sealant and adhesive use from general chemical use is not required at all installations; however, for installations that must comply with the Aerospace NESHAP or other permit regulations it is important. Some sealants and adhesives are considered specialty coatings and thus have specific VOC and HAP content limits as specified in 40 CFR Part 63.745 Table 1.

Emissions from hazardous material use are estimated by using a material mass balance approach. The product of the total volume of the chemical used and the weight percent of the pollutant of interest is taken to calculate the emissions of pollutants.

## 3.8.2 Potential Data Sources

Hazardous materials are typically procured through the Hazardous Materials Management System (EESOH-MIS). There are a few approaches to best handle the information that can be obtained from EESOH-MIS. It is important to work with the Hazardous Materials Management personnel to configure the best approach for the installation.

If separating the laboratory chemicals or sealants and adhesives from general chemical use, it is important to set up the processes in EESOH-MIS to have separate processes for these specific material groups. For instance, all sealants and adhesives used in the shop should be on their own process and not mixed with other general chemicals. All activities that occur in a laboratory or within a particular fume hood should be segregated into their own processes.

## 3.8.2.1 Miscellaneous Chemical Use (CHEM)

General chemical use occurs in all areas of an installation, including office areas and dormitories so no specific shops can be identified. However, the specific shops that may conduct laboratory operations or sealant and adhesive operations are identified below:

## 3.8.2.2 Laboratory (LAB)

Laboratory activities are usually isolated from other industrial operations. Not all installations will have a laboratory; however, some may have an entire portion of the base that is dedicated to research labs. Some common labs are as follows:

- Air Force Research Lab (AFRL)
- Medical Labs (Histopathology, Microbiology, Clinical Pathology, Cytopathology)
- Fuels Management Lab

## 3.8.2.3 Sealants and Adhesives (SEAD)

Sealant and adhesive use usually occurs in industrial settings and of often used in vehicle and aircraft repair. Therefore, the most common shops that use sealants and adhesives are as follows:

- Aircraft Structural Maintenance (MXS)
- Vehicle Maintenance (LGRV)

For all operations that are conducted in a fume hood with a control filter, the control equipment information will need to be collected. The equipment information needed is the control type, and control efficiency. This information should be available from product literature provided by the manufacturer. If this information is not readily available it is recommended that the fume hood is inspected to determine the exact control equipment and contact the manufacturer directly to gather this information.

The material information is also essential to the hazardous chemical emissions calculations. For all usage information that is imported from EESOH-MIS there should also be material records that contain most if not all the required information. For manual logs, the Safety Data Sheets will need to be obtained. Most shops maintain Hazard Communication folders that contain all the Safety Data Sheets for materials used. If the Safety Data Sheets are not available in the shop, most are available on manufacturer websites. All materials will need the following information populated in APIMS.

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content
- Mix Ratio (if the logs specify the total amount of the kit used and not component specific amounts)

The EESOH-MIS interface will populate most of this data, however if the VOC is not readily available on the SDS it may not be entered into EESOH-MIS. Since the EESOH-MIS interface inserts so many material records at one time it is not feasible to review each record for completeness, therefore it is recommended to initially assume the data required is present and run the initial calculations. Once the calculations have been run, there is a tab that will provide error messages that will identify all the records that are missing VOC or ingredient information. Refer to Section 2.7 Emissions Calculations for details on the calculation error messages. For these materials the VOC can be calculated based on the ingredients, which requires a general knowledge of chemistry. If the VOC cannot be obtained from the SDS or the manufacturer the Air Emissions Guide for Air Force Stationary Sources provides estimated values in Table 22-1.

## 3.8.3 Standard Source Identification/Characterization

## 3.8.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab. In the **Source Category** search field, type "CHEM" or "LAB" or "SEAD" then select the row for the source category from the dropdown results. Click the Search button.

Search Process	
Unique ID:	×
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	CHEM CHEM
Building No.	
Facility	
Location	
Shop:	
Zone	
NAICS Code:	
SIC Code	
Status	Select Value •
Permitted Source?	Yes INO Both
Mobile Source?	Yes      No      Unsure      All
Start Date: yyyy/mm/dd	From: To.
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records O APIMS Entered Records O Bot

The search results grid will now display all the miscellaneous chemical, laboratory chemical or sealant and Adhesive material use processes currently in APIMS. To further filter out the EESOH-MIS processes, use the APIMS Entered Records radio button on the Data Source field in the Search criteria. This will then only display the Next Higher Process. A Next Higher Process is a process that has other processes associated to it as child records. These child record processes will have the consumption records, but the Next Higher Process will roll up the consumption and apply the calculation methodology specified for the Next Higher Process. This is a more efficient way of handling multiple processes that can be treated as a single emission source. This is most useful when dealing with processes that are imported from EESOH-MIS where the process segregation is driven by shops and purchasing codes and not emission sources.

-									
•	Creat	e Pn	ocess						
945	econ	ds to	und:						
	aying		ords 1 - 10.	- I mest Browney Many	Source Cat Code	Bidg No.	Start Date	End Date	Status
	×	3	641647 UNP	BASEWIDE MISCELLANEOUS CHEMICAL USAGE	CHEM	BASEWIDE	a personal sector and the	SUNCTORIE.	ACTIV
R	-	di.	30667	DISINFECT UCDS	CHEM	1.5.5.5.5.5.5.5.5.5.5	2016/05/01		ACTIV
		0	20556	PREFIGHTING WITH HALON FIRE EXTINGUISHERS	CHEW		2016/08/25		ACTIV
100	10	10	30654	9 CES EQUIPYARD PCE PLUME REMEDIATION PROJECT	CHEM		2016/07/14		ACTIV
100		0	30648	INSPECT/REPLACE EPOS, AFE COMPONENTS	CHEM		2016/06/01		ACTIV
158	-	1	306AZ	SINGLE USE CARITIDGE REPLACEMENT	CHEM		2016/07/25		ACTIV
64	-		30546	PAINT AIRCREW FLIGHT EQUIPMENT WITH BRUSHROLLER	CHEM		2016/07/21		ACTIV
10	-	1	30545	REPLACE BATTERIES IN AIRCREW FLIGHT EQUIPMENT	CHEM		2016/07/19		ACTIV
100	-	(1)	30544	PERFORM LEAK CHECK ON AIRCREW FLIGHT EQUIPMENT	CHEM		2016/07/18		ACTIV
100	EN.	120	30543	REPAIR ARE WITH ACHESIVE (AEROSOL)	CHEM		2016/07/18		ACTIV

#### 3.8.3.1.1 Status

If the status of a process needs to be changed, click the edit icon next to the process. If this is a process that was entered into APIMS via the EESOH-MIS interface, the process status must be altered in EESOH-MIS.

Proces	is Equipment	Calculations	Regulatory.	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
Chi Chi	ange Current Sta	atus									
1 record	ds found										
Displayi	ing records 1 - 1										
Actions	Status		Start D	ate			End Date			c	omments
2	ACTIVE		1901/0	101							

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	
Start Date:" yyyy/mm/dd	2016/06/12
Comments.	

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.8.3.1.2 Information

For new and existing sources there are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 2	BASEWIDE	
Loc ation Σ	AFB	(Verified)
Complete Eccation Name	AFB	
Office Symbol 2		Unvenfied)
Unit/Organization:		
Shop:	Unverified)	
Shop Name:		
Source Type 2	AREA •	
Permitted Source?2	🐵 Yes 🕷 No	
Emission Point	ATMOSPHERE •	
Usage Interval:	ANNUAL *	
Next Higher Process	(Unverified)	
Next Higher Process Name		
EPA Source Class Code.		
EPA Industry Group		
GHG Scope	Select Value •	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	© Yes ⊛ No	
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr	
Comments:		
	Save Cancel	

The **Building No**. field can be used to specify a general location or area of the emission source. For instance, if this if for multiple areas spread across the installation, specify BASEWIDE.

The **Location** field is very important to effectively manage the location of the emission source. If this is a next higher process for basewide emissions, the Location should just be the base name. If it is a specific laboratory or shop then this information will be important for knowing where the source is, in case it needs to be inspected or the source owner needs to be contact for pertinent information.

Laboratory operations conducted in a fume hood should be designated as POINT in the **Source Type** field. All other operations should be designated as AREA in the **Source Type** field.

The **Emission Point** should be ATMOSPHERE for all operations.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated, this source is usually documented on an ANNUAL basis unless specified differently by a regulatory requirement. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

## 3.8.3.1.3 Sub-Processes

For Next Higher Process configuration, navigate to the *Sub-Processes* sub tab.

and a start	s Equipment Calculat	ions Regulatory Authorized Materials	Industrial Co	ontacts Zone	s Records	Attestent	s Status		
Definition	an Internation Sub-P	rocesses							
	ate Sub-Process Associat	200							
,074 re	cords found								
Displayi	ng records 1 - 10								
Actions	Unique ID Base Specific	Local Process Name		2	ource Cat Code	Bidg No.	Start Date	End Date	Status
18	20888	PE		0	HEM		2013/02/19		ACTIV
	20858 20893	PE FUEL TANK WIRE INSULATION			HEM HEM		2013/02/19 2013/03/26		1999
		010		0			Children and Children		ACTIV
18	20893	FUEL TANK WIRE INSULATION		c e	HEM		2013/03/28		AGTIV
	20893 20882	PUEL TANK WIRE INSULATION METAL POLISH		0 0 0	нем нем		2013/03/28 2013/01/11		ACTIV ACTIV ACTIV ACTIV

This sub tab is used to specify which processes should have their consumption rolled up to this next higher process. This list should only include EESOH-MIS processes that match the next higher process, specific guidance shown below.

Next Higher Process	Sub-Process Criteria
Basewide Chemical Use	<ul> <li>All processes and materials not accounted for in other categories.</li> </ul>
Basewide Sealant and Adhesive Use	Only Sealant and Adhesive materials authorized.
Basewide Laboratory Use	<ul> <li>Only chemicals used in a laboratory setting.</li> </ul>
Laboratory	<ul> <li>Laboratory chemicals used in the laboratory specified in the next higher process.</li> </ul>

To add a process or processes, click the <u>Create Sub-Process Association</u> hyperlink.

inter second	Box Information St	Ib-Processes							
• 5	earch Processes								
	Process:		<u></u>	- ×					
	Status:		Select Value •						
	Source Category:		CHEM	-+ x	Null Source Category				
	Facility:					- x			
Permitted Processes:				Cont	04.223				
			Search Clear Search						
			Search Clear Search						
	ords found Cancel		Search Clear Search						
Save		Local Process N			Source Cat Code	Bidg No.	Start Date	End Date	Statu
Save C	Cancel	NUSCIA CONCISION			Source Cat Code	Bidg No.	Start Date 2012/06/29	End Date	Statu
Save C	Cancel Unique ID Base Specific	NUSCIA CONCISION	IMR Ekeeping Activities		02005/0200002200E	Bidg No.	CONTROL OF	End Date	19901213
Save K K	Cancel Unique ID Base Specific 20817	GENERAL HOUS	ime Excepting activities		CHEM	Bid <u>g No</u> .	2012/06/29	End Date	ACTIN
Save K K K	Cancel Unique ID Base Specific 20892 19282	GENERAL HOUS HOUSE KEEPING	ime Excepting activities		CHEM CHEM	Bid <u>a No</u> .	2012/06/29 2000/04/16	End Date +	ACTIN ACTIN ACTIN
Save K K K	Cancel Unique ID Base Specific 20807 10282 20782	GENERAL HOUS HOUSE KEEPING DENTAL ASSIST:	INTR EXCEPTING ACTIVITIES NG HOUSEKEEPINIG		CHEM CHEM CHEM	Bid <u>a</u> No.	2012/06/29 2000/04/15 2011/03/30	End Date	ACTIV ACTIV ACTIV
Save F F F F F	Cancel Unique ID Base Specific 20807 10282 20782 3203	GENERAL HOUS HOUSE KEEPING DENTAL ASSIST GENERAL SHOP VEHICLE FLUID (	INTR EXCEPTING ACTIVITIES NG HOUSEKEEPINIG	PACKING	CHEM CHEM CHEM CHEM	Bidg No.	2012/06/29 2000/04/15 2011/03/30 1901/01/01	End Date	ACTIN ACTIN ACTIN ACTIN
Save	Cancel Unique ID Base Specific 20807 10282 20782 1203 1203 729 PM06A	GENERAL HOUS HOUSE KEEPING DENTAL ASSIST GENERAL SHOP VEHICLE FLUID (	IDDR EXCEPTING ACTIVITIES NG HOUSEKEEPING TEFILLS STION BEFORE CARGO PARACHUTE I	PACKING .	CHEM CHEM CHEM CHEM	Bidg No.	2012/06/29 2000/04/15 2011/03/30 1901/01/01 1901/01/01	End Date +	ACTIN

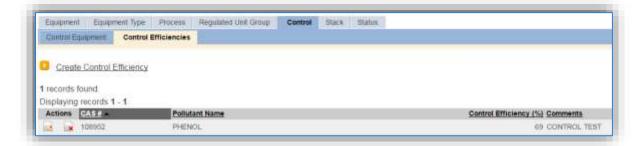
Use the Search Processes fields to refine the search to find only the CHEM, LAB or SEAD processes. Select the checkbox next to the appropriate process(es), then click the **Save** button.

#### 3.8.3.1.4 Equipment

The next tab is the *Equipment* tab.

This is only applicable for laboratory processes that are conducted in a fume hood equipped with an emission control.

In the control tab of the equipment record, the control efficiency for the device needs to be created applicable chemicals. APIMS uses the control efficiency on the equipment associated to the process to accurately calculate emission. To link the equipment to the process the equipment must already be entered in APIMS. Refer to the Equipment section for specifics on how to properly document equipment in APIMS.



To link the equipment, click on the Create Equipment Association hyperlink.

rocess Egupment Calculations Reputa		Inchestisal		s fimiterds	Assessments ;	status	
Create Equipment Association							
cords Tound							
playing records @ - @							
ions Epigment IO	Serial #	Model #	Manual	acturer		Start Date	East Date
	10000		No records lineish				

Search for the **Equipment ID** in the list of values, enter the start date and click the **Save & Finish** button.

Equipment ID:*	B-505A (Venfied)
Senal #	B-505A
Model #	EV-LABHOOD
Manufacturer:	
Description:	VENTILATION, LAB HOOD-LABORATORY HOOD WITH MOVEABLE SLIDING DOOR
Equipment Start Date: yyyy/mm/dd	1901/01/01
Equipment End Date: yyyy/mm/dd	
Start Date:" yyyy/mm/dd	1997/10/10
End Date: yyyy/mm/dd	
Comments	

#### 3.8.3.1.5 Calculations

The next tab is the *Calculations* tab.

Prizess Equipment Calculati	ans Regulatory Authory	ed Materials Industrial Contacts		Atomosterity Statut	
rocess Algorithm Assign					
Create Process Algorithm Ass					
records tound.		Balance Bankar Press		40 m m m	
Actions A Statitum -	Formula	Emission Factor Cinteria No moun	m hund	Start Date	End Outs

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Process Equipment Calculations F	egulatory Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
Algorithm Code:"	CHEM-02		(Verifi	ed)			
Formula:	CONSUMPTION*INGRE	DIENT PCT (	AVERAGE	1			
Algorithm Start Date:	1901/01/01						
Algorithm End Date:							
Emission Factor Characteristic:"	EMISSION TYPE		× (Verifi	ed)			
Emission Factor Criteria.	VOLATILE HAZARDOUS	AIR POLLU	TANTS (HA	PS)			
Emission Factor Set ID	1119						
Emission Factor Set Start Date:	1901/01/01						
Emission Factor Set End Date:							
Start Date:"	1901/01/01	1-)					
End Date: yyyy/mm/dd		P					
	Save & Create Another	Save & Finish	Cancel	ť.			

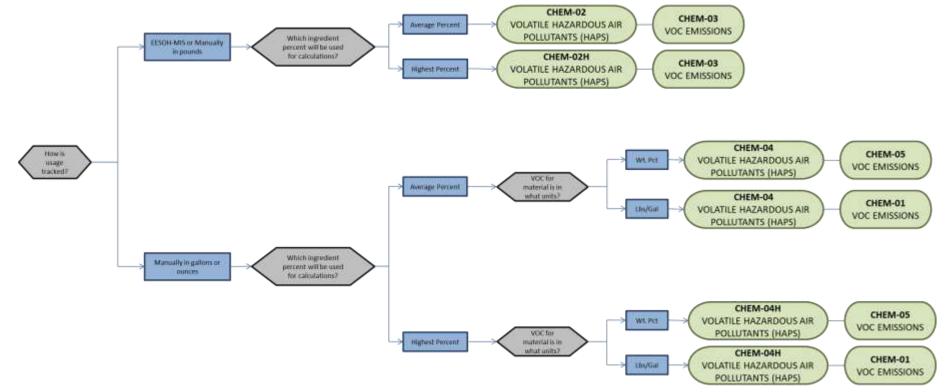
Select the **Algorithm Codes** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Create Another** button to associate another algorithm or click **Save & Finish** button to save and return to the Calculations tab.

Hazardous material emissions are calculated utilizing the material VOC and a mass balance based on ingredients. Therefore, there are TWO ALGORITHMS that need to be associated to each hazardous material use process.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.

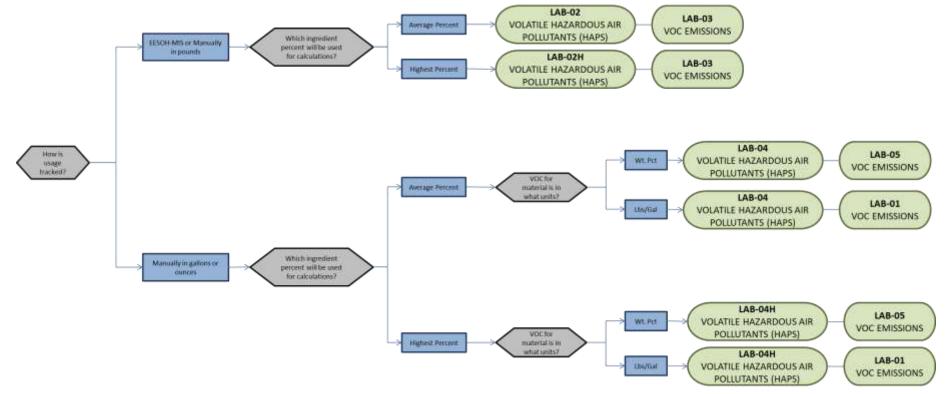
## **APIMS AEI Procedure**

#### 3.8.3.1.5.1 *Miscellaneous Chemical Use*

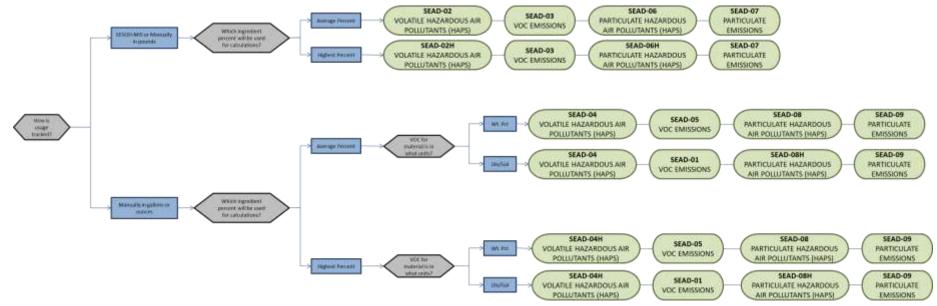


## APIMS AEI Procedure

#### 3.8.3.1.5.2 Laboratory



#### 3.8.3.1.5.3 Sealants and Adhesives



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.8.3.1.6 Materials

The last step in setting up the Unique Process record is to authorize materials on the *Authorized Materials* tab. This step is only required for processes that use manual logs to track usage in APIMS. All processes that use the consumption data from EESOH-MIS are configured at the sub-process level by the interface.

Create Authorized Material			
0 records found			Save
Actions NUM -	CAGE Com	Phi Material Name	Authoriz Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculation	ns Regulatory Authorized Materials Industrial Contacts Zones Records Assessments Status
NSN:"	7930PHM00014780
CAGE Code:	E247*
PNI.	0
Material Name	PROFESSIONAL LYSOL BRAND ALL PURPOSE CLEANER PLUS BLEACH - PROFESSION
Authorize?	🔹 Yes 🔍 No
	Save & Create Another Save & Finish Cancel

Select the material record from the list of values, using the **NSN** (National Stock Number) or **Material Name**. If the material is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish** or **Save & Create Another**. Repeat this step for all materials used by the process.

4 record	s found				10000
Actions	NSH -	CAGE Com	m	Moterial Norte	Savi Authoria Piag
ai.	68=0009698501	00636	0	ISOPROPANOL 99%	
*	La 1000163855151	80025*	8	ISOPROFAMOL	8
		74188	à.	JOY MANUAL POT AND INVIDETERGENT (PROFESSIONAL LINE)	8
	7930/##8800007729	24100	100	and this many second to the second seco	

## 3.8.3.2 New Sources

## 3.8.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

## Hazardous Material Data Collection Worksheet

GENERAL INFORMATION
Building Number Shop Name/Function
Management Organization
GIS Location
Is this source in any of your permits?  Yes No
If yes, does it have an emission unit number or other designation?
USAGE INFORMATION
Are the hazardous materials purchased through EESOH-MIS?  ☐ Yes  ☐ No
If Yes, specify the shop and process designation in EESOH-MIS Shop Code Process Code/Name
If No, do you know the total amount of materials purchased in the last year? $\ \square$ Yes $\ \square$ No
If yes, do you have usage records? 🗆 Yes 🗖 No
If yes, collect the usage records.
If no, ask the shop personnel to estimate how often they purchase hazardous materials, what types and how much purchased each time? (The fields below provide a guideline of information that must be collected for each material.
Material Name
Amount Used 🗆 Lbs 🗖 Gal
Frequency
Do they have Safety Data Sheets for the materials used? $\Box$ Yes $\Box$ No
If yes, collect copies.

If no, collect the name and manufacturer of the product. This can be used to contact the manufacturer to obtain a Safety Data Sheet.

## 3.8.3.2.2 New Source Configuration

In order to properly document these emission sources in APIMS, there will need to be at least one Unique Process record. If the EESOH-MIS processes are configured to have laboratory chemicals and/or sealants and adhesive use segregated into separate processes, a next higher process for each needs to be configured. If the hazardous material processes are not segregated by type then only a single next higher process will need to be configured. For the laboratory chemical activities that occur in fume hoods a process for each fume hood will need to be configured.

## 3.8.3.2.2.1 Miscellaneous Chemical Use (CHEM)

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:"	INDUSTRIAL	
Process Type:"	MISCELLANEOUS OPERATIONS	Verified
Process Name:"	MISCELLANEOUS, MULTIPLE OPERATIONS	Verified
Base Specific:		
Local Process Name:*	BASEWIDE MISCELLANEOUS CHEMICAL USE	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:"	AFB	Verified
Mobile Source?"	Ses Ses Yes Ses Yes Yes Yes Yes Yes Yes Yes Yes Yes Y	
Source Category Σ	CHEM (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	MISCELLANEOUS OPERATIONS	MISCELLANEOUS, MULTIPLE OPERATIONS	IMI1692

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BASEWIDE MISCELLANEOUS CHEMICAL USE.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility Name** should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All hazardous material use activities are assigned to the CHEM Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.8.3.2.2.2 *Laboratory (LAB)*

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:"	INDUSTRIAL,	
Process Type:"	LABORATORY OPERATIONS	(Verified)
Process Name:"	MULTIPLE OPERATIONS	(Verified)
Base Specific:		
Local Process Name:"	BLDG 133 - FUELS MANAGEMENT - LAB	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:"	PETERSON AFB	(Venfied)
Mobile Source?"	O Yes 🖲 No	
Source Category Σ	LAB (Verified)	

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	LABORATORY OPERATIONS	ANALYSIS, BIOLOGICAL	ILO1040
INDUSTRIAL	LABORATORY OPERATIONS	ANALYSIS, CHEMICAL	ILO1041
INDUSTRIAL	LABORATORY OPERATIONS	ANALYSIS, ENVIRONMENTAL OR	ILO1042
		OCCUPATIONAL	
INDUSTRIAL	LABORATORY OPERATIONS	DESTRUCTIVE TESTING	ILO1347
INDUSTRIAL	LABORATORY OPERATIONS	DRUG TESTING	ILO1381
INDUSTRIAL	LABORATORY OPERATIONS	LABORATORY OPERATIONS, NOC	ILO1594
INDUSTRIAL	LABORATORY OPERATIONS	MULTIPLE OPERATIONS	ILO1710
INDUSTRIAL	LABORATORY OPERATIONS	PROPULSION LABORATORY	ILO1834
INDUSTRIAL	LABORATORY OPERATIONS	PROTOCOL RESEARCH	ILO1839
INDUSTRIAL	LABORATORY OPERATIONS	RADIATION RESEARCH	ILO1834
INDUSTRIAL	LABORATORY OPERATIONS	RADIOLOGICAL ANAYLISIS	ILO1847
INDUSTRIAL	LABORATORY OPERATIONS	RESEARCH AND DEVELOPMENT	ILO1865

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BASEWIDE LABORATORY CHEMICAL USE for next higher process configuration or BLDG 133 – FUELS MANAGEMENT – LAB for shop specific process configuration.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The Facility Name should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All laboratory material use activities are assigned to the LAB **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.8.3.2.2.3 Sealants and Adhesives (SEAD)

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:"	INDUSTRIAL +	
Process Type:*	ADHERING/BONDING/SEALING	(Verified)
Process Name:"	AEROSPACE NESHAP ADHESIVE USE	(Verified)
Base Specific:		
Local Process Name:"	F-35 ADHESIVE EQUIPMENT PARTS APPLICATION	
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:"	PETERSON AFB	Verified
Mobile Source?"	Yes No	
Source Category 2	(SEAD ) Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	ADHERING/BONDING/SEALING	ADHERING/BONDING/SEALING – AEROSOL	IAB1021
INDUSTRIAL	ADHERING/BONDING/SEALING	ADHERING/BONDING/SEALING – ALL USAGES	IAB1022
INDUSTRIAL	ADHERING/BONDING/SEALING	ADHERING/BONDING/SEALING – BRUSH/DOBBING	IAB1023
INDUSTRIAL	ADHERING/BONDING/SEALING	ADHERING/BONDING/SEALING - GUN	IAB1024
INDUSTRIAL	ADHERING/BONDING/SEALING	ADHERING/BONDING/SEALING – HAND TOOL	IAB1025
INDUSTRIAL	ADHERING/BONDING/SEALING	ADHERING/BONDING/SEALING – HAND WIPE	IAB1026
INDUSTRIAL	ADHERING/BONDING/SEALING	ADHERING/BONDING/SEALING – SQUEEZE TUBE	IAB1027
INDUSTRIAL	ADHERING/BONDING/SEALING	AEROSPACE NESHAP ADHESIVE USE	IAB2160
INDUSTRIAL	ADHERING/BONDING/SEALING	AEROSPACE NESHAP SEALING/DESEALING OPERATIONS	IAB2161

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BASEWIDE SEALANT AND ADHESIVE USE for next higher process configuration or F-35 ADHESIVE EQUIPMENT PARTS APPLICATION for shop specific configuration.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility Name** should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All sealant and adhesive material use activities are assigned to the SEAD **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.8.4 Year-to-Year Maintenance

#### 3.8.4.1 Usage

The consumption for miscellaneous chemical use will need to be tracked annually or more frequently if required by a regulatory agency. The most common method is to use the usage data that is imported from the EESOH-MIS interface. This approach is outlined in the Next Higher Process section below. However, if using manual logs to document the chemical usage, refer to the next section to correctly document the usage for this emission source.

#### 3.8.4.1.1 Shop Specific Process

The consumption for miscellaneous chemical use will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

HJ158220145-	(Venfied)	
2016/01/01 0000		
2016/12/31 2359		
8520007823509	(Verified)	
	전 것 같은 것 같이 많이 많이 많이 같이 같이 같이 같이 같이 같이 같이 많이	
20	GAL-GALLONS	
🛎 Yes 🔍 No		
(	(Unverified)	
	2016/01/01 0000 2016/12/31 2359 (8520007823509 CAGE Code: 02905 PNI: EESOH Product Detail ID: 20	2016/01/01 0000         2016/12/31 2359         8520007823509         CAGE Code: 02905         PNI: 0         Preparation Date: 2015/02/12         EESOH Product Detail ID: 99000319959         20         (GAL - GALLONS

The consumption record should span the entire reporting period as shown above. The **Amount** should be recorded in gallons or pounds depending upon the algorithm selected. Make sure to select "Yes" to **Validate Consumption**. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different materials used during the reporting period.

## 3.8.4.1.2 Next Higher Process

For the Next Higher Process configuration, the consumption is already imported from the EESOH-MIS interface, however it is not validated. The consumption must be validated in the Consumption log.

For the Next Higher Process configuration, the consumption is imported from the EESOH-MIS interface during each interface run, however it is not validated. The consumption must be validated in the Consumption log.

Manage Consumpt	ion
At least one search criterion in a Search Consumption	ddition to View and Data Source is required to perform a search.
Process ID:	
Usage Timeframe: yyyy/mm/dd hhmm	From: To:
Year: УУУУУ	2016
Building:	
Source Category:	CHEM X
NSN:	
APIMS Facility:	
Shop:	
Issue #.	
View:	Validated Records Unvalidated Records Solution
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both
	Search Clear Search

Use the search criteria to narrow the search results. It is suggested to use the Source Category, Data Source and Year or Usage Timeframe to filter the results.

Global Filte			Clear Filter						
CVICTOR'S			100000 1000						
- 100.50	e Consumption								
Contraction of	1,000 of 1,000 records found we		The state of the state of the				8.00 T (8		2.00
Actions	Local Process Name	Start Date/Time	End Date/Time	Material Name	Amount	Amount UOM	losue#	Validate	* 1
12.18	GENERAL HOUSE KEEPING	2016/05/30 2241	2016/06/30 2241	PERFECT	2.4775	LBS	2201299		
12 10	GENERAL HOUSE KEEPING	2016/06/30 2241	2016/06/30 2241	PERFECT	2.4775	LBS	2201277		ж
10.00	GENERAL HOUSE KEEPING	2016/06/30 2241	2016/06/30 2241	PERFECT	2.4775	185	2201288		*
-	GENERAL HOUSE KEEPING	2016/06/50 2241	2016/06/30 2241	RTP GLASS & SURFACE CLEANER	1.8777	LBS	2261716		×
10.00	GENERIAL HOUSE KEEPING	2016/06/30 2241	2016/06/30 2241	RTP OLASS & SURFACE CLEANER	1.8777	185	2261717		*
12.00	GENERAL HOUSE KEEPING	2010/06/30 2241	2016/06/30 2241	SHAMROCKS PINK LOTION HAND/DISH D	0.6291	LOS	2279029		*
1212	GENERAL HOUSE KEEPING	2016/05/30 2241	2016/06/30 2241	PERFECT	2.4775	485	2201271		
10.00	GENERAL HOUSE KEEPING	2016/06/30 2241	2016/06/30 2241	SHAMROCKS PINK LOTION HAND/DISH D	0.6291	LBS	2270028		×
12.00	GENERAL HOUSE KEEPING	2010/05/30 2240	2016/06/30 2240	SHAMROCK KITCHEN DEGREASER	8.5123	185	2261735		2
	GENERAL HOUSE KEEPING	2010/05/30 2240	2016/06/30 2240	SHAMROCK RINSE AID	8.5958	LBS	2268310		
1	GENERAL HOUSE KEEPING	2016/05/30 2240	2016/06/30 2240	SHAMROCK RINSE AID	0.5968	LBS	2268314		8
11 18	GENERAL HOUSE KEEPING	2016/06/30 2243	2016/06/30 2240	SHAMROCK KITCHEN DEGREASER	8 5123	1.85	2201736		8
	GENERAL HOUSE KEEPING	2016/06/30 2240	2016/06/30 2240	SHAMROCK KITCHEN DEGREASER	8.5123	LBS	2261737		8
12 18	GENERAL HOUSE KEEPING	2018/05/00 2240	2016/06/30 2240	SHAMROCK RINSE AID	8.5958	LBS	2288315		8
1212	CLEANING FACILITY/HOUS	2016/01/14 1512	2016/01/14 1512	WINDEX ORIGINAL GLASS CLEANER WIT	2.0801	LBS	2272189		

Check the checkbox next to each material then click **Save** to validate the consumption. Only consumption that is validated will be included in emissions calculations. The simplest use case for validating rows is to

start by checking the top box in the grid to validate all rows present. After all boxes are checked, click **Save**.

Some general chemical processes that include materials such as heavy lubricants/oils, greases, hydraulic fluids, glycol deicers, and non-solvent aqueous cleaners. These products do not emit pollutants due to how they are used. For example, brake fluid and motor oil are poured into closed systems and are not exposed to the air, eliminating the possibility of evaporation/emission to the atmosphere. The Global Filter capability can be used to identify rows of these products (e.g., antifreeze, brake fluid, engine oils, hydraulic fluids etc.). Once the rows are identified, uncheck the box to not validate these rows, to ensure they are not included in the emissions calculations.

## 3.8.4.2 Emissions Calculation

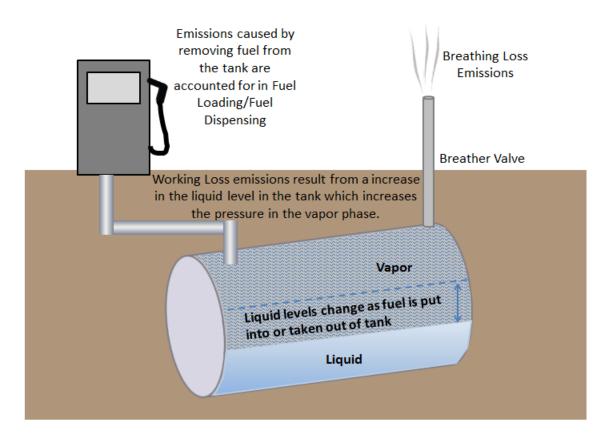
If the process utilizes EESOH-MIS data then it should be included in the **EESOH-MIS Calculation**, otherwise this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.9 Underground Storage Tanks (UST)

## 3.9.1 Source Types

Storage tanks can be found on almost all Air Force installations and are used for the storage of materials, including fuels such as JP-8, Jet A, automotive gasoline (MOGAS) and diesel, asphalt, or solvents. The storage tanks may contain anywhere from a few hundred to over a million gallons of material. underground storage tanks are defined as a tank or piping system that has 10% or more of its combined volume underground. In general, there are several types of storage tanks, such as horizontal fixed roof, internal floating roof, external floating roof, vertical fixed roof, and domed external fixed roof. However, all underground storage tanks are horizontal fixed roof tanks.

Emissions from storage tanks are generated as the vapor escapes from the higher-pressure environment inside the tank to the lower pressure of the outside atmosphere. The compounds generally stored are composed of VOCs and HAPs which are released to the atmosphere as the liquid evaporates and the vapor escapes or is vented to regulate the pressure inside the tank.



Fixed roof tanks have breather valves that open in order to equalize the pressure when an imbalance occurs due to the changes in temperature. As the outside temperature increases, the inside temperature increases, and the vapor expands causing an increase in pressure. As the pressure increases vapor is released to keep the tank pressure at equilibrium with the atmospheric pressure. This is known as breathing loss or storage loss. Working losses are those emissions that result from the filling of the storage tanks. As the liquid level increases it causes an increase in the pressure in the vapor phase which creates

an imbalance in the tank pressure and the atmospheric pressure. The breather valve is then opened to relieve the built-up pressure and bring the tank back to equilibrium.

## 3.9.2 Potential Data Sources

A number of industrial areas around each installation may maintain storage tanks. Each installation has a Storage Tanks Manager; this may be their only duty or may be combined with Water Quality or Air Quality. The Air Force Storage Tank Accounting and Reporting (STAR) system should be configured with all the tanks located on the installation. STAR is a module within APIMS thus enabling the Air Quality Manager to view all the tanks and their specific properties, such as tank type, capacity, and location. However, Air Quality has additional data requirements regarding storage tanks such as dimensions and shell characteristics so some data collection may be required. These additional data requirements may be available from the Storage Tank Manager or from the following shops:

- Fuels Management Flight (LGRF)
- Base Supply Fuels Management
- Civil Engineer Liquid Fuels
- AAFES Station
- DLA

For Air Quality purposes the emissions from tanks smaller than 200 gallons are considered too insignificant to account for. Therefore, only tanks with a capacity of greater than 200 gallons should be configured for emissions calculations.

## 3.9.3 Standard Source Identification/Characterization

## 3.9.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Storage Tank module of APIMS by clicking **Storage Tank** under the **Tanks** tab. Use any of the Search criteria to narrow the search to a specific tank or group of tanks. To view just the underground tanks, select the Underground radio button and click the Search button.

Manage Storage Tank		
Search Storage Tank		
Tank Type:	Select Value 🔻	
Tank ID:		
Air Tank ID:		
Real Property ID:		
Content:		<b>- ×</b>
Location:		×
Status:	Select Value 🔻	
Volume:	gallons	
Designation:	ABOVEGROUND INDERGROUND Both	
	Search	
Create Tank		
Meteorological Data		
Location		
Batch Process Tank Contacts		
1 Tanks Assessment Dashboard		

The search results grid will now display all the underground storage tanks currently in APIMS.

Sea	rct	h Resul	ts								1
۵.	-	da Tata									
		ts found g records 1	- 20								
		Tankill	Ax Tank ID	Real Property (C)	Task, Tape	Connet	Location	Status	Cernet	USTI	Weberne ign
1	×	11719-2	P9044-2		1171	DETEL FUEL	HUR, 2014/3 11158	IN REMACE		199	20.01
18	iù.	4793-I	P1+12+3		HER .	CHEER FILES	BULDING 3304	PERMIT		Ven	0,0
-	a.	8706-1	KTHH-URT-I		HER	DEIREL FUEL	AULDING STOP	IV-LEFT-YCE		Net.	40.0
1	1	17/6-2	1784-1267-2		11970	DIESEL FUEL	HULDING \$700	PRIODERTY/REE		.789	40.00
2	9	11723-1	P3044-1		1975	GASOLNE	8.4.0965 11728	IN-SERVICE		Net .	10.0
14	i.	342-T	P14DB11		NER	GAROLINE	R.4.DR03363	IN SERVICE.		781	12,0
14		3404	Phillipid		44910	IIIABOLNE.	80(2865.982	PHILEPOINTE		Veb .	12.00
10	i.	M2-8	P14895-3		+++***	BASULNE	TUL11N0 352	PV-5239-TCE		795	(2.5)
14		4793-1	PLATERI		MER.	GASOLINE	RULDING 3304	PV-DEM/SCR		781	(0.0)
12		4799-1	P12154-2		+1510	(3ABOLINE	80.0,0945.3334	NIEWCE		Vei -	10.04
10	G.	1017-5	P9024-1		11770	184	BULDING 3917	INVESTIGE		7988	10,00
10		1017-2	P9024-2		11FTI	194	30.00 DH0 1017	evinant-rich		Yes	50,00
1.4		1817-5	PR04-8		11000	JP-8	BAUN5-1017	IN SERVICE		788	56.0

The **Tank ID** is how the Storage Tank Manager identifies the tank and the **Air Tank ID** is how the Air Quality Manager identifies the tank. The **Tank Type** indicates the type of tank for example; HFR is a horizontal fixed roof tank. Additional information about the tank is shown including the **Content**, **Location**, **Status**, and **Volume**. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current; this will require coordination with the Storage Tank Manager.

### 3.9.3.1.1 Status

If the status of a unit needs to be changed, it must be completed by a person with the Storage Tank Manager role in APIMS. If you have that role, click the edit  $\boxed{2}$  icon next to the tank.

Taxa Congilarup Information Contacto Records Ad			
Berthater Characterites. Suites			
THE COMPANY AND A DECIMAL OF A			
Change Current Status			
records toonil			
Degracying resource 1 - 1			
Actions Matus	Biance Date	Conterns	
M INSERVICE	22/06/022		
Pagert			= Previous ( No

Navigate to the *Status* sub tab. Click the <u>Change Current Status</u> hyperlink.

Anotherine Contemposite. Suites		
itatus-	OUT-OF-SERVICE .	
Ratus Date:" pyykeinidd:	2016/01/01	
	TANK REMOVED	
ometers's.		
	Save Cantas	

Select the appropriate status from the **Status** dropdown (i.e., IN-SERVICE or OUT-OF-SERVICE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

## 3.9.3.1.2 Air – Tank Data

There are basic data elements that are important to track and maintain for new and existing sources, such as the tank dimensions, shell characteristics and breather vent settings. This data can be maintained in the Storage Tank record on the *Air* tab *Tank Data* sub tab.

Identification			
Air Tank ID:*	1232-R-1U		
Facility:*	AIR FORCE B	ASE	Verified)
Dimensions			
Diameter:*	10	feet	
Length:*	29.2	feet	
Is the tank heated?*	🔍 Yes 🖲 No	0	
Breather Vent Settings			
Vacuum Setting:*	-0.03	psig	
Pressure Setting.*	0.03	psig	
Meteorological Data			
City:*	NEAREST CIT	Y ) 🔿 🕶 🗙 (	Verified)
State:	STATE		

The **Air Tank ID** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Facility** should be the facility name that is responsible for the source.

The **Diameter** should be entered as the diameter in feet of the inner tank where the fuel is stored, not the shell diameter.

The **Length** should be the length in feet of the inner tank where the fuel is stored, not the shell length.

Select the correct answer to the **Is the tank heated?** Note that most tanks should be flagged "No" as they are not usually heated.

The **Vacuum Setting** and **Pressure Setting** automatically default to the values used in the EPA Tanks 4.0.9D program. If these settings are known they can be altered to the actual values, otherwise utilize the default values.

The **City** selected should be the closest geographical location provided in the list. This will be used to model the atmospheric temperature used in emissions calculations.

## 3.9.3.1.3 Air – Contents

The Contents sub tab is a read-only tab that shows the Tank Usage history for the tank.

3 records tours			
Displaying reto	mb1-1		
Year	Mastare Name	Ristors E	Threempeting
2016	DESR, FLG, NO 7FLD, OLI	02	
	D855.105LING 27183.00LI	52	10
2016 2016	DERE FUEL ING 2 FUEL OLD	02	- 24

The Year, Mixture Name, Mixture ID, and Throughput can be reviewed.

## 3.9.3.1.4 Records

The *Records* tab can be used to upload any pertinent information about the tank. This can be especially useful to upload tank specifications or repairs that may affect the tank configuration.

County Dansat						
Crisate Record						
records found						
splaying records 0 - 0						
	Start Data	Erst Data	Banard Name	Comments	Zinte L Londwit	

To add a document, click the Create Record hyperlink.

Category:*	SPEC SHEET	Verifie
mage Path:*	Choose File No file chosen	
	Max File Size is 25 MB	
Comments:		
Start Date:* /yyy/mm/dd	2017/04/19	
End Date: /yyy/mm/dd		
Date Loaded: /yyy/mm/dd	2017/04/19	

Select the type of document from the **Category** list of values, most commonly Schematic or Spec Sheet are selected for this type of source.

Choose the file, using the **Choose File** button to open a file browser window. Click the **Save** button.

Create Record					
records Round					
inplaying records 1 - 1					
				Table 1 and	
Achies Delivery	Steril Sale	theil Date	Meccel Nets atta-tor.pat	Contents.	Deta Loaded

To view the document, click the pdf 🔼 icon.

## 3.9.3.2 New Sources

## 3.9.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Underground Storage Data Collection Worksheet

	GENERAL INFORMATI	ON
Building Number	Mission/Purpose	
Shop Name/Function	Managemer	nt Organization
Coordinates: Latitude:	Longi	tude:
UTM: Zone	Easting	Northing 🛛 Feet 🗆 Meters
Is this source in any of your	permits? 🛛 Yes 🛛 No	
If yes, does it have an emiss	ion unit number or other designat	ion?
	EQUIPMENT INFORMA	ΓΙΟΝ
Is the tank heated?	]Yes □ No	
Diameter	feet Length	feet
	USAGE INFORMATIO	N
What type of fuel is stored i	in this tank?	
What is the tank throughpu	t?	
Yearly Total	(gallons) or Tank Tu	rnovers
	Monthly Totals (gallor	ns)
January	May	September
February	June	October
March	July	November
April	August	December

## 3.9.3.2.2 New Source Configuration

Contact the Storage Tank Manager for configuration of a new storage tank in the STAR module of APIMS.

## 3.9.4 Year-to-Year Maintenance

#### 3.9.4.1 Usage

The throughput for storage tanks will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the usage for this emission source the throughput should be entered in the Tank Usage Log. Navigate to the Tank Usage Log module in APIMS.

Search Storage Tanks Usage Log	
Air Tank ID:	
Mixture Year. (yyyy)	
Vixture ID:	
CAS #:	
Mixture Definition ID:	
	Search
Create Tank Usage Log Record	
1 Tank Mixture	
<u>Tank Speciation Set</u>	

Click the Create Tank Usage Log Record hyperlink.

Air Tank ID:*	1232-R-3U	Verifie
Model #:	U-HFR-999000046846	
Serial #:	U-999000058710	
Mixture ID:*	D2	
<b>Year:*</b> (yyyy)	2016	
Tank Chemical Category:*	PET - PETROLEUM DISTILLATES V	
Contents Designation:*	Single  Multiple	

Enter the **Air Tank ID** or search for the specific tank using the list of values. This will automatically populate the Model # and Serial # fields.

The **Mixture ID** is a designation used to quickly identify the contents of the tank. The most commonly used Mixture ID values are as follows: D2 for Diesel (No. 2 Fuel Oil), G for Gasoline, J8 for JP-8, BD for Bio-Diesel.

The **Year** should be the calendar year for the throughput.

The **Tank Chemical Category** should be entered according to the contents of the tank, which is most commonly fuel. All fuels or refined petroleum stocks such as, gasoline, bio-diesel, diesel, JP-A and JET A are in the **PET – PETROLEUM DISTILLATES** category. The crude oils category should only be used for unrefined petroleum stocks. The organic liquids category should include all other organic compounds and mixtures.

The **Contents Designation** is used to indicate if liquid stored in the tank consists of a single component or a mixture of components. Petroleum distillates and crude oil are **MULTIPLE** component liquids.

Click the **Save** button.

The next tab is the *Mixture* tab. This tab specifies the fuel mixture and the emission speciation to be used.

Mixture Definition ID:*	DIESEL (Verified)
Mixture Name:	DIESEL FUEL (NO. 2 FUEL OIL)
Speciation Option:*	FULL - FULL SPECIATION
Speciation Set ID:*	DIESEL-002 (Verified)
Speciation Name:	EPA TANKS SPECIATION FOR DIESEL FUEL

Select the **Mixture Definition ID** from the list of values that most closely matches the fuel in the tank. There are ten default fuel mixtures populated in APIMS available for use.

Select the **Speciation Option** of Full Speciation, Partial Speciation or Vapor Weight Speciation. The Air Force recommends selecting FULL – FULL SPECIATION.

- FULL SPECIATION will provide the emissions for all the chemical components identified in the liquid. PARTIAL SPECIATION will provide the emissions for only specified chemicals in the liquid.
- VAPOR WEIGHT SPECIATION is only used when the total vapor weight for chemicals is needed in the emissions report.

The **Speciation Set ID** should be used to identify the specific fuel speciation from the list of values. There are fifteen standard speciation profiles available for use. Below are the most common, with the recommended speciation for each mixture in bold.

Mixture	Mixture Name	Speciation ID	Speciation Name
Definition ID DIESEL	DIESEL FUEL	DIESEL-001	SUMMARY SPECIATION FOR DIESEL FUEL
DILGLE	(NO. 2 FUEL OIL)	DIESEE 001	
DIESEL	DIESEL FUEL	DIESEL-002	EPA TANKS SPECIATION FOR DIESEL FUEL
	(NO. 2 FUEL OIL)		
GASOLINE	GASOLINE	GASOLINE-001	SUMMARY SPECIATION FOR GASOLINE FUEL OIL
GASOLINE	GASOLINE	GASOLINE-002	EPA TANKS SPECIATION FOR GASOLINE
GASOLINE	GASOLINE	GASOLINE-003	EPA TANKS FOR GASOLINE OXYGENATED WITH
			MTBE
GASOLINE	GASOLINE	GASOLINE-004	EPA TANKS SPECIATION FOR GASOLINE
			REFORMULATED WITH MTBE
GASOLINE	GASOLINE	GASOLINE-005	EPA TANKS SPECATIONS FOR GASOLINE
			OXYGENATED WITH ETHANOL
JET A	JET KEROSENE	JETA-001	EPA TANKS SPECIATION FOR JET KEROSENE
	(JET A)		
JP-8	JP-8	JP8-001	SUMMARY SPECIATION FOR JP-8

The next tab is the Usage tab.

famoves/Year 1	0.196							
en Throughput	312	gol/yr						
	Company D							
	Chimbute Tr	ND OGR DUT ::						
Title usage for the month in cull 4.4	annumed that the task in empty	ent no standing iteess w	File miniated it	The seage for a	te moth a service and a	ned that Bu have	a ful and span	ing laises will be calls
T the unage for the month is cull it is list:	annumed that the task in empty	end no standing itseen w	Fibe rakslated if Feb	the usage for 8 [29:6	e morth a sero d'a anna I galora		25.3	ing laters withe calco gallors
						ned that the task Mac Junc	25.3	
lart.	26.6 26.3	Gispoue	Feb	29.6	gatore	Max		gallore

There are two ways to track usage using this usage log.

If the throughput is tracked monthly, enter the monthly throughput for each month in gallons in the appropriate field. Once the throughput is saved, the **Net Throughput** and **Turnovers/Year** will be calculated.

If the installation is in an area that has a designated ozone season, the throughput should be entered monthly.

If the throughput is tracked annually, enter the total throughput in the **Net Throughput** field. Once the throughput is saved, the **Turnovers/Year** and the monthly throughputs will be calculated.

Once a single usage record has been created for a specific tank, if the tank contents and speciation profile have not changed from the previous year the copy icon can be utilized to create the next year's

throughput record. Search for the specific tank, then click the copy icon next to the most recent year's row.

Search F	Results						0 🚍
Dente)	lierik Usage Log Re	cord .					
4 records the							
Doubleying re Actions	Alternation	744.4-	Matare El CAN or Marber ID	Mixture Netwo	Susciation Option	Speciation Sector	SetThroughput
10.001	1014-2	2016	DE DEWL	ORDEL FUEL (NO 3) FUEL DR.3	FIGL SPECIATION	101101-012	194
10 10 1	(018-3	2018	00.D4686L	ORIER FUELING 3 FUELORD	FLAL SPECIATION	CHEREL-HOL	14
-	1054-2	2014	or pesei	ORTEL FUEL NO 1 FUEL OLD	PULL SPECIATION	DENEL-MU	10
10 10 0	1018-2	2012	D-C D-80001	CHEDEL FUEL INC. 2 FUEL CA.)	FULL SPECIATION	DKESEL-002	10
							· Previous (Next +

Search for the specific tank, then click the copy icon next to the most recent year's row.

Edit Tank Us	age In	formation		
Your record wa	s copied s	uccessfully.		
Tank Usage Info	Mixture	Mixture Properties	Usage	
Air Tank ID:* Model #: Serial #: Mixture ID:* Year:* (yyyy) Tank Chemical Cat Contents Designat	•		L 2 2 1 1 1 1 1	039-2 I-HFR-999000046681 U-999000058545 02 017 PET - PETROLEUM DISTILLATES V IULTIPLE Save Cancel

As shown above the values are auto-populated based on the previous year's values for the *Tank Usage Info, Mixture* and *Mixture Properties* tabs. Navigate to the *Usage* tab to enter the current year's throughputs.

## 3.9.4.2 Emissions Calculation

The emissions calculations for storage tanks are not completed in the Emission Calculation area used by the other source categories but has a specific emissions calculation module. A new calculation for each calendar year needs to be created. Navigate to the Tank Emission Calculation module in APIMS.

Manage Tank Calculations	
Search Tank Calculations	
Emission Calculation Name:	
Calculation Year. (yyyy)	
Create Tank Emission Calculation	Search

Click the Create Tank Emission Calculation hyperlink to create a tank emission calculation.

Create Tank Emission Calcu	
Emission Calculation Name."	2017 ANNUAL TANK EMISSIONS CALCULATION
Calculation Year:"	2017
Calculation Method:"	<ul> <li>APN/IS calculation method - Uses monthly meteorological data and calculates emissions each month and then performs a sum for annual emission</li> <li>EPA method - Uses averages for meteorological data.</li> </ul>
	Q: Calculate for selected months only.
	Save   Cancel

The **Emission Calculation Name** should be a name that clearly identifies the calculation. For example, specify the year, the facility and the tanks that are included. Specifically, if there are tanks that are reported separately, they should be in a separate calculation. Possible names are:

- 2017 ANNUAL EMISSIONS ALL TANKS
- 2017 GSU TANKS
- 2017 PERMITTED TANKS MONTHLY EMISSIONS

The **Calculation Year** should be the calendar year for the emissions.

The **Calculation Method** should be selected according to your preferences. The APIMS calculation method is the recommended method for annual calculations as it takes into account the specific meteorological data for the specified location, instead of a national average.

For monthly calculations, utilize the Calculate for selected monthly only, and then select All.

٠	Calculate for selected months only	
	Select Months to calculate:	
	🔊 All	
	M January	🖻 July
	Sebruary	M August
	March	R September
	🗷 April	R October
	🖻 May	November
	🗷 June	🖻 December

Next navigate to the *Tanks* tab to specify which tanks should be included in the calculation.

Tanks								2 🛲
Emission Calculation Nar Calculation Method: APII	me 2017 ANNUAL EMISSION MS	S - ALL TANKS		Calorate	w Year 2017			
Callaton Merinande 1	Tanka							
Citude Teth Assigne	true							
- second construction								
Precords found								
Precords found							c	Carala
0 records found Displaying records 0 - 0	Dank Zuzes Code	Matara D	Modele	Second	Materground?	X0.kOs	Calculation Readiness	Carate
0 records found Displaying records 0 - 0		the second se		Second from the second second		XXXXX	Calculation Roadionsa	
Precords found	Dank Zuzes Code	Matara D	Modele	Second			Calculation Roadionsa	Carnali

Click the Create Tank Assignment hyperlink to associate a tank.

Search Tanks							
tank Type:	54 00	Naue					
Ar Také tố	C						
Sector W.	<u></u>						
Model #				a man a sub			
dolarter							
Designation:	(i) ABC	VEGROLING @1	INDEROROUND # Both				
	Genet	Clear Search					
lowards toget	Genet	Clear Search					
	Genet	Clear Searth					
Frestrick found	Tank Syon Code	Minture D	Note 1	Second 2	Underground?	Volume	Calculation Real News
Bave Cancel			Notes U-4770-2000 (2014) 14	Sector 2 U-444550042213	Underlandund T	Voluce	Concuston Real Near
Baye   Cancel	Tank Trace Cade	Mintain D					Reats
Resards found Rover   Catcot & An Text 10 # 115-078-0000000-21	Tank Steer Code	Medico.() 117	U+#79-890000349214	0.444530062253	No	2000	
Instants Speed Bayer, J. Cansel & <u>Constitution</u> & Tats-enn-Accounten # Tats-enn-Accounten # Tats-enn-Accounten # Tats-enn-Accounten	Text Trac Code In 11 In 12	Minister (D) 112 14	U + 678-200000040214 U + 678-2000000494	U 44483K064253 U 49482K064253	No.	1000	Rests Rests
Example Sparel See [Carcel] (ASTANCE 135-erf-ACCECEL-41 (2) 101-erf-ACCECEL-41 (2) 101-erf-ACCECEL-41 (2) 101-erf-ACCECE (3) 101-erf-ACCECECE (3) 101-erf-ACCECECE (4) 101-erf-ACCECECECECE (4) 101-erf-ACCECECECECECECECECECECECECECECECECECEC	Tank Toon Carls 11711 14712 14712	Metaco O 117 11 Jo	U+#79-20050340214 U+#79-200003349388 U+#79-20000048259	0-888380062253 0-888280068038 0-888300085321	No 160 160	52000 10000 400004	Reats Reaty Reath
Instantis Spand Bave [Cancel] Astronomic State # 155-ent-Accounting # 155-ent-Accounting # 157-ent-Accounting # 757-ent-Actourse # 757-ent-	Tank Tour Color 1719 1478 1710 1710 1710	Wetaco. O D2 B J6 J6 J6	U+879-990000040214 U+879-990000040298 U+878-99000040298 U+878-99000040298	U-WEBXXELTS U-WEBXXEETS U-WEBXXEETS U-WEBXXEETS	No. No. No. No.	5200 (400) 40254 81255	Ready Ready Ready Ready
Instatut turdi Bayer   Gancer 4 (MINTER # 115 er 74 000 cm. et # 119 er 74 000 cm. et # 119 er 74 000 cm. et	Tank Inor Colo 179 1678 178 178 178 178	Metaox D 17 18 18 18 18	U+878-90000040214 U+878-90000040204 U+88-99000040204 U+88-9900040204 U+88-9900040204	U-99930064253 U-99920064054 U-999300064321 U-999300061323 U-99930006323	No. 100 100 100 100	1000 1000 40224 812275 812075 566100	Ready Ready Ready Ready Ready

A list of all the tanks that have usage recorded for the specified year will be listed in the results grid. Check the box next to each tank that needs to be associated to the calculation, click **Save**.

If the Calculation Readiness column does not specify "Ready" it means the storage tank record or usage record is missing data needed to complete calculations.

Cres	Ro Tark Assonnent							
	i found g records 1 - 0							
								Calcula
Autouts	Ax Tank D	Tank Tape Code	Madaie D	Module	Second #	Unseratouser	YOUNG	CakaMiten Beadmens
	135-4-FTH-HED \$582-85	453	717-	U-HETE EXPERIENCE AND IA	U-06800008251	No	12800	Reatly
- 04	339-9-FR MODARA	1159		V HER RECOOLERED	0.00800008934	THE .	12900	Ready
10	10-110-110-110	28	38	U-#11-300000340239	U-000000000121	142	402234	Relaty
10	107-AFR-3/9-02	E.		U-#18-000000000008	G-968900068322	He	0.0570	Really
	707-AFR-JP8-03	FR		U-FR-99900000081	0-0668000008323	No	104332	Ready
	TET-MPR-JPR-D4	PR.		D-PR-90000048282	U-beencook2124	No.	010936	Ready
	PET-APR-ING-DE	¥10.		11-#78-00000340003	L-960000000325	He	E15470	Téatr
100	107-AFR-JF8-08	51		U-#18-0000000008	U-944000603300	160	011800	Ready

The last step is to click the **Calculate** button; this will schedule the calculation run and may take several minutes before results are ready. The refresh  $\overset{\circ}{\smile}$  icon can be clicked to update the results of the calculation. Once the calculation is completed for a tank an  $\overset{\otimes}{\frown}$  icon will appear on the left side of the Actions column. To view the emission results for this tank, click the  $\overset{\otimes}{\frown}$  icon. This will open a Tank Emission Results window as shown below.

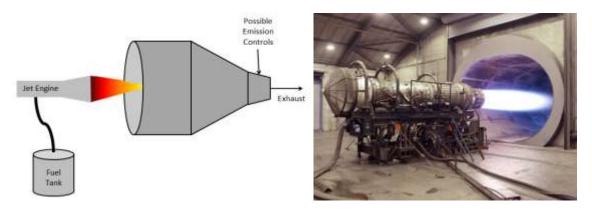
Tank Emissio	on Results													🙂 🚐
10.10		SSIONS - AL	L TAN	(5		Motor Net Tr	roughp	8 JETKI ut. 1619 ton, FUI	124	1963.0				
7 records found.				ALEM	ukstir av	recontes	Circ contactor	M -						
CASNember	Mixture Name	Jan	Esb	Mar	ALL	Max	Jun	Jul	Ass	Sec	0ct	Nox	Dec	Total Emission
	VOC.	1.8	1.9	2	2.4	1.7	2.6	2	2.5	24	0	0	2	21
	ETHYLBENZENE	0.02	0.02	0.52	0.02	0.02	: 0.02	D 02	0.02	0.02	.0	0.0	D 02	0
100414		100.00	0.04	0.95	8.05	0.06	0.07	50.07	0.07	0.07	ū	0	3.04	0.5
100414 106883	TOLUENE	0.04	20.004									1.00	0.01	
106683	TOLUENE HEXANE	0.04	0.01	0.01	0.02	0.02	0.02	0.02	0.02	20.0	10	0	9.91	5.1
106833 110543				0.01	0.02	0.02	0.02	0.02	0.02	0.02	0	0	0.02	0.5
100414 106883 110543 1300207 71432	HEXANE		0.01											0.1 0.1

## 3.10 Aircraft Engine Testing (JET)

## 3.10.1 Source Types

Aircraft engine testing is performed at many Air Force installations on both a routine and as needed basis. Testing is necessary to ensure proper engine operation prior to flight, especially after any maintenance is performed. Testing is usually conducted in an enclosed test cell, though some installations perform limited engine testing on the aircraft or on test stands mounted in the open. If the engine is removed from the aircraft and placed in a test stand during testing the source is considered a stationary source. If the engine is installed on the aircraft during the testing it is considered a mobile source and is not typically required to be reported. However, some regulatory agencies differ on the delineation between stationary and mobile sources. Regardless, only off engine testing is reported with JET as the source category.

The emissions that result from aircraft engine testing are criteria pollutants, HAPs and GHGs due to the combustion of jet fuel. It is possible to have an emission control device, however it is usually not economical, and emissions can be managed by limiting the number of tests conducted.



NESHAPs from engine test cells/stands located at major sources of HAPs are outlined in 40 CFR 63 Subpart PPPPP, National Emission Standards for Hazardous Air Pollutants for Engine Test Cell/Stands.

## 3.10.2 Potential Data Sources

Most aircraft engine testing is conducted according to technical orders that specify the exact engine operation required to adequately test the maintenance prior to operating the engine on an aircraft. These technical orders often specify the modes the engine must run at and the length of time for each mode. Alternately, some aircraft engine testing for newer model aircraft is done electronically, where a computer runs the engine at various modes for various amounts of time. The best method to calculate the emissions from the engine testing is to determine the total number of minutes in each mode for each type of engine test. Once these test profiles are determined, the number of each type of test conducted can be input for the usage data. This data is usually available from the Propulsion Shop.

## 3.10.3 Standard Source Identification/Characterization

#### 3.10.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking **Unique Process** under the **Emission Unit** tab. In the **Source Category** search field, type "JET" then select the row for Jet Engine Testing from the dropdown results. Click the Search button.

Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	UET
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value 🔻
Permitted Source?	
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both

The search results grid will now display all the aircraft engine test processes currently in APIMS.

Jea	ICL	Re	sults						
0 5	liea	e Pro	cess						
1.111		found							
	nying etian	a first of sta	ds 1 - 5	1	Source Cat Code	minter and	Manual Property	End Date	and the second second
			Unique ID Dave Specific	Excel Process Name F 119-PW-100 (F-22) ENGINE TESTING	and the second s	BMg.No.	Statt Date	Louis and	Status ACTIVE
194	1	100	120148 EU 141	A URANG-UR N-121 ENDINE LESTING	107	9549	innininho		
		3	655290	C-130H (156-A-15) OFF-WING ENGINE TESTING	JET	OUTSIDE	2011/01/01		ACTIVE.
140		5	185307 AET-001	F105-220 AND F105-220C ENOINE TEXTING	1ET		1901/01/01	2008/12/01	NACTIVE
	1.8		LOADAN LOT AAA	F100-220 AND F100-220C ENGINE TEETING	1ET		1901/01/01	2009/12/31	NACTIVE
1		<b>a</b>	165508 AET-002	Landware Lane Landware electron and Lane					

The Local Process Name, Base Specific and Bldg No. can all be used to identify a specific source. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current.

### 3.10.3.1.1 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Process Equipment Calculations Regulatory Definition Information Sub-Processes	Authonzed Materialis Industrial Contacts Zones Records Assessments Status
Building March	177704-00
Building No.: 2	JET224-02
Location 2	00224 (Venfied)
Complete Location Name	AFB \ 00224
Office Symbol 2	(Unverified)
Unit/Organization:	
Shop:	(Unverified)
Shop Name:	
Source Type:2	POINT
Permitted Source?2	* Yes 💿 No
Emission Point:	ATMOSPHERE •
Usage Interval:	MONTHLY •
Next Higher Process:	(Unverified)
Next Higher Process Name:	
EPA Source Class Code:	
EPA Industry Group	
GHG Scope:	(1) · · · ·
Assessment Barcode:	
Exclude Consumption records from EESOH-MIS Interface?	© Yes ≝ No
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr
Comments:	
For Jet Usage Log Processes	
Default Fuel	UP-8 (Verified)
Default Usage Log Profile Type:	Hand-Entered •
	Save Cancel

The **Building No**. field can be used to specify a general location or area of the emission source. For instance, Hush House.

The **Location** field is very important to effectively manage the location and mission of the emission source. This information will be important for knowing where the source is, in case it needs to be inspected or if the source owner needs to be contact for pertinent information. For instructions on how to create a location, reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit.

Aircraft engine testing operations are categorized as a POINT source when the engine has been removed from the aircraft and a mobile (MOB) source when the engine is still installed on the aircraft. This should be selected in the **Source Type** field.

The **Emission Point** is ATMOSPHERE for all aircraft engine testing operations.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an Annual basis but may have a different interval if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Code for aircraft engine testing is 20400110.

The **Default Fuel** must be populated to utilize the Jet Engine Testing log in APIMS. The most common types of fuels are JET A and JP-8.

The **Default Usage Log Profile Type** is used to configure the Jet Engine Testing log in APIMS. The options are Hand-Entered, Percent Based and Time-Specific. The Hand-Entered method uses the total time in minutes for each mode. The Percent-Based method utilizes a pre-defined profile that specifies the percent of the total time the engine spent in each mode. The Time-Specific method uses a pre-defined profile of the number of minutes the engine spends in each mode for a single test run, and then specifies the total number of the test runs.

## 3.10.3.1.2 Sub-Processes

This source does not utilize this functionality.

## 3.10.3.1.3 Equipment

The next tab is the *Equipment* tab. This is optional for aircraft engine testing processes. To link the equipment to the process the equipment must already be entered in APIMS.



To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Equipment ID:*	(Verified)
Senal #:	5005
Nodel W:	A/M 37T-9
danufacturer:	IAC
Description	T9 JET ENGINE TEST FACILITY
Equipment Start Date: /yyy/mm/dd	1901/01/01
Equipment End Date; /yyy/mm/dd	
Start Date:" /yyy/mm/dd	1901/01/01
End Date: /yyy/mm/dd	
55.5	
Comments:	

Search for the **Equipment ID** in the list of values, enter the start date and click the **Save & Finish button**.

### 3.10.3.1.4 Calculations

The next tab is the *Calculations* tab.

rocess Algorithm Assignment	1		
Create Process Algorithm Assignme			
records found.			

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

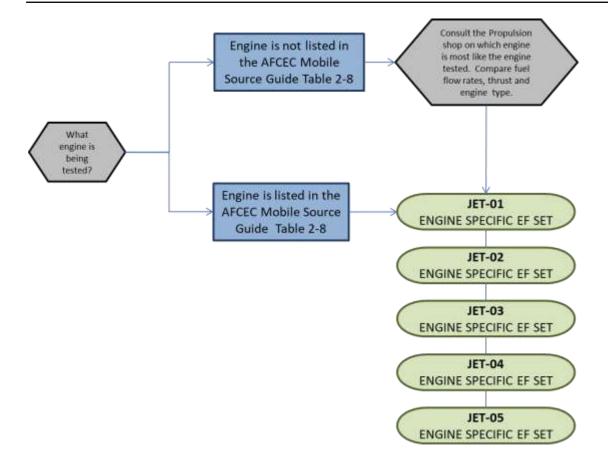
Process Equipment Calculations Regulatory	Authorized Materials Industrial	Contacta Zones Records Assessments 1	Statur
Algorithm Code:"	UET-01	Verified)	
Formula:	EF*(MINUTES IN IDLE/60)		
Algorithm Start Date:	1901/01/01		
Algorithm End Date:			
Emission Factor Characteristic:"	ENGINE / POWER / MODE	Veniled)	
Emission Factor Criteria	F119-PW-100 / 7% / IDLE (T/	AXI)	
Emission Factor Set ID:	1290		
Emission Factor Set Start Date:	1901/01/01		
Emission Factor Set End Date			
Start Date:" yyyy/mm/dd	1901/01/01		
End Date: yyyymmidd			
	Save & Create Another Sa	ive & Finish Cancel	

For aircraft engine testing there is one standard calculation methodology recommended by the Air Force. This calculation methodology utilizes the Jet Engine Test usage module in APIMS. There is a separate algorithm for each engine mode (e.g. idle, intermediate, approach, military, and afterburner). The emission factor sets are engine and mode specific, however if the engine that is tested is not in the list of emission factor sets, the Propulsion shop should be consulted to select a surrogate engine that does appear in the list. The surrogate engine should be a similar type of engine (e.g. turbofan, etc.), it should have similar thrust and fuel flow rates. The thrust settings and fuel flow rates for each mode can be found in the AFCEC Stationary Source Guide Table 4-1 as shown below.

	Power	Percent	Fuel Flow			Emis	ion Factors	(lb/1000lb fu	el)		
Aircraft Engine	Setting	Thrust/hp	Rate (lb/hr)	NOX	SO <sub>X</sub> *	co	VOC	HAPs	PM10	PM2.8	CO <sub>2</sub> e <sup>3</sup>
	Idle (Taxi)	4%	> 0, < 2812	3.76	1.07	22.70	0.37	0.291	10.67	8.75	3214.59
	Approach	31%	> 2812, < 7527	15.49	1.07	0.51	0.05	0.019	5.53	5.10	3214.59
F117-PW-100	Intermediate	68%	> 7527, ≤ 12157	32.72	1.07	0.32	0.04	0.012	2.31	1.42	3214.59
	Takeoff		> 12157	35.04 (S)	1.07	0.32 (S)	0.01 (S)	0.013 (C)	0.06 (S)	0.05 (S)	3214.59

Table 4-1. Aircraft Engine Emission Factors for Aircraft Engine Testing (cont.)

Select the **Algorithm Codes** and the **Emission Factor Characteristics** for the engine or surrogate engine. Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic. Enter the **Start Date** to match the start date of the process.



The SOx factor included in the standard emission factor sets utilizes the national average sulfur content for JP-8.

If your permit requires a different type of calculation, contact the Air Force Air Quality
Subject Matter Expert for approval of the alternative method.

Proces	a Algorithm Ass	gnment		
Cites	de Process Algorithm	Assignment		
Incenti				
	Algorithm	faireab	Eminanto Factor Cottente	Bartform (COLORS -
	30.16	EPTIAMUTER IN ICCENT	Philipieny-ratio/enu/plug.triate	2010/01/01
12.18	-4841-685	ALC DEPENDENT OF PARAMETERS		
	ATT-62	SP (WHILTES W APPROACHINE)	FTHEPW 100/30% LAPPROACH	20130101
1. 1.			FISHWIND, 201, 201, APPRICACH FISHWIND, 201, 201, INTERNEDATE	
11 14	ATT-62	SPININUTES IN APPROACHISE)		20130101

The next step on this tab is to enter the Calculation Parameters required to complete the calculations. The FUEL FLOW RATE is used by the Jet Engine Testing module to calculate the total fuel used for an engine test if the fuel use is not manually entered.

Ginate Process Algorith	t Assignment			
ecords found				
Alterna Alternation	EFININGES IN CLENIC	Emission Factor Eclients F 119-PW 1811/7% - CLE (TAX)	2010/01/01	Detabate
R142	19" MINUTES IN APPROACHED	PHISPATE 1325 / APPROVCH	19130101	
AT 63	BFY/MRO/TED IV INTERNEDATORS)	F118-FW-125/29%/N/TEHMEDIATE	2012/01/01	
	EF-YARAUTED BY MULTARY/001	F HERWHORD TERM (MILITARY	28(36)(0)	
1 an ATT-66	EPTIMAL/TES IN AFTERMUNICATION	F116PW-188/1989/AFTERBURNER	10100101	

To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Parameter Name:	FUEL FLOW RATE	-IDLE		Verified)
Parameter Value:"	1377		LBS/HR	
Start Date:" //yy/mm/dd	1901/01/01			
End Date: /yyy/mm/dd				

Select the **Parameter Name** from the list of values, there will be a different parameter name for each mode.

Enter the fuel flow rate in the **Parameter Value** field. The fuel flow rates can be found in the AFCEC Stationary Source Guide Table 4-1, as shown below.

Table 4-1. Aircraft Engine Emission Factors for Aircraft Engine Testing (cont.)

A Decision of the second	Power	Percent	Fuel Flow			Emis	ion Factors	(lb/1000lb fu	el)		
Aircraft Engine	Setting	Thrust/hp	Rate (lb/hr)	NOX	SO <sub>X</sub> *	co	VOC	HAPs	PM10	<b>PM</b> <sub>2.5</sub>	CO <sub>2</sub> e <sup>3</sup>
	Idle (Taxi)	4%	> 0, < 2812	3.76	1.07	22.70	0.37	0.291	10.67	8.75	3214.59
	Approach	31%	> 2812, < 7527	15.49	1.07	0.51	0.05	0.019	5.53	5.10	3214.59
F117-PW-100	Intermediate	68%	> 7527, ≤ 12157	32.72	1.07	0.32	0.04	0.012	2.31	1.42	3214.5
	Takeoff	. <u>.</u>	> 12157	35.04 (S)	1.07	0.32 (S)	0.01 (S)	0.013 (C)	0.06 (S)	0.05 (S)	3214.59

Enter the **Start Date** for the parameter, this date should match the start date of the algorithm or use 1901/01/01 as a default.

Click the **Save & Create Another** button to add another parameter. Repeat this step until there is a fuel flow rate entered for each engine mode as shown below.

Process Algorithm As Create Process Algorith						
B mecondis, foranzi.						
Actions Automation	fama	Enternation	tor Criteria	Sutling	011.049	
M 18 35741	APTIMINUTED IN SCENED	F110-PVE-100	(TW) IDLE (TWO)	2013/0101		
D-73. a 51	SP1MINUTSS IN APPROACHINE	Fig-Pa-US	CERL/ APPROACH	and the second second		
A 14 AT-0	EF1WWUTEE IN INTERNEDATE IST	F10-P4-08	TIPS / WITERBEITATE	301340181	301340180	
40-T2L M	EPTOMENUTEE BY NEUTARY (80)	#112-Pie-100	FIDENS / MILITARI Y	2012/01/01	2013(01/01	
12 La .47-65	CE-IMMONTED IN ACTERIAL PRETRIES.	210.20.400	1152% / AFTERBURNER	201500.001		
	Assignment					
Calculation Parameter	meter Assessment	Parameter Ville	Parameter UOM	Institute	End Date	
Calculation Parameter	neter Assegnment				End Selo	
Calculation Parameter Create Catifiction Para 8 records found Actess Editoric Comm	renter Rosparrisett Ar tentsumlett	Parameter Velan	Parameter DOM	Institute	Led Date	
Calculation Parameter Create Caluation Para Precords found Access Editoric Commen- ation Precords From Inter-	rate Assurren Artensumen Artensumen	Parameter Vesan sering	Beanwist UDM 1850-97	Ameri Date Tables	Card Doles	
Calculation Parameter Create Catulation Para Records found Actions Constant Action Constant C	nate Assement Artensumen Armouch Gui	Parameter Vesa sonro 1749	Beanster 1009 Latern Latern	Table Links For the rate For the rate	Carl Sole a	

## 3.10.3.1.5 Materials

The last step in setting up the Unique Process record is to add the fuel as the authorized material on the *Authorized Materials* tab.

5
S
Autho Material Name Pla
nd

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
NSN:"	(JP-8			(Verified)			
CAGE Code:	EMC		740 - 746)				
PNL	A						
Material Name	JP-8 (INCLUDES .	JET A)					
Authorize?	🖲 Yes 💿 No						
	Save & Create An	other Sav	ve & Finish	Cancel			

Select the fuel used from the list of values; most aircraft engines use JP-8 or JET A as shown above. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

## 3.10.3.2 New Sources

## 3.10.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Aircraft Engine Test Data Collection Worksheet

	GI	ENERAL INFORMATION		
Building Number	M	lission/Purpose		
				zation
				Northing  Feet  Meters
	of your permits?			
What type of testir				
	-		п	Enclosed (Hush House)
	0			Unenclosed (Runway)
	ι	JSAGE INFORMATION		
What airframes and	d engines are tested? (	e.g. F-22 – F119-PW-100)		
Test Profile Name				
Time in each mode	in minutes			
Idle	Approach _		Inte	ermediate
Military	Afterburne	r		
Total Number of Te	est Conducted			
Total Fuel Used				
Test Profile Name				
Time in each mode	in minutes			
Idle	Approach _		Inte	ermediate
Military	Afterburne	r		
Total Number of Te	est Conducted			
Total Fuel Used				
Test Profile Name				
Time in each mode				
Idle	Approach _		Inte	ermediate
		r		

## 3.10.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of engine tested.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL V	
Process Type:*		Verified
Process Name:*	JET ENGINE TESTING, ALL MODES	Verified
Base Specific:	EU 22	
Local Process Name:*	F-22 (F119-PW-100) OFF WING, BLDG 789 HUSH HOUSE	
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:*	JOINT BASE ELMENDORF-RICHARDSON	Verified
Mobile Source?*	Ves  No	
Source Category: Σ	JET (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	ENGINE TESTING	JET ENGINE TESTING, ALL MODES	IET1584

Use the table above to determine the appropriate **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify the airframe and engine, if it is on or off wing and where it is and any other unique attribute. For example, C-130 (T56-A-15), ON WING, HANGAR 2.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility Name** should be the facility that is responsible for the source.

The **Mobile Source?** flag should be "NO" for all off wing engine testing and "YES" for all on wing engine testing.

All aircraft engine testing processes are assigned to the JET **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

### 3.10.4 Year-to-Year Maintenance

#### 3.10.4.1 Usage

The consumption for aircraft engine testing will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Jet Engine Test log. Navigate to the Jet Engine Testing module in APIMS.

JET Usage Log Search	-		
Process ID:	L		
Start Date/Time From: yyyy/mm/dd hhmm		To:	
End Date/Time From: yyyy/mm/dd hhmm		To:	
View:	Validated Records	Unvalidated Records	Both
	Search		

The preferred method for tracking usage in APIMS is the Time Specific profile type. To use this or the Percent Based method, a profile must be configured. Click the <u>JET Profiles</u> hyperlink. This will display any existing profiles. To create a profile, click the <u>Create JET Profile</u> hyperlink.

JET P	Profiles							0 🚔
60 rectire Oniplayie	Create JET Profile do found represente 1 - 10 EnterNation	Promis No.	Fulls Name	100	Assessed	intermediate	Minex	Allegane
10.10	THE	1	VIER ELEVIEV (F115-PW-100)	-10	47		25	
10.10	194	20	HOCEPTANCE TEST (F110-PH) 1000		(2.4		4.0	
	186	a.1.1	C-1004 (735-#-16) OFF-WIND SND.	100			10	

The existing profiles will be displayed in a grid. To create a new profile, click the <u>Create JET Profile</u> hyperlink.

Profile No."	1					
Profile Namer*	ACCEPTANCE	TEST (F119-PW-100)				
Profile Type:"	· Time Speci	fic (Minutes) 0 Percent	Basis			
Profile Value	idie:	Approach:	intermediate:	Military:	Afterburner:	Profile Sum
Prone value.	10	12.4		4.8	0.3	27.5
Comments						

The **Profile No.** should be a number that can be used to easily identify this particular profile. Any combination of numbers and letters can be used in this field. Examples are to simply designate it with a number in order with the other profiles 1, 2... or to give it a more meaningful identifier such as F-22 AT to indicate the Acceptance Test for the F-22 engines.

The **Profile Name** should match the name given to the test as it is specified in the Technical Order along with the engine. Common test names are Acceptance Test, Vibe Test etc.

The **Profile Type** should be Time Specific if documenting the actual minutes spent in each mode. This is usually for tests that are run for a set amount of time. Percent Basis should be used if the test is run for varying time lengths but with the same percentage of time spent in each mode regardless of the total time.

The **Profile Value** for each mode should be either the minutes spent in each mode or the percent of the total test time spent in each mode, depending upon the **Profile Type** designation. If the engine does not operate in a particular mode during a test, that field can be left blank.

The **Comments** field can be used as a reference back to the Technical Order that provides the guidelines for this particular test or for any other relevant comments.

Click **Save** and return to the Manage Jet Engine Testing screen.

ET Usage Log Search			
rocess ID:	<u></u>	X	
tart Date/Time From: yyy/mm/dd h <mark>h</mark> mm		To:	-
nd Date/Time From: yyy/mm/dd hhmm		To:	
iew:	Validated Records	Unvalidated Records	Both
	Search		

To create a new usage log, click the Create JET Usage Log hyperlink.

Select Process	2 🚍
Process ID:* IET1584170148EU 141	(Verified)
Process ID: IET1584170148EU 141 Status: ACTIVE Default Fuel: JP-8 (INCLUDES JET A)	Fuel Flow Rate-Idle: 1377 Fuel Flow Rate-Approach: 2742 Fuel Flow Rate-Intermediate: 10113
Bulk Density: 6.1 LBS/GAL Default Profile Type: TIME	Fuel Flow Rate-Military: 18625 Fuel Flow Rate-Afterburner: 50170
Hand-Entered	
<ul> <li>Time-Specific</li> <li>Percent-Based</li> </ul>	
	Continue Cancel

Select the **Process ID** from the list of values. Once the Process ID is verified the other fields in the banner will automatically populate.

The **Profile Type** will default to the **Default Profile Type** as set in the Information tab of the Unique Process record.

Once the **Profile Type** is selected, click the **Continue** button.

## 3.10.4.1.1 Time Specific

Profile No: * F-22 AT Profile Name: ACCEPTAN	rtered * Time-Specific © Percent-Based (VerBed) ICE TEST (F119-PW-100) vooch Intermediate Military Afterburner	Fuel Flow Rate-Approach: 2742 Flat Flow Rate-Intermediate: 1011 Foel Flow Rate-Attenburner: 60170 Fuel Flow Rate-Attenburner: 60170
Process End Date           Process Name, F119-PW-100 (F-22) ENGINE TESTING           Profile Type         In Hand-En           Profile No: *         F22 AT           Profile No: *         F22 AT           Profile No: *         F22 AT           Profile Time (Minutes)         Idle Appr           10         12.4	tered * Time-Specific © Percent-Based (Verified) ICE TEST (F119-PW-100) voach Intermediate Military Afterburner	Fuel Flow Rate-Addrary: 18625
Process Name: F119-PW-100 (F-22) ENGINE TESTINO Profile Type Profile No: * F22 AT Profile Name ACCEPTAN Hole Appr 10 12.4	rtered * Time-Specific © Percent-Based (VerBed) ICE TEST (F119-PW-100) vooch Intermediate Military Afterburner	
Profile Type   Profile No: *  Profile No: *  Profile Name  ACCEPTAN  Idle Appr 10 12.4	rtered * Time-Specific © Percent-Based (VerBed) ICE TEST (F119-PW-100) vooch Intermediate Military Afterburner	Fuel Flow Rate-Afterburner: <b>80170</b>
Profile No: *         €22 AT           Profile Name         ACCEPTAN           Profile Time ( Minutes )         Idle Appr 10 124	CE TEST (F119-PW-100) coach Intermediate Military Afterburner	
Profile Name: ACCEPTAN Profile Time ( Minutes ) 10 12.4	ICE TEST (F119-PW-100) loach Intermediate Military Afterburner	
Profile Time (Minutes) 10 12.4	ooch Intermediate Military Afterburner	
Profile Time (Minutes) 10 12.4	그 날씨가 잘 다 가지 않는 것 것 같아요. 한 것 같아요. 말 집에 들어야 한 것 같아요. 같아요. 말 집에 들었다.	
10 12.4	4.8 0.3	
Start Date/Time:		
ywwimm/dd hhmm	8000	
End Date/Time." 2016/12/31	2359	
TISOH #		
# of Tests." 42		
is this installed?" © Yes #		
Fuel: JP-5	Verified)	
Fuel Used I	galons	
	/ ha	
Comments		
Validate Usage Record? @ Yes 0	No	
1997 1997 (1997 1997 1997 1997 1997 1997		

The **Profile Type** will default to the value selected on the previous screen. The fields displayed on the screen will vary depending upon the Profile Type selected.

Select the **Profile No.** that matches the tests to be documented for this process. Once the profile is verified the **Profile Time (Minutes)** will automatically populate as specified in the profile.

Enter the **Start Date/Time** and the **End Date/Time**. This can be for a range of dates or can be set to document a specific test date and time.

Enter the total number of test conducted during the specified timeframe for this type of engine and profile in the **# of Tests** field.

The **Is this Installed?** flag should be set to "No" for off wing testing and "Yes" for on wing testing.

The **Fuel** field will automatically populate to match the Default Fuel as specified on the Information tab of the Unique Process record.

The **Fuel Used** can be specified manually if the exact amount of fuel used during the test is known. Otherwise the fuel used will be calculated using the time in mode along with the fuel flow rate for that mode.

The last step is to set the **Validate Usage Record?** flag. If the consumption is not validated it will not be included in the emissions calculation.

Click the **Save** button.

Your record was saved nuccessfully.		
Process ID: IE 11584170148EU 141 Stanse: ACTIVE Process Start Date: 01/01/1901 Process End Date: Process Name: F119-PW-100 (P-22) EM	Eukting 9549 Defaut Fuet JP-8 (INCLUDES JET A) Buik Density: 6.1 LBS/GAL	Fuel Flow Rate-Ide: 1377 Fuel Flow Rate-Approach: 2742 Fuel Flow Rate-Intermediate: 1013 Fuel Flow Rate-Attentumer: 50170 Fuel Flow Rate-Attentumer: 50170
Profile Type Profile Noc * Profile Name Profile Time ( Minutes )	Time-Specific F-22 AT ACCEPTANCE TEST (F119-PW-100) Idle Approach Intermediate Military Afterburner 10 12.4 4.8 0.3	
Start Date/Time:" yyyyimmidd Himmi Isoue # # of Tests:" Time (Amutes) I: Total Time Is this installed?" Fuel:" Fuel: Used: I:	P016/01/01 0000         P01-           2016/12/31 2359         Image: Point Control of	
Comments. Validate Usage Record?	* Yes O No	

As indicated in the screen the record has been saved successfully. Also, the Fuel Used has now been calculated.

N. A. 460.08	100	a 1 1 1	8	Central Int	2 2	1225 7.4
	nission Unit	nission Unit Usage	nission Unit Usage Calculations	nission Unit Usage Calculations Reports	nission Unit Usage Calculations Reports Compliance	nission Unit Usage Calculations Reports Compliance Data

Use the links on the breadcrumbs line to return to the Search Results page.

#### 3.10.4.1.2 Percent Based

Process ID IET1584170148EU 141	80	siding 9649	Fuel Flow Rate-Idle: 1377
Status: ACTIVE	De	dout Foet JP-8 (INCLUDES JET A)	Fuel Flow Rate-Approach. 2742
Process Start Date: 01/01/1901	Bi	# Density 6.1 LBS/GAL	Fuel Flow Rate-Intermediate: 1011
Process End Date			Fuel Flow Rate-Mittary 18625
Process Name: F119-PW-100 (F-22) E	NGINE TESTING		Fuel Flow Rate-Afterburner, 50170
Profile Type:	Hand-Entered Time-Spe		
Profile No: "	F-22.AT	(Venfied)	
Profile Name:	ACCEPTANCE TEST (F110-P)	W-100)	
Profile Time ( %)	Idle Approach Intermediat	e Military Afterburner	
Prome range ( m )	36 45	18 1	
Start Date/Time:"	2016/01/01 0000	1	
End Date/Time:" www.imeridab.htm	2016/12/31 2359		
Issue #		1	
# of Tests			
Total Time: "	200	Minutes	
is this installed?"	O Yes 🖷 No		
Fuel:"	ાલ્લ	x+ x (Verified)	
Fuel Used I	1	gallons	
Comments			
Validate Usage Recold?	# Yes © No		
	Save Cancel		

The **Profile Type** will default to the value selected on the previous screen. The fields displayed on the screen will vary depending upon the Profile Type selected.

Select the **Profile No.** that matches the tests to be documented for this process. Once the profile is verified the **Profile Time (%)** will automatically populate as specified in the profile.

Enter the **Start Date/Time** and the **End Date/Time**. This can be for a range of dates or can be set to document a specific test date and time.

Enter the total number of tests conducted during the specified timeframe for this type of engine and profile in the **# of Tests** field.

Enter the total number of minutes the engine was run for this type of testing in the **Total Time** field.

The **Is this Installed?** flag should be set to "No" for off wing testing and "Yes" for on wing testing.

The **Fuel** field will automatically populate to match the Default Fuel as specified on the Information tab of the Unique Process record.

The **Fuel Used** can be specified manually if the exact amount of fuel used during the test is known. Otherwise the fuel used will be calculated using the time in mode along with the fuel flow rate for that mode. The last step is to set the **Validate Usage Record?** flag. If the consumption is not validated it will not be included in the emissions calculation.

Click the **Save** button. The screen will display a banner indicating the record has been saved successfully. Also, the Fuel Used has now been calculated.

APIN	IS						
Homes	Emission Unit	Usage	Calculations	Reports	Compliance	Data	Material

Use the links on the breadcrumbs line to return to the Search Results page.

### 3.10.4.1.3 Hand Entered

Process ID: IET1584170148EU 141 Status: ACTIVE Process Start Date: 01/01/1901 Process End Date: Process Name: P119-PW-100 (F-22) EP	IGINE TESTING	Defa	ing: 9549 uit Fuel: JP-8 (INCLI Density: 6,1 LBS/GA			Foel Flow Rate-Idle, 1377 Foel Flow Rate-Approach, 2742 Foel Flow Rate-Intermediate, 10113 Foel Flow Rate-Military, 18625 Foel Flow Rate-Adentumer, 80170
Profile Type Start Date/Time/" yyyymmrdd Alamm End Date/Time/" wyymmrdd Alamm Issue # # of Tests Time (Minutes) I Is this Installed?" Fuel:"	<ul> <li>Hund-Entered</li> <li>2016/12/01 2000</li> <li>2016/12/01 2359</li> <li>Idle:</li> <li>22</li> <li>Yes</li> <li>No</li> <li>(25-6)</li> </ul>	Approach:	c Percent-Based	Military: 12	Alterburner:	
Fuel Used II Comments Validate Usage Record?	# Yes	14	palons			

Enter the **Start Date/Time** and the **End Date/Time**. This can be for a range of dates or can be set to document a specific test date and time.

Enter the total minutes spent in each mode in the **Time (Minutes)** fields.

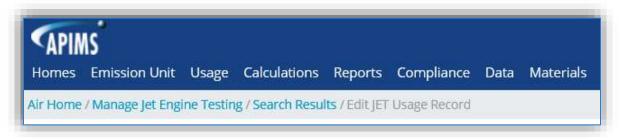
The **Is this Installed?** flag should be set to "No" for off wing testing and "Yes" for on wing testing.

The **Fuel** field will automatically populate to match the Default Fuel as specified on the Information tab of the Unique Process record.

The **Fuel Used** can be specified manually if the exact amount of fuel used during the test is known. Otherwise the fuel used will be calculated using the time in mode along with the fuel flow rate for that mode.

The last step is to set the **Validate Usage Record?** flag. If the consumption is not validated it will not be included in the emissions calculation.

Click the **Save** button. The screen will display a banner indicating the record has been saved successfully. Also, the Fuel Used has now been calculated.



Use the links on the breadcrumbs line to return to the Search Results page.

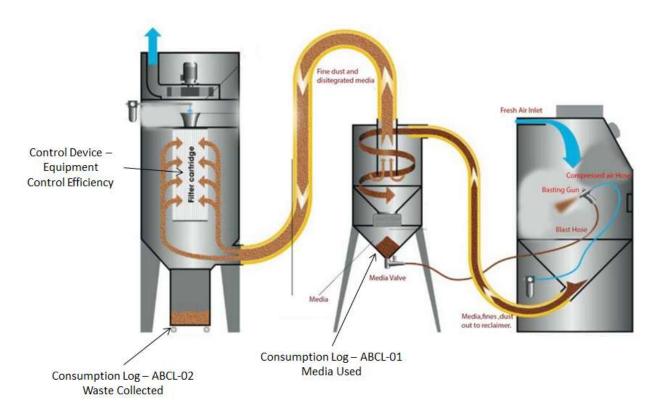
# 3.10.4.2 Emissions Calculations

To correctly calculate emissions this emission source the processes should only be included in a **Stationary Source Calculations**. Off wing testing is a stationary source and on wing testing is not calculated. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.11 Abrasive Cleaning (ABCL)

### 3.11.1 Source Types

This source category includes all equipment that may release emissions from abrasive blasting operations. Abrasive blasting operations involve the use of a hard, abrasive material (e.g. sand, garnet, or glass beads) being projected with high intensity onto a surface in order to remove paint and/or corrosion from an object. A high-pressure pneumatic gun is used to blast the abrasive media at the equipment being stripped. Blasting operations generally occur in a glove box, blasting cabinet, booth or hangar depending upon the size of the item being blasted. Emissions of PM, PM10, PM2.5 and inorganic particulate Hazardous Air Pollutants (HAPs) are caused by the material that makes up the coating (paint and primer) that is exhausted from the blasting operations. The exhaust from these blasting operations is usually vented to a control system, such as a fabric filter (often called a baghouse). A cyclone separator may precede the fabric filter in the collection system to separate the larger blast media from the smaller particulate in the exhaust stream as shown in the following figure. The large beads are then recycled to the blasting system while the smaller particulate is vented to the baghouse where it is captured and collected in a bin for disposal. Other common control devices are vacuum blasters, drapes, water curtains, wet blasting, and reclaim systems.



#### **3.11.2 Potential Data Sources**

A number of industrial areas around each installation may operate abrasive cleaning sources. Since the primary purpose of abrasive cleaning is to prepare a surface for coating application, the starting point for

identifying new/existing abrasive cleaning sources is to conduct shop surveys where active surface coating operations occur. The shops listed below are the most common shops operating abrasive cleaning sources:

- Corrosion Control (MXS)
- Vehicle Maintenance (LGRV)
- Repair and Reclamation (MXMT)
- Aircraft Structural Maintenance (MXMF)
- Aerospace Ground Equipment (MXMG)

There are two methods to track usage for abrasive blasting operations; the first is the amount of blast media used, the second is the amount of waste collected by the control device. In this situation the data to collect would be the total pounds of waste generated or collected during the year. If this data is not available it can be estimated by gathering the number of times the waste bin was emptied during the year and the size of the waste bin. If the amount of media collected is only known in volume, (i.e., gallons) the density of the media can be obtained from the manufacturer with the product of the two values equaling the weight. If the total number of times the waste bin was emptied is not known, an estimate of how often the waste bin is emptied will suffice. The other data element that will be required is the control efficiency of the cyclone or baghouse. The control efficiency can range from 50% to 96% or higher.

# 3.11.3 Standard Source Identification/Characterization

# 3.11.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking **Unique Process** under the **Emission Unit** tab.

Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	ABCL - ×
Building No.:	
Facility;	
Location:	
Shop:	
Zone	
NAICS Code:	
SIC Code:	
Status	Select Value •
Permitted Source?	I Yes I No I Both
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records O APIMS Entered Records O Both

In the **Source Category** search field, type "ABCL" then select the row for Abrasive Cleaning from the dropdown results. Click the **Search** button.

Sea	arch	Re	sults						
۰	Creat	e Pro	0955						
5 rec	ords	found	(-						
	laying		rds 1 - 5 Unique ID Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Date	Status
	-		664054	BUIDLING 753-ABRASIVE CLEANING-SAND	ABCL	753	2013/01/01	Contractor in the	ACTIVE
R	-	du.	159172 ABCL01	WALK-IN BLAST BOOTH - HANGAR 1	ABCL	1	1901/01/01		ACTIVE
		0	109172 ABGL02	GLOVE BDX - AIRCRAFT WASH RACK	ABCL	906	1901/01/01		ACTIVE
100		31	519 10004	A8RASIVE BLASTING - GLASS - B-911	ABCL	911	1901/01/01	2006/12/31	INACTIVE
100	in.			ABRASIVE BLASTING - PLASTIC - 8-900	ABCL	500	1901/01/01	2012/03/23	INACTIVE

The search results grid will now display all the abrasive cleaning processes currently in APIMS.

The **Local Process Name**, **Base Specific** and **Bldg No**. can all be used to identify a specific source. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current.

#### 3.11.3.1.1 Status

If the status of a unit needs to be changed, click the edit  $\bowtie$  icon next to the process. Navigate to the *Status* tab.

Proces	s Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
	ange Current St	atus									
1 record	ás found										
Displayi	ing records 1 - 1										
Actions	Status		Start D	ate			End Date			Co	mments
-	ACTIVE		1901/0	101							
Page 1											

Click the Change Current Status hyperlink.

itatus:"	INACT - INACTIVE V
itart Date:" yyy/mm/dd	2016/06/12
	Unit no longer in use.
Comments	

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.11.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 2	104	
Location: 2	BUILDING 104	(Verified)
Complete Location Name:	BUILDING 104	Victor av Luca - Victor
Office Symbol 2		Unverified)
Unit/Organization:	2.5	
Shop.	P0018 (Verified)	
Shop Name:	VEHICLE OPERATIONS/MAINTENANCE	
Source Type: 2	POINT	
Permitted Source?2	Yes <sup>(i)</sup> No	
Emission Point.	STACK .	
Usage Interval:	ANNUAL V	
Next Higher Process:	(Unverified)	
Next Higher Process Name:		
EPA Source Class Code:		
EPA Industry Group:		
GHG Scope:	Select Value •	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	🗇 Yes 🖲 No	
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr	
Comments		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit.

Abrasive blasting operations are categorized as POINT source in the **Source Type**, if a control device is used or if an inside source is released form a single location. If the blasting is conducted outside or simply released to the general area it should be FUG in the **Source Type** to indicate it is a Fugitive source.

If the blasting is conducted in a controlled environment the **Emission Point** would be STACK, otherwise it should be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an Annual basis but may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for abrasive blasting operations are:

Process Type	SCC
General	30900201
Sand	30900202
Slag	30900203
Garnet	30900204
Steel Grit	30900205
Walnut Shell	30900206
Shot	30900207

#### 3.11.3.1.3 Sub-Processes

This source does not utilize this functionality.

#### 3.11.3.1.4 Equipment

The next tab is the *Equipment* tab. This is especially important for abrasive blasting processes as the calculation in APIMS uses the control efficiency on the equipment associated to the process to accurately calculate emissions. To link the equipment to the process the equipment must already be entered in APIMS.

In the control tab of the equipment record, the control efficiency for the device needs to be created for PM, PM<sub>10</sub> and PM<sub>2.5</sub>, as shown in the equipment screen below. Refer to the Equipment section for specifics on how to properly document equipment in APIMS.

Control Efficiencie	55	0
Equipment ID WIF-ABCL	-	Start Dulie: 1901/01/01
Henal # VMF-ABCL Model # ABCL GLOVE B	NYS	End Date:
Eburner Eburnert for	In Places Pergrand Uniferral Control Tax Back	
Sartis Figurert Cont		
and the second designed		
Create Control Efficien	ny	
	63	
3 records found Displaying records 1 - 3		
3 records found	Patricet.Mane	Control Literary and Controls
3 records found Deploying records 1 - 3	Patricet.Mane	Cantaol Ethomosy chu Constrainte 00.0
3 records found Displaying records 1 - 3 Antions (CTTT)	Professel Name Part Tables Tables Wortcom Part Tables Tables Tables (Party)	Genturi I the weeks the Generation age o 99.0
3 records found Deploying records 1 - 3 Amove PATTIN I Pat	Publicat Mana INVESTIGATE ANTER	800

To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Nocess Egupment Calculations Regulat		Inchestinal	Contacts Zones Record		
Create Equipment Association					
ecords found: splaying records @ - @					
tions Porporation	Secial #	Model #	Manufacturer	Start Date	Ever Date
			No records lineist		And and a second se

Search for the **Equipment ID** in the list of values, enter the start date and click the Save & Finish button.

Equipment ID:"	(VMF-ABCL (Verified)
Senal #:	VMF-ABCL
Model #:	ABCL GLOVE BOX
Manufacturer	
Description	
Equipment Start Date: yyyy/mm/dd	1901/01/01
Equipment End Date: yysy/mm/dd	
Start Date:* yyyy/mm/dd	1901/01/01
End Date: wyw/mm/dd	
Comments	

#### 3.11.3.1.5 Calculations

The next tab is the *Calculations* tab.

Process Equipment Calculate	ans Regulatory Authory	ed Materialis Induktrias Conta	cts Zones Records	Atomistication Statute	
Process Algorithm Assign					
Create Process Algorithm Ass					
records tound.				And Park	End Outs
Actions A Statillion -	Formula	Emission Factor Cittaria	count hund	Start.Date	2-0001

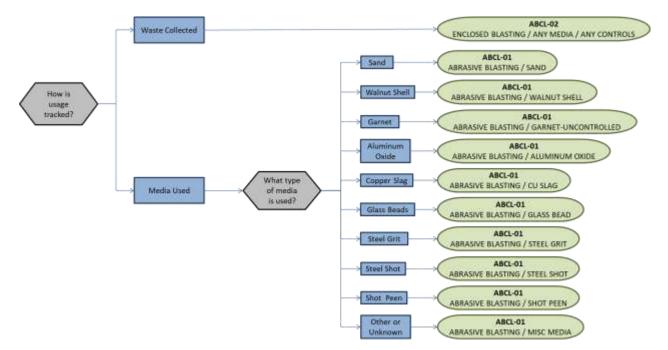
To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Algorithm Code:"	ABCL-02 (Venfied)
Formula: Algorithm Start Date: Algorithm End Date	((WASTE COLLECTED/(1-CONTROL EFF))-WASTE COLLECTED)*EF 1901/01/01
Emission Factor Characteristic:	OPERATION TYPE / BLAST MED
Emission Factor Criteria	ENCLOSED BLASTING / ANY MEDIA / ANY CONTROLS
Emission Factor Set ID:	1014
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date	
Start Date:" yyyy/mim/dd	1901/01/01
End Date: yyyy/mm/dd	
	Save & Create Another Save & Finish Cancel

Select the **Algorithm Code** and the **Emission Factor Characteristic** that most closely matches the activity. Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic. Enter the **Start Date** to match the start date of the process.

For abrasive blasting processes there are two standard calculation methodologies recommended by the Air Force. The first method, ABCL-01 is used when the total media used is the data available. The second method, ABCL-02 is used when the total waste collected is the data available.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



If utilizing the ABCL-01 ABRASIVE BLASTING / GARNET-FABRIC FILTER calculation methodology, an equipment record of the fabric filter should not be linked to the process as the control efficiency will be double counted; once in the emission factors and then again against the results.

If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.11.3.1.6 Materials

The last step in setting up the Unique Process record is to add SAWDUST as the authorized material on the *Authorized Materials* tab.

Piptess Epidement Co	eculations Regulatory	Authorized Materials	Indiatital Contact	a Zones A	ecods Assessments	Batus	
Create Authorized Male	ersat						
0 records found							
							Save
Actions	CAGE Com			Ehi	Material Name		Authorize Flag
			Nú řeco	ds found			
							Save

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regu	tory Authorized Materials Industrial Contacts Zones Records Assessments Status
NSN:"	ALUM OXIDE GRIT
CAGE Code:	EMC
PNI:	A
Material Name:	ALUMINUM OXIDE GRIT
Authorize?	🖲 Yes 🔍 No
	Save & Create Another Save & Finish Cancel

Select the media used from the list of values. If the blast media is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

# 3.11.3.2 New Sources

#### 3.11.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Abrasive Blasting / Abrasive Cleaning Data Collection Worksheet

GENERAL INFORMATION
Building Number Mission/Purpose
Shop Name/Function Management Organization
Coordinates: Latitude: Longitude:
UTM: Zone Easting Northing □ Feet □ Meters
Is this source in any of your permits?  Yes No
If yes, does it have an emission unit number or other designation?
EQUIPMENT INFORMATION
What type of blasting operation is conducted?
Enclosed Blast Booth
Enclosed Blast Booth     Enclosed Glovebox
For enclosed operations, collect the following equipment information: Manufacturer
Model Number Serial Number
Is there a filter? □ Yes □ No
If yes, is there a spec sheet that specifies the control efficiency of PM, PM10 and PM2.5?
USAGE INFORMATION
What type of blast media is used?
How does the shop measure blast media?
□ Waste Collected □ Media Added
If waste collected is tracked, do they have records that show how much waste is collected during the year?
If not do they know how often the waste is collected? What container is used for waste collection? He big is the container?
If media usage is tracked, do they procure it through EESOH-MIS?
If Yes, specify the shop and process designation in EESOH-MIS
Shop Code Process Code/Name

#### 3.11.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each abrasive blasting operation.

Navigate to the **Blasting New Source Wizard** module in APIMS by clicking on **Blasting NSW** under the **Emission Unit** tab..

Select the type of blasting unit from the dropdown list (BLAST BOOTH, ABRASIVE BLASTING GLOVEBOX, UNENCLOSED BLASTING).

Blasting Unit Type:"	ABRASIVE BLASTING GLOVEBOX .	
Model #	30721	(Verified)
Nanufacturer	EASTWOOD	
3erial #	228368A	
Equipment Description:	GLOVEBOX	
Management Group:		Unverified
Are the emissions released through a stack?"	* Yes O No	
Do you have the stack parameters?"	🗢 Yes 🗯 No	
Blanting Media;"	SAND (Verified)	
Usage Intervat	ANDRUAL .	
Location:*	BUILDING 104	Verified)
Complete Location Name	BUILDING 104	
Do you have a spec sheet?"	© Yes. # No	
	Save and Continue Cancel	

The **Model #** can be selected from the list of values (LOV) or created within the LOV popup window. Click the folder icon to open the Model Search popup.

Sea	rch:		in Model # 🔻	Search
C	Create Model			
295	records found.			
Disp	olaying recor <mark>d</mark> s <b>1</b> - <b>10</b> .	()		
	Model #	Manufacturer	Description	Action
0	113RNA048-C	UNKNOWN		2
0	1357 MBTU/HR	WEIL MCCLAIN		
۲	13ACX03023010	LENNOX		
0	13ACX-030-230-10	LENNOX	BLDG. 425 DX UNIT, MAIN GATE	2
0	2136 MBH	BURNHAM		
0	24ABB336A610	CARRIER		
0	2TTA0036A3000AA	TRANE	BLDG 332 DX UNIT 4	
۲	2TTA0072A3000AA	TRANE	BLDG 306 DX UNIT	
0	2TTA2060A3000AA	TRANE	BLDG 245 AC UNIT 4	
0	2TTA2060A3000AA CU1	TRANE		
Pad	e: <b>1</b>	v all results		« Previous   Next »

This screen manages all operations to select, edit or create a model. The search can be used to locate a specific model record. To select the model record, click the corresponding radio button. This will cause the popup window to close and will populate the **Model #** field with the selected record.

To create a new model record, click the <u>Create Model</u> hyperlink. This will open the Create Model popup.

Create Model		j.
Model #:*	30721	
Manufacturer:	EASTWOOD	
Model Description:	BENCH TOP BLAST CABINET	
	Save Cancel	

Enter the actual Model # if known, if the model number is unknown as standard convention to easily identify the equipment can be used, (i.e. ABCL, GLOVEBOX etc.). Click the **Save** button to close the window.

The **Serial #** field can be used to enter the serial number for the equipment. If the serial number of the equipment is not known, a standard convention can be used to easily identify the equipment.

The **Equipment Description** is intended to be used to easily identify the equipment, such as Glovebox or Blast Booth.

If the blasting equipment has emission controls, it is most likely that the emissions are released through a stack.

The Blasting Media field should be used to identify the blast media used, such as glass beads or sand.

The **Usage Interval** should be designated. This source is usually documented on an Annual basis but may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **Location field** is very important to effectively manage the location of the emission source. This information will be important for knowing where the source is, in case it needs to be inspected or if the source owner needs to be contact for pertinent information.

Select the appropriate radio button to indicate if there is a specification sheet for the equipment. Click **Save and Continue**.

Source Source Details Operation	
Source Operation	
Usage Tracking Method:* Installation Date:* yyyy/mm/dd	WASTE COLLECTED V 1901/01/01
Facility:*	AIR FORCE BASE (Verified) Save and Continue

Select the Usage Tracking Method, either MEDIA USED or WASTE COLLECTED.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

Select the Facility from the list of values, click Save and Continue.

Source Source Regulatory Details Operation Information	
Regulatory Information	
Permitted?*	● Yes ○ No
Emission Unit ID:*	EU 12
Source Classification Code:	30900202
	Save and Continue

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Base Specific** field can be used to enter a standard convention identifier that will help to best identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for abrasive blasting operations are:

Process Type	SCC
General	30900201
Sand	30900202
Slag	30900203
Garnet	30900204
Steel Grit	30900205
Walnut Shell	30900206
Shot	30900207

				-	-	1
			Control Information	Regulatory Information	Souther Operation	Seattle Details
0 =					ormation	Control Info
			• • •		Type:"	Control Device T
			<ul> <li>Ball Probability</li> <li>Records Namit</li> <li>Depinying records #= 0.</li> </ul>			
Gasteriithumach	to more have	Ecklart.Ante	Amon Strin		Gents Tr	Controlled Pollad
e Presissa (Next)			Page			
			(Bave and Commun.)			

Select **Control Device Type** utilized by the equipment: BAGHOUSE, CYCLONE, DRAPE, DUST ENCLOSURE, ELECTROSTATIC PRECIPITATOR, FILTER, VACUUM BLASTER, WATER CURTAIN or WET BLASTING.

Click the <u>Add Pollutant(s)</u> hyperlink to configure the control efficiency.

The pollutants for abrasive blasting will appear in the grid automatically; however, the Search Pollutant(s) area can be used to refine the list of pollutants.

Add Po	llutant(s)		×
Add P	ollutant(s)		2 🚍
	rch Pollutant(s)		
Pol	S #: Ilutant Name: Ilutant Category: emical Category:	Select Value Select Value Search Clear Search	Apply to Empty Clear All
3 records	s found. Pollutant Name		Control Efficiency (9/)
PM	PARTICULATE MATTE	ER	Control Efficiency (%) 99.9
PM10	PARTICULATE MATTE	ER <10UM (PM10)	99.9
PM2.5	PARTICULATE MATTE	ER <2.5UM (PM2.5)	99.9

Enter the control efficiency for each of the pollutants in the **Control Efficiency** column, or if the control efficiency is the same for all pollutants, enter the efficiency in the field at the top of the grid and click the Apply to Empty button. This will populate the specified control efficiency for all rows in the grid. Click the **Save and Continue** to associate the control efficiencies to the equipment.

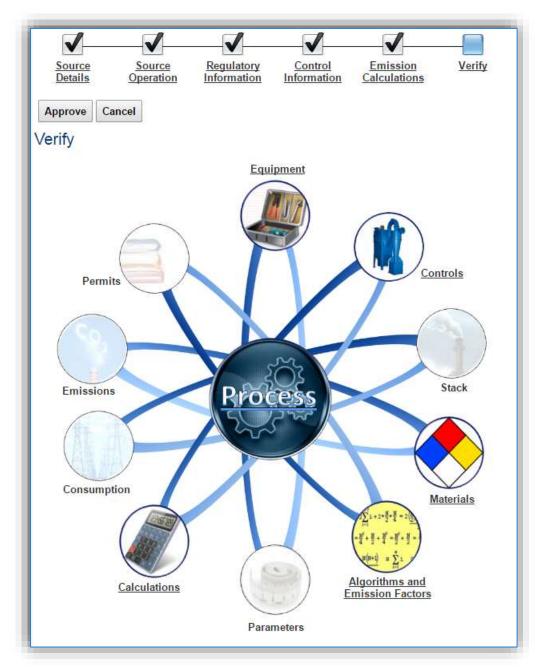
Saleca Ostalla	Seaton Describes	Regulatory	Santral Information		
Control Info	mation				9 =
Tresorde Ada	an korrentsite				
Control Device Ty			Ant Perhapeting 3 records found Coupleying records 1 - 3		
Composited Polyage			Antonio CATCA	Political New	Gental Effecters (
			La la Auto	HURITELEUIS METTIR - SEAN PAINT PRATEILEUIS METTIR - SEAN PAINT	
			Frigh 1		n Freedmin (Meet

Click the **Save and Continue** button to proceed.

Emission Calculations Algorithms and Emission Factors The additional time of extent logarity for element to public to provide states and the entropy to place and the extent of particles to provide the entropy of the	9
No. Another metals into the second segment is not exercise if a public flat on this regardly specify specify some due second its and the second statement of the states of the second statement of the states	
Accept in Report Algorithment?' # Accept: 🗇 Reject	
1 microits faund	
Transfer Transfer U.Sci Example College C.C. West Indiana Provent Indiana Provent Indiana Providence International Society of the	
ADD INVESTIGATION OF A DATE OF A DAT	

The final step is Emission Calculations where you choose to **Accept or Reject Algorithms**, the algorithm is based on the usage method selected and the media used.

The Emission Calculation also appears, one or more calculations will appear, select the checkbox or checkboxes next to the calculation this process should be added to. Click **Save and Continue** once those steps have been completed.



This is the process summary. The details behind the Calculations, Equipment, Algorithms and Emission Factors, Materials and Controls can be viewed by clicking on the hyperlink or picture. Click the **Approve** button to finalize the new source configuration process.

# 3.11.4 Year-to-Year Maintenance

#### 3.11.4.1 Usage

The consumption for abrasive blasting sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the Create Consumption hyperlink.

ICR1012644673 (Venfied)	
2016/01/01 0000	
2016/12/31 2359	
ALUM OXIDE GRIT	
CAGE Code: EMC PNI: A Preparation Date: 1901/01/01 EESOH Product Detail ID:	
200 LBS - POUNDS	
🖷 Yes 🔍 No	
Unventied)	
	2016/01/01 0000 2016/12/31 2359 ALUM OXIDE GRIT CAGE Code: EMC PNI: A Preparation Date: 1901/01/01 EESOH Product Detail ID: 200 LBS - POUNDS

The consumption record should span the entire reporting period as shown above. The material should be the blast media used and the amount should be the amount of media used for ABCL-01 or waste collected for ABCL-02 in pounds. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different media used.

#### 3.11.4.2 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.12 Woodworking (WOOD)

# 3.12.1 Source Types

This source category includes all emission sources that generate small wood waste particles (shavings, sander dust, sawdust etc.) by any kind of mechanical manipulation of wood, bark, or wood byproducts. Common woodworking operations include sawing, planing, chipping, shaping, molding, turning on a lathe and sanding. Most installations have a Wood Hobby, Packing & Crating or Civil Engineer Structures shop that may generate this type of emissions. Another sign of a woodworking operation is a cyclone or baghouse attached to the outside of a building.

The images below show an example of a belt sander. As can be seen if there is a dust control system there will be a hose coming off the sander or other woodworking equipment. This hose or tube will then empty into a bin or bag. These hoses usually use a vacuum to pull the dust, however as shown in the picture below there is also sometimes a cyclone that pulls the dust into the collection drum. This picture is not the only type of woodworking equipment, it is just one example.



# 3.12.2 Potential Data Sources

There are several areas on a typical installation that may conduct woodworking operations. Any area that conducts construction operations using wood, such as crates, pallets, furniture etc. The most common shops that have woodworking operations fall under the following office symbols:

- Wood Hobby
- Packing & Crating
- Carpentry (MXG)
- Civil Engineer Structures Shop

Most woodworking operations have a cyclone or baghouse control device to capture the wood waste into a bin or drum. In this situation the data to collect would be the total pounds of waste generated or collected during the year. If this data is not available it can be estimated by gathering the number of times the waste bin was emptied during the year and the size of the waste bin. If the amount of sawdust collected is only known in volume, (i.e., gallons) the density of the sawdust can be found in Table 26-2 of the AFCEC Stationary Source Guide. If the total number of times the waste bin was emptied is not known, an estimate of how often the waste bin is emptied will suffice. If the shop cannot estimate the frequency at which the waste bin is emptied, assume once per quarter. The other data element that will be required is the control efficiency of the cyclone or baghouse. The control efficiency is usually around 98% or higher.

### 3.12.3 Standard Source Identification/Characterization

#### 3.12.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS.

· · · · · · · · · · · · · · · · · · ·	
Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	WOOD
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value
Permitted Source?	○ Yes ○ No ● Both
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records
	Search

In the **Source Category** search field, type "WOOD" then select the row for Woodworking from the dropdown results. Click the **Search** button.

Search	1 Ke	sults						
Crea	te Pro	0855						
2 records	Inurst							
		rds 1 - 2.						
				Company in the state of the base of the second state of the				the second dealers and the
Action		Unique ID Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Date	Status
		Unique ID Base Specific 644397	Local Process Name BLOG 1324 - STRUCTURES SHOP - CYCLONE - SAWDUST	Source Cat Code WOOD	01dg.No, 1324	Start Date 1901/01/01	End Date	ACTIVE

The search results grid will now display all the woodworking processes currently in APIMS.

The **Local Process Name**, **Base Specific** and **Bldg No**. can all be used to identify a specific source. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current.

#### 3.12.3.1.1 Status

If the status of a unit needs to be changed, click the edit  $\bowtie$  icon next to the process. Navigate to the *Status* tab.

Process	s Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
Chi	ange Current St	atus									
1 record	is found										
	ng records 1 - 1										
Actions			Start D				End Date			c	omments
2	ACTIVE		1901/0	101							
Page 1											

Click the Change Current Status hyperlink.

Process Equipment Calcula	ons Regulatory Authorized Materials Industrial Contacts Zones Records Assessme	nts Status
Status:"	INACT - INACTIVE	
Start Date:" /yyy/mm/dd	2016/06/12	
	Unit no longer in use.	
Comments:		
	Save Cancel	

Select the appropriate status from the Status dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the Save button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.12.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Process	Equipment	Calculations	Regulatory Authorized Materials	i Industrial Co	ntacts Zones	Records Assessments
Definition	Information	Sub-Proces	565 			
Building No.	Σ		123	].		
Location 2			BUILDING 123			Verified)
Complete Lo	cation Name:		BUILDING 123			
Office Symb	οìΣ					(Unverified)
Unit/Organiz			·			
Shop:			WOOD HOBBY	-×	(Verified)	
Shop Name			WOOD HOBBY			
Source Type			POINT T			
Permitted So	ource?£		Yes No			
Emission Po	int:		STACK T			
Usage Interv	val:		ANNUAL 🔻			
Next Higher	Process:			) - ×	(Unverified)	
Next Higher	Process Name					
EPA Source	Class Code:					
EPA Industry	y Group					
GHG Scope			Select Value •			
Assessment	Barcode					
Exclude Cor Interface?	sumption recor	ds from EESO	H-MIS O Yes ® No			
Operating Se	chedule;		Hrs/Day,	Day(s)/Wk,	Wks/Yr	
Comments:						
					- 7	
			Save Cancel			

The **Building No**. field can be used to specify the building number or general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit.

Woodworking operations are categorized as a point source in the **Source Type**, since a ventilation system is typically employed. In most cases, the airborne dust is captured by a ventilation system and control device. Typically, the control device used is a sanding booth with particulate filters, a cyclone, a baghouse (fabric filter), or a cyclone and baghouse in series. The dust captured by the control device is collected in a bin or other container that is emptied when full. This also means that the **Emission Point** would be a STACK.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an Annual basis but may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for woodworking operations is 30703099.

#### 3.12.3.1.3 Sub-Processes

This source does not utilize this functionality.

#### 3.12.3.1.4 Equipment

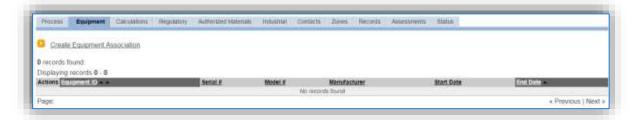
The next tab is the *Equipment* tab. This is especially important for woodworking processes as the calculation in APIMS uses the control efficiency on the equipment associated to the process to accurately calculate emissions. To link the equipment to the process, the equipment must already be entered in APIMS.

In the control tab of the equipment record, the control efficiency for the device needs to be created for PM, PM10 and PM2.5, as shown in the equipment screen below.

Sound	ol Efficienc	les		6
	n110: 123-CYL 067154T			Start Date: 1901/01/01
Model #	T-4/1		Model Description: CYCLONE	End Data
Equipme	T Equipment	type Process	Tregulated Unit Diroup Control Stack Status	
		antrol Efficiencies		
Cred	ile Control Effici	ency.		
3 records Displayin	i found g records 1 - 3			Control Efficiency (%) Comments
3 records Displayin Actions	i found.	Pallutant		Control Efficience (Na Comments
Actions	s found g records 1 - 3	Palistant S Palistant S	larre	Control Efficiency (1)4 Commenta 19 19
Displayin Actions	i found g records 1 - 3 FALLS FAL	Palutant ) Invincual Invincual	iaita Ate vaatter	Control Efficiency (%) Conments

Refer to the Equipment section for specifics on how to properly document equipment in APIMS.

Navigate to the *Equipment* tab of the Unique Process record.



To link the equipment, click on the Create Equipment Association hyperlink.

Process Equipment Calculat	tions Regulatory Authorized Materials Industrial Contacts Zo
Equipment ID:*	123-CYL (Verified)
Serial #:	X1584
Model #:	R4500
Manufacturer:	
Description:	
Equipment Sta <mark>rt D</mark> ate: yyyy/mm/dd	1901/01/01
Equipment End Date: yyyy/mm/dd	
Start Date:* yyyy/mm/dd	1901/01/01
End Date: yyyy/mm/dd	
Comments:	
	Save & Create Another Save & Finish Cancel

Search for the **Equipment ID** in the list of values, enter the start date and click the **Save & Finish** button.

### 3.12.3.1.5 Calculations

The next tab is the *Calculations* tab.

And a subsection of the second se				
rocess Algorithm Assignm				
Create Process Algorithm Assig				
records tound.				
ctions A continue -	Formula	Emission Factor Criteria	Start Date	End Oute

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

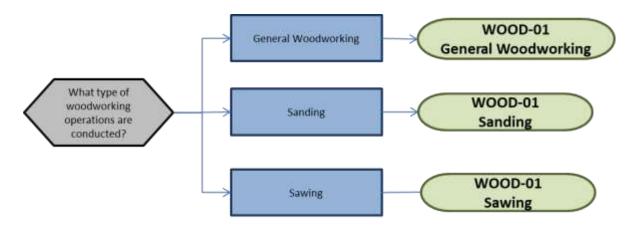
Algorithm Code:*	WOOD-01	(WOOD-01 ) (Verified)		
Formula	((WASTE COLLECTE	ED/(1-CONTROL EFF))-WASTE COLLECTED)*EF		
Algorithm Start Date:	1901/01/01			
Algorithm End Date				
Emission Factor Characteristic:"	ACTIVITY	Verified)		
Emission Factor Criteria:	GENERAL WOODWO	ORKING		
Emission Factor Set ID:	1407			
Emission Factor Set Start Date:	ion Factor Set Start Date: 1901/01/01			
Emission Factor Set End Date:				
Start Date:* yyyy/mm/dd	1901/01/01			
End Date ywyv/mm/dd				

For woodworking processes there is only one standard calculation methodology recommended by the Air Force. This calculation is based on the amount of waste collected in pounds and the control efficiency of the equipment.

If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

Select the **Algorithm Code** and the **Emission Factor Characteristic** that most closely matches the activity. Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic. Enter the **Start Date** to match the start date of the process.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



#### 3.12.3.1.6 Materials

The last step in setting up the Unique Process record is to add SAWDUST as the authorized material on the *Authorized Materials* tab.

water Editories ca	nitations Registerry Authorized Naterials	Industrial Contacts Zones Records Assessments Balas	
Create Authorized Mate	mai		
a records found			
			Sav
Actions 1117 -	CAGE Cook	Phil Naterial Name	Authorip Flag
		No records found	
			Sav

To authorize a material for the process, click on the <u>Create Authorized Material</u> hyperlink.

NSN:"	SAWDUST (Vorified)
CAGE Code:	EMC
PNI	A
Material Name	SAWDUST COLLECTED
Authonze?	Yes O No

Select SAWDUST from the list of values. If SAWDUST is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then Save & Finish.

Create Authorized Materia	al and a second s			
1 records found.				
				Saw
Actions 11 line .	CAGE Code	Pm	Material Name	Sav Authoriti Fing

#### 3.12.3.2 New Sources

#### 3.12.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Woodworking Data Collection Worksheet

GENERAL INFORMATION		
Building Number Shop Name/Function		
Management Organization		
GIS Location		
Is this source in any of your permits?  Yes No		
If yes, does it have an emission unit number or other designation?		
EQUIPMENT INFORMATION		
<ul> <li>What type of woodworking operation is conducted?</li> <li>Sanding</li> <li>Sawing</li> <li>Miscellaneous or Other</li> </ul>		
For enclosed operations, collect the following equipment information: Manufacturer		
Model Number Serial Number		
Is there a filter?  Yes  No		
If yes, is there a spec sheet that specifies the control efficiency of PM, PM10 and PM2.5?		
USAGE INFORMATION		
Are the total pounds of waste generated/collected known?		
If no, does the shop know how often the waste bin is emptied?  Yes  No If yes, how often (an estimate may be used if actual number is not known) What is the size of the waste bin? Gallons		

If no, ask the shop personnel if once per quarter is an accurate assumption.

#### 3.12.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each woodworking operation.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL T	
Process Type:"	WOODWORKING	Verified)
Process Name:*	WOODWORKING, MULTIPLE OPERATIONS	(Verified)
Base Specific:	EU 25	
Local Process Name:"	BLDG 123 - WOOD HOBBY	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:"		Unverifie
Mobile Source?"	💿 Yes 🖲 No	
Source Category Σ	WOOD (Venfied)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	WOODWORKING	LATHES	IWD1602
INDUSTRIAL	WOODWORKING	MORTISING/ROUTING	IWD1708
INDUSTRIAL	WOODWORKING	SANDING, BELT	IWD1888
INDUSTRIAL	WOODWORKING	SANDING, DISK	IWD1889
INDUSTRIAL	WOODWORKING	SANDING, DRUM	IWD1890
INDUSTRIAL	WOODWORKING	SANDING, HAND	IWD1891
INDUSTRIAL	WOODWORKING	SAWING	IWD1898
INDUSTRIAL	WOODWORKING	WOODWORKING HOBBIES	IWD2144
INDUSTRIAL	WOODWORKING	WOODWORKING, MULTIPLE OPERATIONS	IWD2145
INDUSTRIAL	WOODWORKING	WOODWORKING, NOC	IWD2146

Use the table above to determine the appropriate **Process Category**, **Process Type** and **Process Name**. If you are not sure of the exact operation or if there are multiple woodworking activities happening at the same source, select Woodworking, Multiple Operations.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BLDG 123 - WOOD HOBBY.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All woodworking emission units are assigned to the WOOD Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.12.4 Year-to-Year Maintenance

#### 3.12.4.1 Usage

The consumption for woodworking sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Process ID:"	WD2145704648EU 25	ified)
Start Date/Time:* /yyy/inm/dd hhmm	2016/01/01 0000	
End Date/Time:" /yyy/mm/dd hhmm	2016/12/31 2359	
NSN:*	SAWDUST Ven	ified)
	CAGE Code: EMC PNI: A Preparation Date: 19 EESOH Product Detail ID:	901/01/01
Amount:"	250 LBS - POUNDS	8
/alidate Consumption?	🕷 Yes 🔘 No	
Part:	CITY X (Unv	ventied)
ssue #		
Comments		

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

The consumption record should span the entire reporting period as shown above. The material should be SAWDUST and the amount should be the amount of waste collected in pounds. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

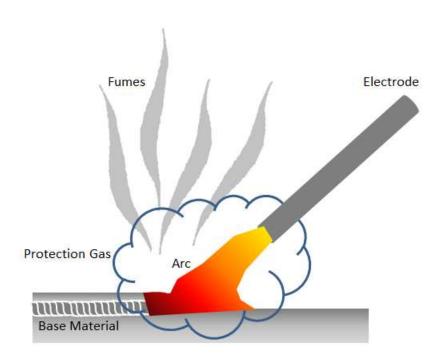
#### 3.12.4.2 Emissions Calculations

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.13 Welding (WELD)

## 3.13.1 Source Types

Welding operations are common in all maintenance, transportation and Civil Engineering shops. Welding is defined as the process by which items are joined by melting the parts at the point of contact while simultaneously introducing molten metal from a consumable electrode that forms a strong bond once cooled. There are several types of welding operations with electric arc being the most common. Electric arc welding is also the welding operation with the most potential for emissions, and the only type that has emission factors issued by the EPA. As such, the emissions from the electric arc welding are usually the only ones included in an AEI. Emissions from welding operations result in the release of particulates (PM, PM<sub>10</sub>, PM<sub>2.5</sub> and inorganic metallic HAPs). The picture below provides a rough illustration of welding processes.



#### 3.13.2 Potential Data Sources

Welding rods are generally considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). The best method for collecting usage data is through the EESOH-MIS to APIMS interface. To do this it is important to work with the Hazardous Materials Management personnel to segregate welding rods into a distinct process. The EESOH-MIS process should track only the welding rods and not any other materials in the shop. If the welding rods are authorized to a process that is also authorized for other materials such as solvents the process cannot be accounted for under the WELD source category and must be calculated under the CHEM source category. If the welding rods are a separate process in EESOH-MIS, the process, material and consumption data will automatically populate in APIMS.

# APIMS AEI Procedure

When welding rods are not tracked in EESOH-MIS or they are not their own process, the total amount in pounds of welding rods used during welding operations is needed. If the actual amount of welding rods used is not available an estimate of how many rods are used during each welding activity and the frequency of the activity can be used to determine the approximate amount. If that information cannot be determined, an estimate of how many rods and how often they are purchased can be used to extrapolate the amount used during the time period. This process usually is only required to be tracked on an annual basis.

Emissions from welding operations are generally minimal so the most focus should be spent gathering data from shops that conduct welding operations on a regular basis. Shops that only occasionally weld simply will not produce enough emissions to warrant the time spent gathering data. The most common shops that have significant welding operations are as follows:

- Transportation Shop
- Force Support Auto Repair/Hobby Shop
- Civil Engineer Structural Shop
- Aircraft Maintenance Shops
- AMXS structural repair
- PMEL
- EMXS Radar

#### 3.13.3 Standard Source Identification/Characterization

#### 3.13.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking Unique Process under the Emission Unit tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	WELD X
Building No.:	
Facility:	X
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	◯ Yes ◯ No ● Both
Mobile Source?	Yes      No      O     Unsure      All     All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	◎ EESOH-MIS Interface Records ○ APIMS Entered Records ● Both
	Search

In the **Source Category** search field, type "WELD" then select the row for Welding/Soldering/Cutting from the dropdown results. Click the **Search** button.

The search results grid will now display all the welding processes currently in APIMS. To further filter out the EESOH-MIS processes, use the APIMS Entered Records radio button on the Data Source field in the Search criteria. This will then only display the Next Higher Process associated with welding.

•	Creat	le Pro	C055						
54 re	cord	s four	nd.						
Disp	laying	; reco	eds 1 - 54						
1	Letion	18	Unique ID - Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Date	Status
148	-	1	644524	BASEWIDE WELDING OPERATIONS	WELD	BASEWICE	1901/01/01		ACTIVE
1		9	2096.1	SOLDERING/WELDING DENTAL PROSTHESES	WELD		2013/10/18		ACTIVE
145	-	12	20542	BRAZING/SOLDERING/WELDING/CUTTING	WELD		2012/02/22		ACTIVE
1		静	20718	BRAZING/SOLDERING/WELDING/CUTTING	WELD		2010/12/07		ACTIVE
10		<u>á</u> ).	20714	WELDING	WELD		2010/12:06		ACTIVE
128			20567	BOLDERING	WELD		2009/12/17		ACTIVE
100	10	-	20555	CASTING/SOLDERING	WELD		1983/06/03		ACTIVE
108	-	1	20514	SOLDERING	WELD		2009/06/05		ACTIVE
22		-	20419	WELDING	WELD		2009/03/05		ACTIVE

#### 3.13.3.1.1 Status

If the status of a process needs to be changed, click the edit 🚧 icon next to the process. If this is a process that was entered into APIMS via the EESOH-MIS interface, the process status must be altered in EESOH-MIS.

Process Equipment Calcula	tions Regulatory Authorized Materials	industrial Contacts Zones	Records Assessments	Status
Change Current Status				
1 records found				
Displaying records 1 - 1				
Actions Status	Start Date	End Dat	e .	Comment
ACTIVE	1901/01/01			
Page 1				

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

2 - 10	
tatus:"	INACT - INACTIVE V
tart Date:" yyy/mm/dd	2016/06/12
	Unit no longer in use.
omments	

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require

reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.13.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Process Equipment Calculations Regulatory Authorized	d Materials Industrial Contacts Zones Records Assessments Status
Definition Information Sub-Processes	
Building No.:Σ Location:Σ Complete Location Name:	AIR FORCE BASE
Office Symbol:Σ	(Unverified)
Shop: Shop Name:	Unverified)
Shop Name. Source Type:Σ Permitted Source?Σ	AREA  V O Yes  No
Emission Point: Usage Interval:	
Next Higher Process:	(Unverified)
Next Higher Process Name: EPA Source Class Code:	
EPA Industry Group: GHG Scope:	Select Value V
Assessment Barcode: Exclude Consumption records from EESOH-MIS Interface?	○ Yes ● No
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr
Comments:	<i>h</i>
	Save Cancel

The **Building No**. field can be used to specify a general location or area of the emission source, for example, BASEWIDE.

The **Location** field can be used to identify the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted

for pertinent information. For welding processes that are next higher processes or processes that account for all the welding activities on a base, the base name should be used as the Location. For the instructions on how to create a location reference Section 2.2 Location.

Welding operations are categorized as an AREA source in the **Source Type**.

The **Emission Point** should be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an Annual basis but may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for welding operations is 30900500.

#### 3.13.3.1.3 Sub-Processes

For Next Higher Process configuration, navigate to the *Sub-Processes* sub tab.

Debrins	Sub-Processes						
Create	Sub-Process Association						
54 records	tound.						
Displaying	records 1 - 30						
Actions	Distant O Date lates Di	Local Process Norm	Searce Ent.Code	lints Hu.	Dist.Cate	Exet Side	51404
204	22852	ER42H9/soldERinkowELDING/CUTTING	#HELD		394240422		ACTIV
-	114/2	SOLDERING-TOROY	warb		2009/01/27		ACTI.
100 C	12020	SOLDEMING .	WELD		2005/52(26		ACTS
10	31321	ICODERING ELECTRONIC COMPONENTS	WELD		2009/05/22		actr
	10005	WEDHS - SOLDERING AND BRAZING OPERATIONS	WILD		2009/07/17		AUTH
14	22214	SULDERING	WE17		2009/05/05		ACTIN
-	1000	SOLDERPH)	WELD		2005/09/23		acts
	11300 A	SOLDERING PROCESS TORON	WFLD		3001/04/13		ALTS
100	3078	SOLDERING OF ELECTRONIC COMPONENTS	WELD		1001/01/01		ADTY
-	10034	WELDING - SOLDERING AND BRAZING OPERATIONS	INELD		2001/07/14		4073

This sub tab is used to specify which processes should have their consumption rolled up to this next higher process. This list should only include the welding processes that were imported from EESOH-MIS and the data composed of only welding rods authorized, if other chemicals are authorized to the process, do not associate them to this welding process. To add a process, click the <u>Create Sub-Process Association</u> hyperlink.

Process Excernent Catholican Pro	pilloy Advict Manual Industrial Contacts		1511-151			
Search Processes						
Process	(	1× N				
Status	Select Value	•				
Source Category	(WELD	Null Source	Category			
Facility:	[		) IN THE			
Permitted Processes	© Yes # No					
	Search   Clear Search					
records found.						
linve Catzel						
Unique ID Base Specific	Local Process Marie	Source Cel Code	Birdg No.	Start Date	Red Date	State
208821	BLOG 400 - CE STRUCTURES	WELD	#50	16010101		ACTI
lave (Cancel)						

Use the <u>Search Processes</u> fields to refine the search to only the welding processes. Select the checkbox next to the appropriate process(es), then click the **Save** button.

#### 3.13.3.1.4 Equipment

This source does not utilize this functionality.

#### 3.13.3.1.5 Calculations

The next tab is the *Calculations* tab.

Process Equipment Calculatio	ins Regulatory Authory	ed Materials - Induktrian - R	Contacta Zones	Records A		
rocess Algorithm Assignn						
Create Process Algorithm Assi						
records tound.						
ctions A statution + -	Formula	Emission Factor Critic	itta No records found		Start Date	Endloyte

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Process	Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
Algorithn	Code:*			WELD-01		7		(Verified)		
Formula:	Coue.							(		
					LDING ROD	1000) EF				
-	Start Date:			1901/01/0	1					
Algorithm	End Date:									
Emission	Factor Chara	cteristic:*		PROCES	S/TYPE/SC	c )(	<u> </u>	(Verified)		
Emission	Factor Criteria:	:		ANY / AN	Y / ANY					
Emission	Factor Set ID:			5973						
Emission	Factor Set Star	rt Date:		1901/01/0	1					
Emission	Factor Set End	Date:								
Start Dat				1901/01/0	1					
End Date										
yyyy/mm										
1111										
				Save & C	reate Anothe	r Save 8	Finish	Cancel		

For welding processes there is only one standard calculation methodology recommended by the Air Force. This calculation is based on the amount of welding rods used in pounds and the EPA provided emission factors for electric arc welding assuming the worst-case scenario for emissions of each pollutant. If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

Select the **Algorithm Code** WELD-01 from the list of values. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process.

Algorithm Code	<b>Emission Factor Characteristic</b>
WELD-01	ANY / ANY / ANY

If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.13.3.1.6 Materials

The last step in setting up the Unique Process record is to add SAWDUST as the authorized material on the *Authorized Materials* tab.

necoids found			Save
Actions with	CAGE Code	Phi Materia	Hag

To authorize a material for the process, click on the <u>Create Authorized Material</u> hyperlink.

Process Equipment Calculations Regula	tory Authorized Materials Industrial Contacts Zones Records Assessments Status
NSN:*	3439PHM00009750
CAGE Code:	33CZ2
PNI:	0
Material Name:	FLEETWELD 37
Authorize?	● Yes ○ No
	Save & Create Another Save & Finish Cancel

Select the material record from the list of values, using the **NSN** or **Material Name**. If SAWDUST is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish**. Repeat this step for all materials used by the process.

For the next higher process this step is not required as the materials are authorized at the sub processes and are automatically imported by the EESOH-MIS interface.

Count Autorized Material				
a recarde recen				0.00
1 Barrow	CASE Com	100	Material Name	Autour Freg
Admine CIChe-	CADE Com		Harris Alex	÷
	CALC Core	1	In Shring LEAD Pres ALLOY	
		1		

#### 3.13.3.2 New Sources

#### 3.13.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Welding Data Collection Worksheet

GENERAL INFORMATION
Building Number Mission/Purpose
Shop Name/Function Management Organization
Coordinates: Latitude: Longitude:
UTM:ZoneEastingNorthing D Feet D Meters
Is this source in any of your permits?  Yes No
If yes, does it have an emission unit number or other designation?
USAGE INFORMATION
Are the welding rods/electrodes purchased through EESOH-MIS?
If Yes, specify the shop and process designation in EESOH-MIS Shop Code Process Code/Name
If No, do you know the total amount of welding rods purchased in the last year?
If yes, document amount in pounds
If no, ask the shop personnel to estimate how often they weld and how many rods they use each time?
Amount Used (lbs)
Frequency

## 3.13.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be at least one Unique Process record. If the EESOH-MIS processes are configured correctly to have welding rods separated from other chemicals, a next higher process needs to be configured. If the data is not configured that way then a welding process can be configured for each shop that conducts welding activities or a single process that tracks all welding activities basewide.

#### 3.13.3.2.2.1 Shop Specific Process

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

INDUSTRIAL V	
	× (Verified)
WELDING, MULTIPLE OPERATIONS	(Verified)
EU 26	
BLDG 450 - CE STRUCTURES	
1901/01/01	
	× (Verified)
○ Yes ● No	
WELD (Verified)	
	BRAZING/SOLDERING/WELDING/CUTTING

Process Category	Process Type	Process Name		Process ID
INDUSTRIAL	BRAZING/SOLDERING/WELDING/CUTTING	WELDING, OPERATIONS	MULTIPLE	IWD1890

Use the values in the table above for the **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BLDG 123 – CE STRUCTURES.

The **Start Date** should be the date the unit became operational. If this date is not known, enter 1901/01/01 as a default start date.

The **Facility should** be the facility name that is responsible for the source or sources.

All welding activities are stationary sources that are assigned to the WELD **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.13.3.2.2.2 Next Higher Process

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:*	INDUSTRIAL T
Process Type:*	
Process Name:*	WELDING, MULTIPLE OPERATIONS
Base Specific:	
Local Process Name:*	BASEWIDE WELDING OPERATIONS
Start Date:* yyyy/mm/dd	1901/01/01
Facility:*	AIR FORCE BASE
Mobile Source?*	Ø Yes ● No
Source Category:Σ	WELD (Verified)

Process Category	Process Type	Process Name		Process ID
INDUSTRIAL	BRAZING/SOLDERING/WELDING/CUTTING	WELDING, OPERATIONS	MULTIPLE	IWD1890

Use the values in the table above for the Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify what the process is for example, BASEWIDE WELDING OPERATIONS.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as a stationary source.

All welding activities are assigned to the WELD **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.13.4 Year-to-Year Maintenance

#### 3.13.4.1 Usage

#### 3.13.4.1.1 Shop Specific Process

The consumption for welding sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the Create Consumption hyperlink.

Create Consumption	
Process ID:*	IBC2131704901
Start Date/Time:* yyyy/mm/dd hhmm	2016/01/01 0000
End Date/Time:* yyyy/mm/dd hhmm	2016/12/31 2359
NSN:*	3439PHM00009750
	CAGE Code: 33CZ2 PNI: 0 Preparation Date: 2007/09/10 EESOH Product Detail ID: 999000186090
Amount:*	30 LBS - POUNDS V
Validate Consumption?	🖲 Yes 🔘 No
Part:	(Unverified)
Issue #:	
Comments:	
	Save Save & Create Another Cancel

The consumption record should span the entire reporting period as shown above. The **Amount** should be recorded in pounds. Make sure to select "Yes" to **Validate Consumption**. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different materials used during the reporting period.

#### 3.13.4.1.2 Next Higher Process

For the Next Higher Process configuration, the consumption is already imported from the EESOH-MIS interface, however it is not validated. The consumption must be validated in the Consumption log.

Manage Consumption	
At least one search criterion in addition to View and I Search Consumption	Data Source is required to perform a search.
Process ID:	
Usage Timeframe: yyyy/mm/dd hhmm	From: To:
Year: уууу	2016
Building:	
Source Category:	WELD 🔁 🖌 🗙
NSN:	
APIMS Facility:	
Shop:	
Issue #:	
View:	◯ Validated Records  ◯ Unvalidated Records  ◉ Both
Data Source:	$\odot$ EESOH-MIS Interface Records $\odot$ APIMS Entered Records $\odot$ Both
	Search Clear Search
Create Consumption	

Use the search criteria to narrow the search results. It is suggested to use the Source Category, Data Source and Year or Usage Timeframe to filter the results.

Consu	mption Log										10 La
+ Searce	th Compression										
(Instan Fill	*		(_Des	(Filter)							
Cost	e Consultation										
(Taplay Vg	16 of 16 records found										1 have
Actions	Local Process Name	Start Date/Tites	End Data/Time	Motorial Norw		Amort	Amount UOM	lesset	Visitatio	4	
idia .	SOLDERING PROCESS	2016/07/07 1953	2010/07/07 1653	795 RMAR FLUX		0	188	2197076			
12.00	SOLDERING TORON	30160329-1423	2016/03/29 1421	INVESTIGATION OF	O-FREE ALLOY	1	126	2262413			
12	SOLDERING TORON	2016/03/29 1418	2010/05/29 1410	ISSSAITUSE LEA	D-FREE ALLOY	3	101	2127900			
19.00	SOLDERING TURON	2010/02/29 1421	2010/03/29 1423	ICLINESSE LEA	O-FREE ALLCY	4	185	2002417			
1414	SCALLERING TOPO1	2016/03/29 1422	2010/03/29 1422	10% SWINSE LEA	G-PREE ALLOY	4	ini	212798		*	
19.90	SOLDERING TORON	2016/03/29 1418	2010/03/20 14:10	10%8N/5%58 LEA	D-PHER ALLCY	1	1215	2127964		×	
100	SCRUENING TORON	2010/03/25 1418	2010/03/29 1418	WINDWENDE LEA	D-FREE ALLOY	1	180	2127965		*	
11.14	NELDING	2016/08/21 1929	2019/06/21 15/29	FLEETWELDTP		t.	1.8%	.2294541			

Check the checkbox next to each material then click **Save** to validate the consumption. Only consumption that is validated will be included in emissions calculations.

#### 3.13.4.2 Emissions Calculations

If the process utilizes EESOH-MIS data then it should be included in the **EESOH-MIS Calculation**, otherwise this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.14 Fire Training (FIRE)

## 3.14.1 Source Types

This source category includes the activities related to the training of military fire fighters. Most fire training is centralized to the Fire Training Academy although many bases also have training facilities at a smaller scale used for periodic refresher training. This training is performed in live fire training pits, which usually include a mock-up metal structure, such as an aircraft, vehicle, or building. These activities involve the use of live fires fueled by liquid propane, JP-8, JP-4 or Tekflame to create a realistic fire scenario. Additionally, fire fighter training may also involve the burning of wooden pallets or hay to sustain fires for the appropriate amount of time needed for training. The emissions produced during this caused by the open combustion of the fuel and the burning of the material (i.e. wood, hay). The pollutants emitted are both criteria pollutants and HAPs.



## 3.14.2 Potential Data Sources

The most common shops that conduct fire training exercises fall under the following office symbol:

• Fire Protection Flight (CES)

There are two different quantities tracked to calculate the emissions from fire training. The first is the quantity of liquid fuel (e.g. JP-8, LPG etc.) used in gallons; the second is the amount of solid fuel, which is the pounds of wood or hay burned. These amounts are usually readily available, especially the amount of fuel used. The amount of material burned can be estimated if the actual amount is not known. Emissions from fire training are usually conducted on a periodic basis and are therefore tracked on an annual basis, unless otherwise specified by permits or regulations.

#### 3.14.3 Standard Source Characterization

#### 3.14.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS.

· · · · · · · · · · · · · · · · · · ·	
Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	FIRE 🔁 🖌 🗙
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value
Permitted Source?	O Yes O No ● Both
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 💿 All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records
	Search

In the **Source Category** search field, type "FIRE" then select the row for Fire Training from the dropdown results. Click the **Search** button.

Search Re	esults						
Create Pro	1C655						
1 records found	i.						
Displaying reco	ords 1 - 1						
Actions	Unique ID Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Bate	Status
Las state of the	644735	FIRE FIGHTING TRAINING FACILITY - LIQUID PROPANE	FIRE		1901/01/01		ACTEVE
140 (10K) HIT.							

The search results grid will now display all the fire training processes currently in APIMS.

#### 3.14.3.1.1 Status

If the status of a process needs to be changed, click the edit 🐱 icon next to the process.

Process	s Equipment	Calculations	Regulatory	Authorized Materia	als Industrial	Contacts	Zones	Records	Assessments	Status	
Chi	ange Current Stat	us									
1 record	is found										
Displayi	ng records 1 - 1										
Actions	Status		Start D	late			End Date			1	Comments
-	ACTIVE		1901/0	101							

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
Start Date:" yyyy/mm/dd	2016/06/12
Comments.	Unit no longer in use.

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.14.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 2	FIRE TRAIN	
Location Σ	FIRE TRAIN	Verified)
Complete Location Name	AFB \ FIRE TRAIN	
Office Symbol 2		(Unventied)
Unt/Organization		
Shop	(Unvenfied)	
Shop Name		
Source Type E	FUGITIVE	
Permitted Source75	O Yes @ No	
Emission Point	ATMOSPHERE Y	
Usage Interval	ANNUAL T	
Next Higher Process	(Unverified)	
Next Higher Process Name:		
EPA Source Class Code		
EPA Industry Group:		
GHG Scope.	Select Value •	
Assessment Barcode		
Exclude Consumption records from EESOH-MIS Interface?	⊙ Yes ■ No	
Operating Schedule	Hrs/Day, Day(s)/Wk, Wks/Yr	
Comments		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, FIRE TRAIN.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

Fire training operations are categorized as a FUGITIVE source in the **Source Type**. Since these activities are conducted in an open-air pit the **Emission Point** would be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated; this source is usually documented on an ANNUAL basis but may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for firefighting training is 2810035000.

#### 3.14.3.1.3 Sub-Processes

This source does not utilize this functionality.

#### 3.14.3.1.4 Equipment

This source does not utilize this functionality.

## 3.14.3.1.5 Calculations

The next tab is the *Calculations* tab.

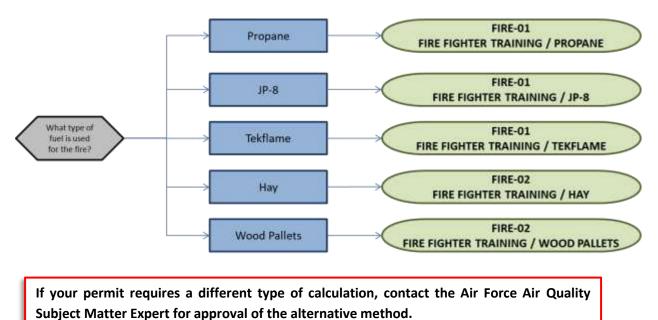
Process Equipment Calculate	ans Regulatory Authory	ed Materialis - Andykittan - Con	tacta Zoneti Ri	scords Attensionents	Status	
rocess Algorithm Assign						
Create Process Algorithm Asa	qument					
records tound.					deres de la companya	
ictions Avenue	Formula	Emission Factor Citteria	econtra hund		Start,Date	End Only

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

Algorithm Code:"	FIRE-01 (Ventied)
Formula	CONSUMPTION'EF
Algorithm Start Date:	1901/01/01
Algorithm End Date:	
Emission Factor Characteristic:"	OPERATION TYPE / FUEL (Verified)
Emission Factor Criteria	FIRE FIGHTER TRAINING / PROPANE
Emission Factor Set ID	2381
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date	
Start Date:"	1901/01/01
End Date: yyyyimmidd	
	Save & Create Another Save & Finish Cancel

For fire training there are two standard calculation methodologies recommended by the Air Force. The first (FIRE-01) is used to calculate emissions from liquid fuel combustion with the usage tracked in gallons. The second (FIRE-02) is used to calculate emissions from the burning of materials such as wood with the usage tracked in pounds.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



#### 3.14.3.1.6 Materials

The last step in setting up the Unique Process record is to add the fuel as the authorized material on the *Authorized Materials* tab.

	Sav
Naterial Name	Authoris Flag
	Naterial Name

To authorize a material for the process, click on the <u>Create Authorized Material</u> hyperlink.

NSN:*	(Ventied)
CAGE Code	EMC
PNI:	A
Material Name	WOOD USED FOR COMBUSTION
Authorize?	Yes ONO

Select the fuel (i.e. WOOD, HAY, JP-8, PROPANE, or TEKFLAME) from the list of values. If the fuel is not available, the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

Process	Epupment i	Calculations Regulatory Au	Athonized Materialis	Industrial Corriacto Zones Records Assessments Solu	714
Cra	ate Authorized Mi	atenal			
3 record	5 TOORIG				
3 record	s found.				Sav
	- 1853 -	FAGE Com	251	Material Nama	San Authon: Reg
Actions	- 1853 -	CAGE Code	<u>EN</u>	Material Name	

## 3.14.3.2 New Sources

#### 3.14.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

Fire Data Collection Worksheet

	GENERAL INFO	ORMATION		
Building Number	Mission/Purp	ose		
Shop Name/Function	Mar	nagement O	rganization	
Coordinates: Latitude:		_ Longitude	::	
UTM: Zone	Easting		Northing 🛛 A	eet 🛛 Meters
Is this source in any of your perm	iits? □ Yes □ No	)		
If yes, does it have an emission u	nit number or other o	lesignation?		
	USAGE INFO	RMATION		
<ul> <li>What type of fuel or fuels are but</li> <li>Propane</li> <li>JP-8</li> <li>Tekflame</li> <li>Hay</li> <li>Wood Pallets</li> </ul>	rned?			
Do they know the total amounts	of each fuel burned d	luring the ye	ear?	
If yes, collect the data				
Fuel:  Propane  JP-8	🛛 Tekflame	🛛 Hay	□ Wood Pallets	
Amount Used				_ 🗆 Lbs 🗖 Gal
If no, do they know how often th used each time?	ey conduct fire traini	ng and an es	timate of the mater	ials and amounts
Fuel:  Propane  JP-8	□ Tekflame	🛛 Нау	□ Wood Pallets	
Amount Used				_ 🗆 Lbs 🗖 Gal
Frequency				

#### 3.14.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of fuel.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:"	INDUSTRIAL •	
Process Type:"	PROTECTIVE SERVICES-FIRE	Verified
Process Name:"	FIRE TRAINING PIT, PROPANE	Verified
Base Specific:		
Local Process Name:"	FIRE TRAINING - PROPANE	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:"	AIR FORCE BASE	Venfied
Mobile Source?"	Ves 🖲 No	
Source Category:Σ	FIRE (Verified)	
Source Galegory 2	Save Cancel	

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	PROTECTIVE SERVICES-FIRE	FIRE TRAINING PIT, JP-8	IPF1462
INDUSTRIAL	PROTECTIVE SERVICES-FIRE	FIRE TRAINING PIT, PROPANE	IPF1463
INDUSTRIAL	PROTECTIVE SERVICES-FIRE	FIREFIGHTING TRAINING	IPF1465

Use the table above to determine the appropriate **Process Category**, **Process Type** and **Process Name**. For the JP-8 and Propane, select the specific Process Name that applies, for Tekflame, wood pallets or hay, choose the generic Firefighting training.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, FIRE TRAINING – HAY.

The **Start Date** should be the date the source became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All fire training emission units are assigned to the FIRE **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.14.4 Year-to-Year Maintenance

#### 3.14.4.1 Usage

The usage for fire training sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	ER181913013001	(Verified)
Start Date/Time:* vyyy/mm/dd hhmm	2016/01/01 0000	
End Date/Time:" /yyy/imm/dd hhmm	2016/12/31 2359	
NSN:"	WOOD OOW	(Venilied)
	CAGE Code: EMC PNI: A Preparation Date EESOH Product Detail ID:	ie: 1901/01/01
Amount:"	890 LBS - POU	INDS
/alidate Consumption?	😻 Yes 💿 No	
Part		(Unventied)
ssue #		
Comments:		

The consumption record should span the entire reporting period as shown above. The material should be the fuel and the amount should be the amount of liquid fuel in gallons or solid fuel in pounds. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

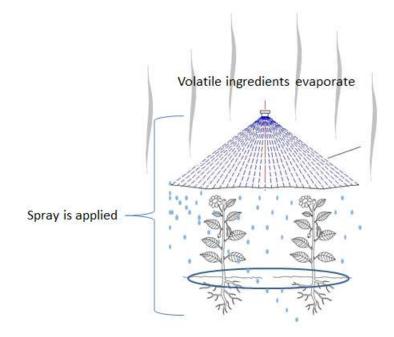
#### 3.14.4.2 Emissions Calculations

To correctly calculate emissions, this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.15 Pesticide/Herbicide Application (PEST)

## 3.15.1 Source Types

This source category includes the application of pesticides, herbicides, insecticides, fungicides, and rodenticides. Throughout this document the term pesticide will include all of the above mentioned eradication applications. These operations are conducted at most Air Force installations to control weeds, insects and occasionally rodents. Among others, these applications come in a variety of formulations, such as a solution/liquid (ready to use), emulsifiable concentrate, aqueous suspension, granular/flake, dust/powder, and aerosol sprays. The method of application varies according to the target pest and the crop or item to be protected. The pesticide may be applied in a variety of ways, including directly on the pest, on the host plant, on the soil surface, beneath the soil surface, or in an enclosed air space. Pesticides usually contain an active ingredient that is defined in 40 CFR Part 152.3 as any substance that will prevent, destroy, repel or mitigate any pest, or that functions as a plant regulator, desiccant, or defoliant. An inert or inactive ingredient is any substance other than an active ingredient, that is intentionally included in the pesticide product. Air pollutants may be emitted during the pesticide application or up to 30 days after the application. Pesticide application results in emissions of VOCs and organic HAPs. These emissions are a function of the vapor pressure of the active ingredients, as it is indicative of the evaporation rate of the pesticide. The most conservative calculation method is a mass balance method, which assumes all VOCs and HAPs are emitted to the atmosphere. This is the calculation method preferred by the Air Force for pesticide emissions.



## 3.15.2 Potential Data Sources

Pesticides are generally considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). The best method for collecting usage data is through the EESOH-MIS to APIMS interface. To do this it is important to work with the Hazardous Materials Management personnel to segregate pesticide materials into distinct processes. The EESOH-MIS process

should track only the pesticides and not any other materials in the shop. If the pesticides are authorized to a process that is also authorized for other materials such as solvents the process cannot be accounted for under the PEST source category and must be calculated under the CHEM source category. If the pesticides are separate processes in EESOH-MIS, the processes, materials and consumption data will be automatically populated in APIMS.

When pesticides are not tracked in EESOH-MIS the total amount in gallons or pounds of pesticides used, along with the Safety Data Sheets for the materials used during application is needed. This information is usually tracked by the Entomology shop in the IPMIS system. Pesticide usage is usually only required to be tracked on an annual basis.

The most common shops that have significant pesticide operations fall under the following office symbols:

- Entomology Shop CEOIE
- Golf Course

The material information is essential to the pesticide application emissions calculations. For all usage information that is imported from EESOH-MIS there should also be material records that contain most if not all the required information. For manually entered usage, the Safety Data Sheets will need to be obtained. Most shops maintain Hazard Communication folders that contain all the Safety Data Sheets for materials used. If the Safety Data Sheets are not available in the shop, most are available on manufacturer websites. All materials will need the following information populated in APIMS.

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

The EESOH-MIS interface will populate most of this data. However, if the VOC is not readily available on the SDS it may not be entered into EESOH-MIS. Since the EESOH-MIS interface inserts so many material records at one time it is not feasible to review each record for completeness. Therefore, it is recommended to initially assume the data required is present and run the initial calculations. Once the calculations have been run, there is a tab that will provide error messages that will identify all the records that are missing VOC or ingredient information. Refer to Section 2.7 Emissions Calculations for details on the calculation error messages. For these materials the VOC can be calculated based on the ingredients. A general knowledge of chemistry will be required for this. If the VOC or % Solids cannot be obtained from the SDS or the manufacturer the Air Emissions Guide for Air Force Stationary Sources provides estimated values in Table 22-1.

## 3.15.3 Standard Source Identification/Characterization

## 3.15.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory. Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	PEST X
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value 🔻
Permitted Source?	○ Yes ○ No ● Both
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records
	Search

In the **Source Category** search field, type "PEST" then select the row for Herbicide/Pesticide Application from the dropdown results. Click the **Search** button.

_									
	Creat	le Proc	855						
25 re	cord	s found	r.						
Displ	laying	p record	ds 1 - 10						
1	totion	5	Unique ID - Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Date	Status
10	18	120	644523	BASEWIDE PESITICIDE USAGE	PEST		1901/01/01		ACTIVE
14	-	÷.	20780	INSECT REPELLANT FOR DEPLOYMENT	PEST		2011/04/07		ACTIV
100	-	9	20554	INSECTICIDES	PEST		2010/06/27		ACTIV
100	-	100	20545	RODENTICIDE	PEST		2010/08/25		ACTIV
10	-	10	20319	PEST MANAGEMENT INSECT AEROSOL	PEST		2006/12/12		ACTIV
10		10	20222	PEST CONTROL	PEST		2006/06/01		ACTIV
128	-	10	20163	BUILDING PEST CONTROL	PEST		2008/07/09		ACTIV
58	100	12	11701	PERSONAL PROTECTION REPELL INSECTS	PEST		2008/03/09		ACTIV
10	-	D	11589	PEST CONTROL-PELLETS	PEST		2003/11/18		ACTIV
1	12	40	11588	PEST CONTROL-BAITING/TRAPPING	PEST		2002/05/19		ACTIV

The search results grid will now display all the pesticide application processes currently in APIMS. To further filter out the EESOH-MIS processes, use the APIMS Entered Records radio button on the Data Source field in the Search criteria. This will then only display the Next Higher Process.

#### 3.15.3.1.1 Status

If the status of a process needs to be changed, click the edit 🐱 icon next to the process. If this is a process that was entered into APIMS via the EESOH-MIS interface, the process status must be altered in EESOH-MIS.

Process	s Equipment	Calculations	Regulatory	Authorized Materials	e Industrial	Contacts	Zones	Records	Assessments	Status	
🖸 Chi	ange Current Sta	itus									
1 record	is found										
Displayi	ng records 1 - 1										
Actions	Status		Start Da	ste		1	End Date			Co	mments
-	ACTIVE		1901/01	U01							
Page 1											

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

itatus:"	INACT - INACTIVE
itart Date:" 'yyy/mm/dd	2016/06/12
Comments.	Unit no longer in use.
	e e e e e e e e e e e e e e e e e e e

Select the appropriate status from the Status dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.15.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Definition Information Sub-Processes		
Building No.:Σ	336	
Location I	BUILDING 336	(Venhed)
Complete Location Name	AFB \ BUILDING 336	
Office Symbol 2	CEOM	(Venfied)
Unit/Organization	0000 AF CIV ENGINEER FT 0000	
Shop	P0199 (Venfied)	
Shop Name	ENTOMOLOGY	
Source Type Σ	ARIEA	
Permitted Source?Σ	🗇 Yes 🖲 No	
Emission Point.	ATMOSPHERE •	
Usage Interval	ANNUAL •	
Next Higher Process	(Unverified)	
Next Higher Process Name		
EPA Source Class Code		
EPA Industry Group:		
GHG Scope	Select Value *	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	🔍 Yes 💌 No	
Operating Schedule	Hrs/Day, Day(s)Wk, Wks/Yr	
Comments.		
	Save Cancel	

The **Building No**. field can be used to specify a general location or area of the emission source. If this is a next higher process or a process for all pesticide application across the base, specify BASEWIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit.

Pesticide applications are categorized as an AREA source in the **Source Type**.

The **Emission Point** should be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis but may be a different time interval if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for pesticide application is 2465800000.

#### 3.15.3.1.3 Sub-Processes

For Next Higher Process configuration, navigate to the *Sub-Processes* sub tab.

Process	s. Equipment Calcutati	ons Regulatory Authorized Naterials	Industrial Contacts	Zones Record	s Assessm	enta Status	811	
Definition	a information Sub-Pr	ocesses						
Crea	te Sub-Process Associat	on						
24 record	g records 1 - 10							
Actions	Unique ID Base Specific	Local Process Name		Source Cat Code	Bidg No.	Start Date	End Date	Status
×	20319	PEST MANAGEMENT INSECT AEROSOL		PEST	211 112	2008/12/12	S	ACTIV
	11588	PEST CONTROL-BAITING/TRAPPING		PEST		2002/08/19		ACTIV
	1322	ADDING MOSQUITO TOSSES IN STANDIN	G WATER	PEST		2004/04/04		ACTIV
	1146	RODENT TRAPPING		PEBT		2002/06/25		ACTIV
	11559	PEST CONTROL-PELLETS		PEST		2003/11/18		ACTIN
ix.	10989	PEST CONTROL-INDOORS		PEST		2002/08/19		ACTIV
*	10463	INSECT CONTROL		PEST		2003/11/17		ACTIV
	10090	WEED CONTROL/GROUNDS		PEST		2002/06/19		ACTIV
×	1282	PESTICIDE APPLICATION		PEBT		2003/40/20		ACTIV
	10396	PEST CONTROL		PEST		2005/02/19		ACTIV

This sub tab is used to specify which processes should have their consumption rolled up to this next higher process. This list should only include the pesticide processes that were imported from EESOH-MIS and that have only pesticide material authorized, if other chemicals are authorized to the process, do not

associate them to this pesticide process. To add a process, click the <u>Create Sub-Process Association</u> hyperlink.

Proce	Contract of the second s	and the second se	Regulatory	Authorized Materials R	ndusinal Contacta	Zones	Records	Assessments	Status	
Defail	Internation	Sub-Processes								
• Sea	arch Processes									
1999 (j										
	rocess:		1	to to the second second	× + 2					
St	tatus:		1	Select Value	•					
Se	ource Category:		6	PEST	X	Null	Source Categ	ory 💷		
Fa	acility:		(					X		
Pe	ermitted Processes:			🛛 Yes 🖲 No						
					5					
			1	Search Clear Search						
2 recon	ds found.									
Save	Cancel									
e	Unique ID Base Speci	fic Local	Process N	ime	Source Cat.	Code	Ilidg.No.	Start Date	End Date	Statu
e.	20319	PEST	MANAGEM	ENT INSECT AEROSOL	PEST			2008/12/12		ACTIN
8	10590	WEEG	CONTROL	GROUNDS	PEST			2002/08/19		ACTIV
Save	Cancel									

Use the Search Processes fields to refine the search to find only the pesticide processes. Select the checkbox next to the appropriate process(es), then click the **Save** button.

#### 3.15.3.1.4 Equipment

Pesticide operations do not have equipment associated.

#### 3.15.3.1.5 Calculations

The next tab is the *Calculations* tab.

ocess Algorithm Assign	ment		
Create Process Algorithm Ass	igomeo!		
records found.			

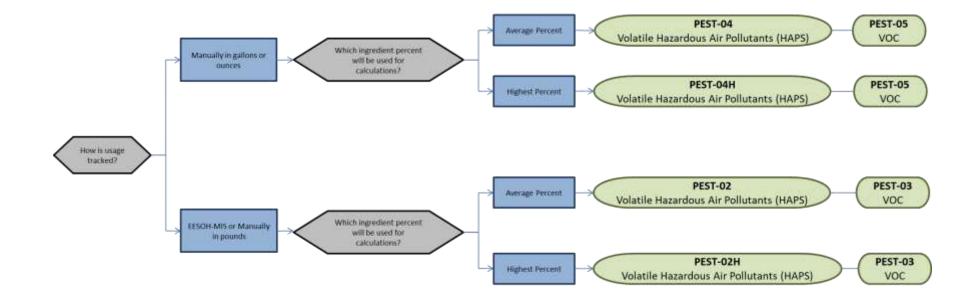
To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Algorithm Code:"	(Venfied)
Formula	QUANTITY APPLIED*WT% HAP (AVERAGE)
Algorithm Start Date	1901/01/01
Algorithm End Date:	
Emission Factor Characteristic:"	EMISSION TYPE
Emission Factor Criteria	VOLATILE HAZARDOUS AIR POLLUTANTS (HAPS)
Emission Factor Set ID:	5811
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date	
Start Date:" yyyy/mm/dd	1901/01/01
End Date. yyyy/mm/dd	
	Save & Create Another Save & Finish Cancel

Select the **Algorithm Code** and the **Emission Factor Characteristic** that most closely matches the activity. Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic. Enter the **Start Date** to match the start date of the process.

For pesticide processes a mass balance calculation methodology is recommended by the Air Force. Pesticide emissions are calculated utilizing the material VOC and a mass balance based on ingredients. Therefore, there are TWO algorithms that need to be associated to each pesticide process, one for VOC and one for HAPS.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.15.3.1.6 Materials

The last step in setting up the Unique Process record is to authorize materials on the *Authorized Materials* tab. This step is only required for processes that use manual logs to track usage in APIMS.

All processes that use the consumption data from EESOH-MIS are automatically configured at the sub-process level by the interface.

Create Authorized Material	Ĺ			
0 records found				
				Sav
Actions TTT -	CAGE CHOR	ENI	Material Name	Authoria Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

NSN:"	(8840004562443)
CAGE Code	67184
PNI	0
Material Name	PRESCRIPTION TREATMENT BRAND WASP-FREEZE WASP & HORNET KILLER FORMUL
Authorize?	I Yes No

Select the material record from the list of values, using the **NSN** or **Material Name**. If the material is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish** or **Save & Create Another**. Repeat this step for all materials used by the process.

22 rect	eate Authorized Materia ordis found				Save
Actions	191	CAGECOR	EM	Material Name	Authorize Flag
	12455-79		10	CONTRAC BLOX	8
14	3724-351	1.8	1	GENTROL KIR.	×
1	182-744	1	٠t.	ADVION ANT GEL	8
	432.1254	11	1	MAXPORCE ROACH KILLER BAIT OEL	8
Q	432-1264	3.¥	1	MAXFORCE FC ANT WILLER BAIT GEL	2
-	432-3400		9.2	MAXPORCE PC MAGNUM ROACH KILLER BAIT GEL	×.
	432-772	- 18	1	DELTA DUST	8
	495-362	- Y	1	PT 515 WASP FREEZE	8
14	489-496	1	Ŧ	ADVANCE 3664 DUAL CHOICE ANT BATT STATIONS	8
1	6540004552445	47384	0	PRESCRIPTION TREATMENT BRAND WASP-PREEDE WASP & HORNET KILLER FORMALA 1	×
12	1840000257849	17164	0.7	IRRESCRIPTION TREATMENT BRAND 585 PLUS XLD FORMULA 2	8

## 3.15.3.2 New Sources

## 3.15.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

## Pesticide Data Collection Worksheet

	GENERAL INFORMATIC	DN
Building Number	Mission/Purpose	
Shop Name/Function	Managemen	t Organization
Coordinates: Latitude:	Longitu	ude:
UTM:Zone	Easting	Northing 🛛 Feet 🗆 Meters
Is this source in any of your pern	nits? 🗆 Yes 🛛 No	
If yes, does it have an emission u	unit number or other designation	on?
	USAGE INFORMATION	N
Are the pesticides/herbicides/ro	denticides purchased through	EESOH-MIS? 🗆 Yes 🗖 No
If Yes, specify the shop and proc Shop Code	•	
If No, do you know the total amo	ount of materials purchased in	the last year? 🛛 Yes 🗖 No
If yes, do you have usage record	s?□Yes □ No	
If yes, collect the usage records.		
		pesticides, what types and how much is nation that must be collected for each
Material Name		
Amount Used		🗆 Lbs 🗖 Gal
Frequency		
Do they have Safety Data Sheets	for the materials used? $\Box$ Yes	□ No
If yes, collect copies.		

If no, collect the name and manufacturer of the product. This can be used to contact the manufacturer to obtain a Safety Data Sheet.

## 3.15.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be at least one Unique Process record. If the EESOH-MIS processes are configured correctly to have pesticides separated from other chemicals, a next higher process needs to be configured. If the data is not configured that way then a pesticide process can be configured for each shop that conducts pesticide applications or a single process that tracks all pesticide applications basewide.

#### 3.15.3.2.2.1 Shop Specific Process Configuration

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:"	INDUSTRIAL	
Process Type:"	PEST CONTROL	Venfied
Process Name:"	PEST CONTROL, MULTIPLE OPERATIONS	Venfied
Base Specific:		
Local Process Name:"	BLDG 336 - ENTOMOLOGY	
Start Date:" yyyy/mm/dd	1901/01/01	
Facility:*	AFB	bedneV) 🗙 🕶 🗂
Mobile Source?*	🔘 Yes 🖲 No	
Source Category:Σ	PEST (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	PEST CONTROL	PEST CONTROL, MULTIPLE OPERATIONS	IPC1772

Use the values provided in the table above to enter the Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BLDG 336 – ENTOMOLOGY.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

All pesticide activities are stationary sources that are assigned to the PEST **Source Category**.

## 3.15.3.2.2.2 Next Higher Process Configuration

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:"	INDUSTRIAL Y	
Process Type:"	PEST CONTROL	Venified)
Process Name:*	PEST CONTROL, MULTIPLE OPERATIONS	Verified
Base Specific:		
Local Process Name:*	BASEWIDE PESTICIDE USE	
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:*	AFB	Verified
Mobile Source?"	Ves 🖲 No	
Source Category:Σ	PEST (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	PEST CONTROL	PEST CONTROL, MULTIPLE OPERATIONS	IPC1772

Use the values provided in the table above to enter the **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify what the process is for example, BASEWIDE PESTICIDE USE.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All pesticide activities are assigned to the PEST **Source Category**.

#### 3.15.4 Year-to-Year Maintenance

#### 3.15.4.1 Usage

#### 3.15.4.1.1 Shop Specific Process Configuration

The consumption for pesticide emissions usually needs to be tracked annually or as required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	IPC1772644523	Vectied)	
Start Date/Time:* /yyy/imm/dd hhmm	2016/01/01 0000	9	
End Date/Time:* /yyy/mm/dd hhmm	2016/12/31 2359	8	
NSN:"	6840004592443	(Verified)	
	CAGE Code: 67184 PNI: 0 Pr EESOH Product Detail ID: 9990	날 바람이 가지 않는 것이 같은 것이 가지 않는 것이 같은 것이 집에 가지 않는 것이 같이 있다. 것이 같은 것이 같은 것이 같은 것이 같이 없다. 것이 같은 것이 같은 것이 같은 것이 같이 없다. 가지 않는 것이 없는 것 않이	
Amount:"	16	FL OZ - FLUID OUNCE	
validate Consumption?	🛎 Yes 💿 No		
Part	(	(Unverified)	
issue #		1	
Comments			

The consumption record should span the entire reporting period as shown above. The **Amount** should be recorded according to the algorithms selected. Make sure to select "Yes" to **Validate Consumption**. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different materials used during the reporting period.

#### 3.15.4.1.2 Next Higher Process Configuration

The consumption for pesticide emissions usually needs to be tracked annually or as required by a regulatory agency. For the Next Higher Process configuration, the consumption is imported from the EESOH-MIS interface with each interface run, however it is not validated. The consumption must be validated in the Consumption log.

Manage Consumption	<u>ו</u>
At least one search criterion in addit Search Consumption	ion to View and Data Source is required to perform a search.
Process ID:	
Usage Timeframe: yyyy/mm/dd hhmm	From: To:
Year: уууу	2016
Building:	
Source Category:	PEST 🔁 🗸
NSN:	
APIMS Facility:	
Shop:	
Issue #.	
View:	Validated Records Unvalidated Records Obth
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Solution
Create Consumption	Search Clear Search

Use the search criteria to narrow the search results. It is suggested to use the Source Category, Data Source and Year or Usage Timeframe to filter the results.

10.05	arch Consumption								
Clinitial P	PHE:		Chur Feur						
Co:	ente Consumption								
Deplays	ng 36 of 36 records found								Se
rions.	Local Process Name	Start Date Time	End Date/Time	Material Name	Amount	Amount UOM	Issuet	Validate	8
1.	INSECT REPELLANT FOR D	2016/07/13 1855	2916/07/13 1855	SAWYER PREMRIM INSECT REPELLENT CL.	4.5	LBS	2210671		н,
EN.	INSECT REPELLANT FOR D	2016/07/11 1741	2010/07/11 1741	SAWYER PREMIUM INSECT REPELLENT CL	4.5	LBS	2210068		¥.
-	INSECT REPELLANT FOR D	2016/07/11 1502	2016/07/11 1502	PERMETHRIN ARTHROPOD REPEILENT, IN	4.5	LBS	2214725		*
UN .	INSECT REPELLANT FOR D	2016/07/07 1534	2018/07/07 1534	SAWYER PREMIUM INSECT REPELLENT CL	4.5	LBS	2210656		*
-	INSECT REPELLANT FOR D	2016/07/06 1346	2016/07/06 1346	SAWYER PREMIUM INSECT REPELLENT CL	4.5	LBS	2210657		*
-	INSECT REPELLANT FOR D	2016/00/06 1346	2016/06/08 1346	SAWYER PREMIUM INSECT REPELLENT CL.	4.5	LBS	2210669		×.
-	INSECT REPELLANT.FOR D	2016/05/06 1734	2016/05/06 1734	SAWYER INSECT REPELLENT	4.6145	LBS	2280262		
	INSECT REPELLANT FOR D	2016/05/00 1734	2016/05/06 1734	SAWYER PREMIUM INSECT REPELLENT CL.	4.5	1.85	2210670		

Check the checkbox next to each material then click **Save** to validate the consumption. Only consumption that is validated will be included in emissions calculations. The simplest use case for validating rows is to start by checking the top box in the grid to validate all rows present. After all boxes are checked, click **Save**.

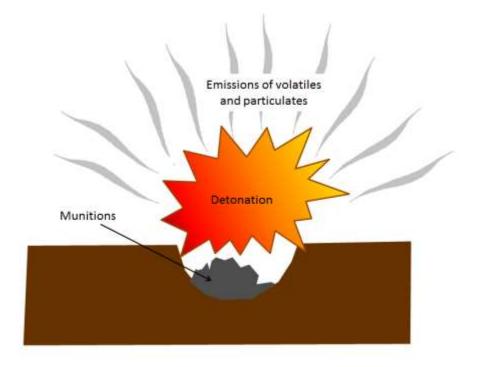
## 3.15.4.2 Emissions Calculation

If the process utilizes EESOH-MIS data then it should be included in the **EESOH-MIS Calculation**, otherwise this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.16 Munitions Open Burn / Open Detonation (OBOD)

## 3.16.1 Source Types

This source category includes the open burning and/or open detonation of munitions. This is often utilized as a means of disposing of bulk explosives, bulk propellants, small arms ammunition, highly explosive incendiary (HEI) cartridges, bomb fuses, mines, flares/signals, other bulk, obsolete, or unserviceable munitions and energetic materials. Munitions and assembled energetic materials are defined as items in which the explosive materials are contained within a metal casing. Munitions include small arms ammunition and HEI cartridges. Assembled energetic materials include bomb fuses, mines, flares/signals, and other similar items. Bulk energetic materials include bulk explosives (e.g., TNT, Composition B, RDX, smokeless powder) and bulk propellants (e.g., ammonium perchlorate, M-3, M-9, M-43, MK-6). This activity is usually completed on a periodic or as needed basis and generates emissions of criteria pollutants, organic and inorganic HAPs, and greenhouse gases.



#### 3.16.2 Potential Data Sources

Part of effective munitions storage and maintenance requires the detonation of expired munitions; therefore, any shop or area that uses munitions will most likely also have open burning/open detonation activities. Some shops utilize a popping furnace to destroy powder charges and primers of small arms ammunition. The most common shops that conduct munitions and energetic material burning/detonations fall under the following office symbol:

- Operations Flight (CEO)
- Explosive Ordnance Disposal Flight (CED)
- Military Police
- Gun range

- Test and Training Range
- Security Forces

There are two different quantities that must be tracked to calculate the emissions from open burning/open detonation. The first is the specific munition by Department of Defense Identification Code (DODIC) or energetic material that was burned/detonated. The second is the amount of material burned or detonated, usually in rounds or pounds. These amounts are usually readily available from the organization conducting the open burn/open detonation. Emissions from open burn/open detonation are usually conducted on a periodic basis and are therefore tracked on an annual basis, unless otherwise specified by permits or regulations.

## 3.16.3 Standard Source Identification/Characterization

## 3.16.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	OBOD CBOD
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value
Permitted Source?	○ Yes ○ No ● Both
Mobile Source?	○ Yes ○ No ○ Unsure ● All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records
	Search

In the **Source Category** search field, type "OBOD" then select the row for Open Burn / Open Detonation from the dropdown results. Click the **Search** button.

000	ai ci	1130	sults						
0	Creat	# Pro	cess						
55 re	cord	s foun	d.						
Disp	laying	1 1000	rds 1 - 10						
1	lction	6	Unique ID Base Specific	Local Process Name	Source Cat Code	Bidg No.	Start Date	End Date	Status
100	18	31	680680 UNP	TYPE 99A GRENADE	0800		2014/01/01		ACTIVE
150		32	680646 UNP	TOVER	OBOD		2014/01/01		ACTIVE
	-	0)	697196 UNP	SIMULATOR - HAND GRENADE M116A1	0900		2015/01/01		ACTIVE
1	1	100	704969 UNP	S75 ELECTRIC SQUIB	0800		2016/01/01		ACTIVE
10	-	30	680674 UNP	MK 2 GRENADE	OBOD		2014/01/01		ACTIVE
1	*	٩	704971 UNP	MK 277 ENHANCED BLANK CARTRIDGE	0800		2016/01/01		ACTIVE
14	-	0	686667 UNP	MEDIUM VELOCITY BLANK MK278	OBOD		2014/01/01		ACTIVE
100		1	680665 UNP	MS FIRING DEVICE	OBOD		2014/01/01		ACTIVE
100	18	0	607191 UNP	M49A2	0800		2015/01/01		ACTIVE
100			704968 UNP	M327 COUPLING BASE RING FIRING DEVICE	OBOD		2016/01/01		ACTIVE

The search results grid will now display all the open burn/open detonation processes currently in APIMS.

#### 3.16.3.1.1 Status

If the status of a process needs to be changed, click the edit 🐱 icon next to the process.

Process	s Equipment Calcu	Autions Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
Chi	ange Current Status									
1 record	is found									
Displayi	ing records 1 - 1									
Actions	Status	Start D	ate		E	End Date				Comments
-	ACTIVE	1901/0	U01							

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
Start Date:* yyyy/mm/dd	2016/06/12
Comments	Unit no longer in use.

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.16.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 2		
Location 2	AREA 87	Ey-x (Unverified)
Complete Location Name	AREA 87	
Office Symbol:2		(Unverified)
Unit/Organization		
Shop:	Z87	/enfied)
Shop Name	SECURITY FORCES SUPPLY	
Source Type X	•	
Permitted Source?I	🗢 Yes 🕷 No	
Emission Point.	ATMOSPHERE .	
Usage Interval:	ANNUAL •	
Next Higher Process		Jovenfied)
Next Higher Process Name		
EPA Source Class Code:		
EPA Industry Group		
GHG Scope:	1 *	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	© Yes ∉ No	
Operating Schedule:	Hrs/Day, Day(s)/Wk,	Wks/Yr
Comments		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, RANGE.

The **Location** field can be very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are conducting the training and will be the best source of information regarding the activity.

Fire training operations are categorized as an AREA source in the **Source Type**. Since these activities are conducted in an open-air pit the **Emission Point** would be ATMOSPHERE.

The **Permitted Source?** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis but may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.16.3.1.3 Sub-Processes

This source does not utilize this functionality.

#### 3.16.3.1.4 Equipment

This source does not utilize this functionality.

### 3.16.3.1.5 Calculations

The next tab is the *Calculations* tab.

Process Equipment Calculate	ans Regulation Authory	ed Materials Industrias Contact		Adversariants Statut	
rocess Algorithm Assign					
Create Process Algorithm Ass	goment				
records found.					
ctions Alexandre -	Formula	Emission Factor Cinetia	nan hund	Start Date	End Oute

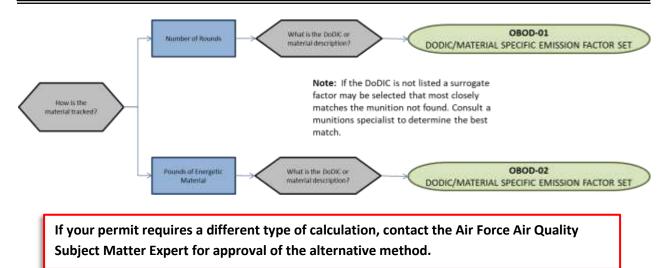
To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

Algorithm Code:"	OBOD-01 (Venified)
Formula:	NUMBER OF ROUNDS CONSUMED*EMISSION FACTOR
Algorithm Start Date:	1901/01/01
Algorithm End Date	
Emission Factor Characteristic:	DODIC (DESCRIPTION)
Emission Factor Orteria:	M130 (M6 ELECTRIC BLASTING CAP)
Emission Factor Set ID:	4861
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date	
Start Date:*	1901/01/01
End Date:	1000
yyyy/mm/dd	

For open burning/open detonation there are two standard calculation methodologies recommended by the Air Force. The first (OBOD-01) is used to calculate emissions by DODIC (Department of Defense Identification Codes) with the usage tracked in rounds. The second (OBOD-02) is used to calculate emissions by DODIC with the usage of NEW (Net Explosive Weight) tracked in pounds.

Select the **Algorithm Code** and the **Emission Factor Characteristic** that most closely matches the activity. Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic. Enter the **Start Date** to match the start date of the process.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



#### 3.16.3.1.6 Materials

The last step in setting up the Unique Process record is to add the munition as the authorized material on the *Authorized Materials* tab. For ease of use and to minimize maintenance time it is recommended to create a generic material record for NUMBER OF ROUNDS or MUNITIONS that is associated to all OBOD processes. The calculations for open burning/open detonation does not utilize any material record attributes so a single record will suffice.

Create Authorized Mat	enal		
0 records found			
			Save
Actions In the	CAGE Grow	Phil Waterial Name	Authoria
		No records found	
			1.00

To authorize a material for the process, click on the <u>Create Authorized Material</u> hyperlink.

NSN:"	NUMBER OF ROUNDS
CAGE Code:	EMC
PNE	A
Material Name:	NUMBER OF ROUNDS
Authonze?	🕷 Yes 🔍 No
	Save & Create Another Save & Finish Cancel

Select the munition record (i.e. NUMBER OF ROUNDS or MUNITIONS etc.) from the list of values. If the munition record is not available, the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

## 3.16.3.2 New Sources

## 3.16.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Open Burn / Open Detonation Data Collection Worksheet

		GENERAL INFO	RMATION	
Building Numbe	r	Mission/Purpo	se	
Shop Name/Fun	ction	Mana	agement Organi	ization
Coordinates: L	atitude:		_Longitude:	
UTM:	Zone	Easting		_Northing 🛛 Feet 🗆 Meters
Is this source in	any of your permits	? 🗆 Yes 🗆 No		
If yes, does it ha	ve an emission unit	number or other de	esignation?	
		USAGE INFOR	MATION	
What types of m	unitions are burned	d/detonated?		
If the exact amo		irned/detonated? n estimate will suffi		
Total Amount Bu	urned/Detonated			□ Rounds □ Lbs
DoDIC/Descripti	on			
Total Amount Bu	urned/Detonated			□ Rounds □ Lbs
*****	******	*****	****	******
DoDIC/Descripti	on			
Total Amount Bu	urned/Detonated			🗆 Rounds 🗆 Lbs
		******		*******

#### 3.16.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of material detonated.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL V	
Process Type:*	WEAPONS & ORDNANCE	Verified
Process Name.*	EOD, EXPLOSIVES DETONATING	
Base Specific:		
Local Process Name:*	EOD - M6 ELECTRIC BLASTING CAPS - DOCIC=M130	]
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:*	AIR FORCE BASE	Verified
Mobile Source?*	◎ Yes ● No	
Source Category:Σ	OBOD (Verified)	

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	WEAPONS & ORDNANCE	EOD, EXPLOSIVES DETONATING	IWP1433
INDUSTRIAL	WEAPONS & ORDNANCE	ROCKET MOTOR DETONATION	IWP1874
INDUSTRIAL	WEAPONS & ORDNANCE	ORDNANCE TESTING	IWP1749

Use the table above to determine the appropriate **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help best identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, EOD – CARTRIDGE 12 GAUGE MK275 or EOD – M6 ELECTRIC BLASTING CAPS – DODIC M130.

The **Start Date** should be the date the source became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as a stationary source.

All open burn/open detonation emission units are assigned to the OBOD Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

#### 3.16.4 Year-to-Year Maintenance

#### 3.16.4.1 Usage

The usage for open burn/open detonation sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	IWP1433641245UNP	(Ventied)	
Start Date/Time:* yyyy/mm/dd.hhmm	2016/01/01 0000	3	
End Date/Time:" yyyy/mm/dd hhmm	2016/12/31 2359	3	
NSN:"	NUMBER OF ROUNDS	Verified)	
	CAGE Code: EMC PNI: A Pr EESOH Product Detail ID:	eparation Date: 1901/01/01	
Amount:"	109	RND - ROUNDS OF AMMUNITION	
Validate Consumption?	Yes O No		
Part.		Unverified)	
ssue #	0		
Comments			

The consumption record should span the entire reporting period as shown above. The material should be the NUMBER OF ROUNDS or other generic material record and the amount should be the amount of rounds or pounds of energetic material. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

#### 3.16.4.2 Emissions Calculations

To correctly calculate emissions, this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

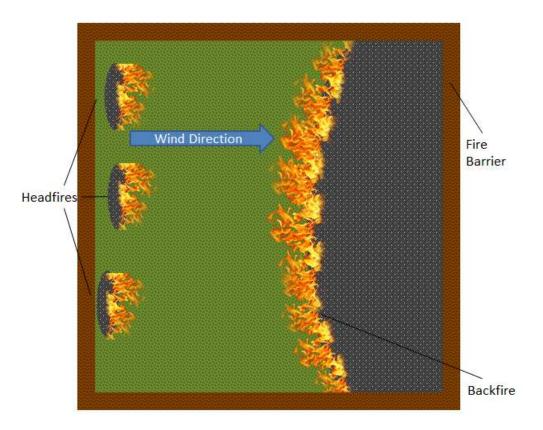
## 3.17 All Other Sources

## 3.17.1 Prescribed Burning (BURN)

## 3.17.1.1 Source Types

Prescribed burns and open burning occurs at some Air Force installations on a periodic basis. This classifies it as a transitory source for the purposes of air quality. As such, it should not be included in the standard Air Force AEI.

Prescribed burning is defined as the management of forests, ranges, and wetlands to accomplish natural resource management objectives. This is a cost effective method that includes the following objectives: treatment of an area for the purpose of reducing the potential for wildfires, removing logging residues, controlling insects and disease, increasing water yield, or controlling insect population and plant overgrowth without the use of herbicides and pesticides.



Prescribed burns usually have four phases of combustion: preheating, flaming, glowing and smoldering. Each phase produces different amounts of emissions relative to each other due to the combustion temperatures and combustion efficiencies. Therefore, the total emissions from prescribed burning depend on the time spent in each phase. The preheating phase is typically the "cleanest" phase since few pollutants are emitted into the atmosphere. In contrast, the smoldering phase describes the portion of the process in which combustion is incomplete and inefficient, resulting in a much higher ratio of emitted pollutants per fuel consumed. The combustion efficiency varies in the flaming and glowing phases which, in turn, lead to varying amounts of emitted pollutants. It is common for an area to have multiple types of vegetation; in this case each type of vegetation and combustion phase will need to be accounted for.

Open burning is defined as the combustion of materials in unenclosed areas such as in open drums, baskets, fields, or pits. Materials commonly disposed of in this manner include municipal waste, auto body components, landscape refuse, agricultural field refuse, wood refuse, bulky industrial refuse, and leaves.



Emissions from the open burning of agricultural materials are dependent on the moisture content and compactness of the material.

## 3.17.1.2 Potential Data Sources

Base Civil Engineers conducts the open burning and prescribed burning of agricultural materials on Air Force installations. These activities are usually coordinated with regulatory agencies and the fire department. Usually, the burning only occurs during certain weather conditions. The Civil Engineer office should be able to provide the data on vegetation type and combustion phases. However, the U.S. Forest Service also may be able to provide the typical vegetation found in the area for prescribed burns.

The data elements required to accurately calculate emissions are as follows:

- Acres or tons of material burned
- Type of burning (open or prescribed)
- Agricultural material(s) if multiple materials are burned, estimate the amount of each material on a percent of total material basis
- Combustion phases and the percent of total burn that was spent in each phase (prescribed burning only)

#### 3.17.1.3 Standard Source Identification/Characterization

#### 3.17.1.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	BURN
Building No.:	
Facility:	
Location:	×
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both
	Search

In the **Source Category** search field, type "BURN" then select the row for PRESCRIBED BURN from the dropdown results. Click the **Search** button.

Search Re	esults								
Casale Pro	ionia di la como								
1 records fourier	10								
I records fourier Displaying reco									
		Local Process Marse	Searce Cat Case	UMa.No.	BartDate	Decision-	38MAB	Eaulita	3544

The search results grid will now display all the prescribed and open burning processes currently in APIMS.

## 3.17.1.3.2 Status

If the status of a process needs to be changed, click the edit  $\mathbb{P}$  icon next to the process.

Process Equi	pment (	Calculations	Regulatory.	Authorized Materials	Industrial	Contácts	Zones	Records	Assessments	Status	
Change Cur		15									
1 records found											
Displaying recor	ds 1 - 1										
Actions Status			Start D	late			End Date				Comment
ACTIVE			1901/0	1/01							
Page 1											

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:*	INACT - INACTIVE	
Start Date:" /yyy/mm/dd	2016/06/12	
Comments.		

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

If prescribed burning activities are conducted occasionally it is recommended to leave the process(es) active as long as there is the possibility of this activity. This will ensure it is still considered when determining overall base air emissions.

#### 3.17.1.3.3 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

alding No . 2	TEST RANGE	
cation: Σ	AFB	(Verified)
omplete Location Name	AFB	
fice Symbol Σ		(Unverified)
N/Organization		
top:	(Verified)	
nop Name:	FACILITY/RANGE MAINTENANCE [IP19D, IP19]	
ource Type:Σ	AREA	
emitted Source?Σ	💿 Yes 🛎 No	
nission Point:	ATMOSPHERE .	
sage Interval	ANNUAL	
ext Higher Process.	(Unverified)	
ext Higher Process Name:		
A Source Class Code:		
A Industry Group:		
HG Scope	Select Value ·	
sessment Barcode	1	
clude Consumption records from EESOH-MIS terface?	🔍 Yes 👻 No	
perating Schedule.	His/Day, Day(s)/Wk, Wks/Yr	
omments:		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, TEST RANGE.

The **Location** field can be important to effectively manage the location and mission of the emission source. Since burning activities are conducted in outdoor areas, a general description of the area will suffice. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are responsible for the activity and will be the best source of information regarding the activity.

Prescribed burn and open burning activities should be designated as an AREA in the **Source Type** field.

The **Emission Point** should be ATMOSPHERE for all activities.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis unless specified differently by a regulatory requirement. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.17.1.3.4 Sub-Processes

This source does not utilize this functionality.

#### 3.17.1.3.5 Equipment

This source does not utilize this functionality.

### 3.17.1.3.6 Calculations

The next tab is the *Calculations* tab.

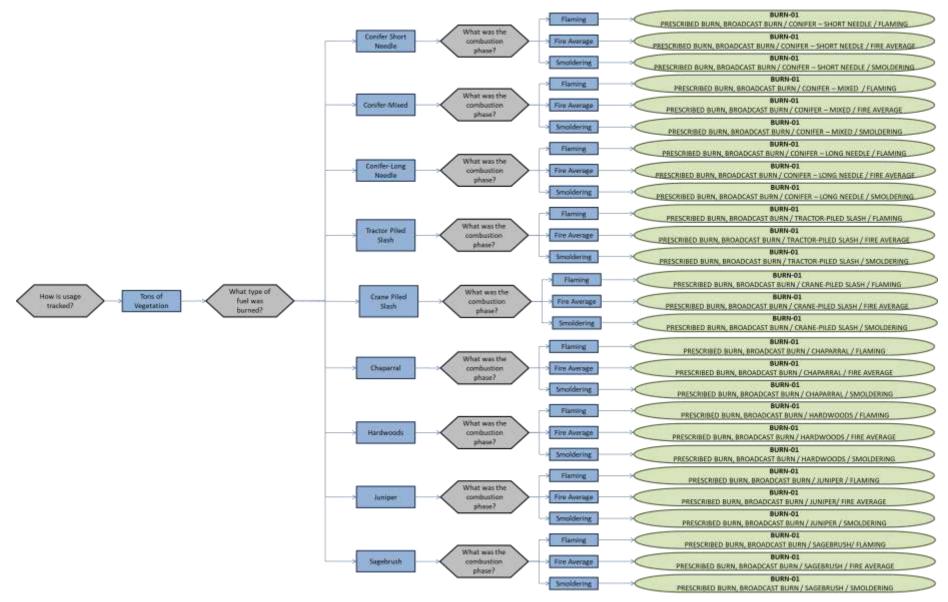
		the second s	Course of the second side		
rocess Algorithm Assignr					
Create Process Algorithm Assi	unmen!				
ecords tound.					
Actions Augurithm = =	Formula	Emission Factor Cinteria No records	in a del	Start Date	Endloyte

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

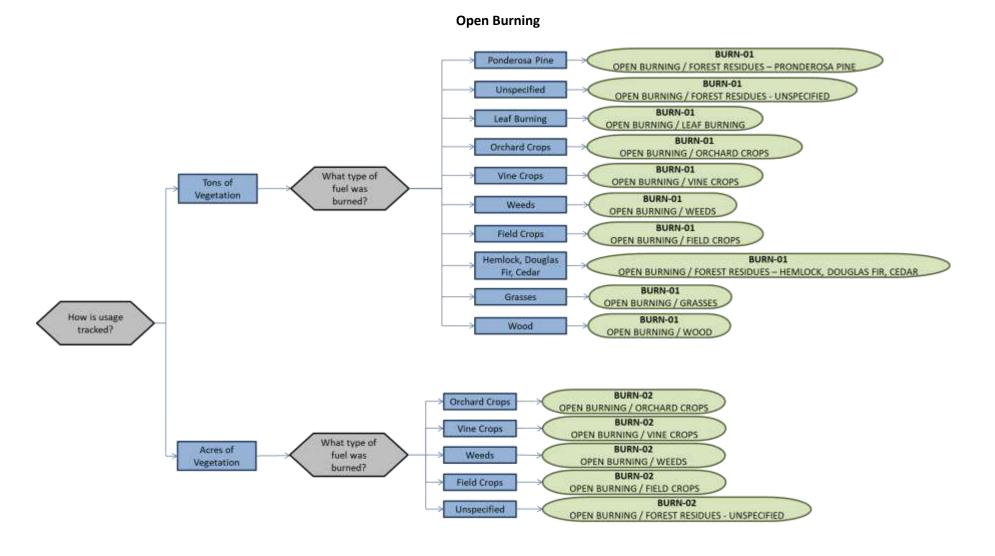
ligorithm Code:"	BURN-01 (Venfied)
ormuta	CONSUMPTION(TONS)*EMISSION FACTOR
Igonthm Start Date:	1901/01/01
Vgorthm End Date	
mission Factor Characteristic:"	OPERATION TYPE / FUEL
Imission Factor Criteria	OPEN BURNING / WEEDS
mission Factor Set ID:	6039
mission Factor Set Start Date:	1901/01/01
mission Factor Set End Date	
start Date:" yyy/mm/dd	1901/01/01
ind Date: yyy/mm/dd	

Select the **Algorithm Code** and **Emission Factor Characteristic** from the list of values that matches the correct scenario. Enter the **Start Date** to match the start date of the process. Click **Save & Finish** button to save and return to the Calculations tab.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



Prescribed Burning



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.17.1.3.7 Materials

The last step in setting up the Unique Process record is to the authorized materials on the *Authorized Materials* tab.

	ally?		
Create Authorized Mate	ezsañ		
a records found			1922
			Sav
Actions	CAGE CHOR	Phi Naterial Name	Autons
		No records found	

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regulat	y Authorized Materials Indust	rial Contacta Zones Records Assessments Sta
NSN:"	WEEDS	Verified)
CAGE Code:	EMC	
PNE	A	
Material Name	WEEDS	
Authorize?	Yes <sup>®</sup> No	
	Save & Create Another	Save & Finish Cancel

Select the material record from the list of values, using the **NSN** or **Material Name**. If the material is not available the material record will need to be created.

It is suggested to use a material name that describes the material that is burned or a generic material record such as ACRES OF VEGETATION or TONS OF VEGETATION.

Next select "Yes" to Authorize the material, then Save & Finish.

Since the emission factors utilized for burning activities are dependent upon the material burned, there should only be one material per process.

#### 3.17.1.4 New Sources

#### 3.17.1.4.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

## Prescribed Burn / Open Burn Data Collection Worksheet

GENERAL IN	IFORMATION
Building Number Mission/Pu	rpose
	lanagement Organization
Coordinates: Latitude:	
UTM: Zone Eastin	
Is this source in any of your permits?  Yes	
	r designation?
	ORMATION
How much total material was burned?	
Amount 🗆 Acres	□ Tons of Vegetation
What type of burning is conducted?   Prescrib	ed Burn 🛛 Open Burn
For open burning, what type of material was burned material? (check all that apply)	d and what percent of the total amount was each
<ul> <li>Forest Residues – Ponderosa Pine%</li> <li>Forest Residues – Unspecified%</li> <li>Orchard Crops%</li> <li>Leaves%</li> <li>Forest Residues – Hemlock, Douglas Fir, Cedar _</li> </ul>	<ul> <li>Vine Crops%</li> <li>Weeds%</li> <li>Field Crops%</li> <li>Wood%</li> </ul>
For Prescribed Burning what type of material was bu each material? (check all that apply)	urned and what percent of the total amount was
Conifer – Short Needle%	<ul> <li>Chaparral%</li> <li>Hardwoods%</li> </ul>
Conifer – Mixed%	In Hardwoods% Indication of the second se
<ul> <li>Conifer – Long Needle%</li> <li>Dozer-piled Conifer – No Mineral Soil%</li> </ul>	□ Sagebrush%

For Prescribed Burning what percentage of the time was spent in each combustion phase?

□ Flaming \_\_\_\_%

□ Smolder \_\_\_\_%

□ Unknown – Fire Average

#### 3.17.1.4.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of material burned and each phase of burning if applicable.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL 🔻
Process Type:*	ENVIRONMENTAL & REMEDIATION
Process Name:*	
Base Specific:	
ocal Process Name:*	PRESCRIBED BURN - WEEDS - EAST BASE
Start Date:* /yyy/mm/dd	1901/01/01
Facility:*	AIR FORCE
Mobile Source?*	◎ Yes ● No
Source Category: Σ	

Process Category	Process Type		Process Name	Process ID
INDUSTRIAL	ENVIRONMENTAL	&	PRESCRIBED/CONTROLLED BURNS	IER1819
	REMEDIATION			

Use the values in the table above to appropriately populate the **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, OPEN BURN – LEAVES.

The **Start Date** should be the date the first time the activity occurred. If this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as a stationary source.

All open burn and prescribed burn activities are assigned to the BURN **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

## 3.17.1.5 Year-to-Year Maintenance

#### 3.17.1.5.1 Usage

The consumption for prescribed and open burning sources will need to be tracked annually or each time the activity occurs. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	IER1819706090	(Verified)	
Start Date/Time:* yyyy/mm/dd hhmm	2016/01/01 0000		
End Date/Time:"	2016/12/31 2359		
NSN:	WEEDS	- x (Verified)	
	CAGE Code: EMC PNI: A EESOH Product Detail ID:	Preparation Date: 1901/01/01	
Amount:	1250	ACRE - ACRES	
Validate Consumption?	🖲 Yes 💿 No		
Part:		(Unverified)	
Issue #			
Comments:			

The consumption record should span the entire reporting period or the duration of the activity as shown above. The material should be the material burned or the generic tons or acres material record, whichever is associated to the process record.

For prescribed burns where multiple types of vegetation are burned there will need to be a breakdown of the composition of the area. For example, 20% Long Needle Conifer, 25% Chaparral, 40% Short Needle Conifer and 15% Douglas Fir. In cases described in this way, the total acres burned will need to be multiplied by the composition fraction (percent / 100) of the material.

1250 acres x 0.2 = 250 acres Long Needle Conifer
1250 acres x 0.25 = 312.5 acres Chaparral
1250 acres x 0.4 = 500 acres Short Needle Conifer
1250 acres x 0.15 = 187.5 Acres Douglas Fir

An example of the completed consumption is shown below.

A Desired								
· 25.0/3	ch Consumption							
Global Fill	ter		Clea	t Filter				
Crist	te Consumption							
	2.2.6							
	4 of 4 records found	POLOSO AGUNTA						
Actions	Local Process Name	Start Dofe/Time	End Date/Time	Material Name	Amount	Amount UOM	Issue#	Validane
Actions	PRESCRIBED BURN	2016/01/01 0000	2016/12/01 2359	LONG NEEDLE CONIFER		ACRE	houet	
					250		tssue#	
-	PRESCRIBED BURN	2016/01/01 0000	2016/12/01 2359	LONG NEEDLE CONIFER	250 312 5	ACRE	Insuee.	

This same principle applies to the prescribed burns that have different burn phases such as smoldering and flaming.

The amount should be the tons of material burned for BURN-01 or acres burned for BURN-02. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different media used.

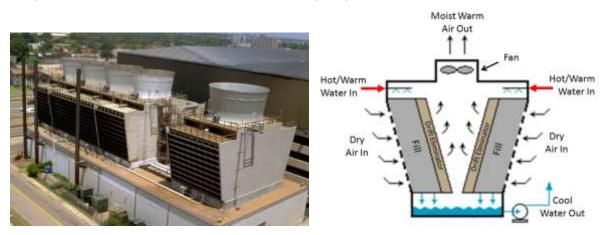
## 3.17.1.5.2 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Transitory Source Calculation**. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.17.2 Cooling Towers (COOL & PWCT)

## 3.17.2.1 Source Types

A wet cooling tower relies on the latent heat of water evaporation to exchange heat between an industrial or commercial process and the air passing through the tower. In a cooling tower, warmer water is brought into direct contact with the cooler air. When the air enters the cooling tower, its moisture content is generally below saturation. When the air exits, it emerges at a higher temperature and with its moisture content at or near saturation. Even when the air is at saturation, cooling can still take place due to a rising temperature which results in an increase in heat capacity that allows more sensible heat to be absorbed.



There are two main types of cooling towers: natural draft and mechanical draft cooling towers. A natural draft cooling tower receives its air supply from natural wind currents that generates a convective flow up the tower; this air convection cools the water on contact. A mechanical draft cooling tower is much more widely used and employs large fans to either force or induce a draft, which increases the contact time between the water and the air, effectively maximizing the heat transfer. Virtually all Air Force cooling towers are the induced (mechanical) draft type.

Since wet cooling towers provide direct contact between the cooling water and the air passing through the tower, some of the liquid water may be entrained in the air stream and be carried out of the tower as "drift" droplets. These "drift" droplets from cooling towers may contain dissolved solids (e.g., mineral matter, chemicals for corrosion inhibition, ambient air dust, etc.). Therefore, the emissions are not from the drift droplets themselves, but rather the minerals or other particulate matter found within the drift droplets. The particulate matter that is suspended in the drift droplet has the same chemical makeup as the cooling water and is assumed to become suspended particulate matter (PM) once the water contained in the drift droplet evaporates.

To reduce the drift from cooling towers, drift eliminators are usually incorporated into the tower design to remove as many droplets as practical from the air stream before exiting the tower. The drift eliminators used in cooling towers rely in inertial separation caused by direction changes while passing through the eliminators. Types of drift eliminator configurations include herringbone (blade-type), wave form, and cellular (or honeycomb) designs. The emissions of PM, PM<sub>10</sub> and PM<sub>2.5</sub> from wet cooling towers are dependent upon the water flow rate, the total drift factor and the amount of dissolved solids. The water flow rate is the amount hot water that is circulated into the cooling tower. The total liquid drift is water droplets entrained in the cooling tower exit stream. The total drift factor is the fraction of the circulating water flow that results in liquid drift in the cooling tower exit stream. This factor is dependent upon the cooling tower design and configuration and therefore should be obtained from the manufacturer. Typical values are between 0.0005 – 0.001. The total dissolved solids should be measured using gravimetric analysis or conductivity methods. Gravimetric methods are direct measurements of total dissolved solids (TDS) and are the most accurate. TDS measurements are performed in a laboratory which involves evaporating the liquid and measuring the mass of residue left. The conductivity method involves measuring the specific conductance of an electrolyte solution. The electrical conductivity of a solution is a measure of the solution's ability to carry and electric current. The greater the concentration of particles, the more electrically conductive the solution becomes.

## 3.17.2.2 Potential Data Sources

The best source for information relating to cooling towers used for comfort cooling is the base HVAC shop, office symbol CEOFA. If the base has any cooling towers used for industrial processes the specific shops responsible for the process would be the best resource for data. The data required for both types of cooling towers is:

- Number of days operated
- Water flow rate in gallons per day
- Total Dissolved Solids (TDS) in ppm
- Total Liquid Drift Factor (TLD) in pounds per thousand gallons

## 3.17.2.3 Standard Source Identification/Characterization

## 3.17.2.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	COOL
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	Yes O No O Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	$\odot$ EESOH-MIS Interface Records $\odot$ APIMS Entered Records $\odot$ Both
	Search

In the **Source Category** search field, type "COOL" for comfort cooling towers or "PWCT" for process cooling towers then select the corresponding row from the dropdown results. Click the **Search** button.

		1.0.00	sults						
٥.	Crea	te Pro	2665						
		found							
			dis <b>1</b> - 8						
1	ction	18	Unique ID Base Specific	Local Process Name	Source Cat Code	Enda No.	StartDate	Enst Date	Status
1	- 14	120	632105	500 - WET COOLINIS FOWER 1	cool.	800	1901/01/01		ACTIN
100		3	639107	900 - WET COOLING TOWER 2	COOL	600	1901/01/01		ACTIN
1	-	622	639108	600 - WET COOLING TOWER 3	COOL	600	1901/01/01		ACTN
10	10	120	639109	R00 - WET COOLING TOWER 4	COOL	600	1901/01/01		ACTIN
1	1	GU	639110	900 - WET COOLING TOWER 5	5000	608	1901/01/01		ACTIVE
12	-	100	639111	600 - WET COOLING TOWER 6	COOL	600	10/10/101		ACTIN
1		Ű.	039112	800 - WET DOOLING TOWER 7	coor	800	1901/01/01		ACTN
200	1	-	202418	COOLING TOWER - BLDG 259 (COMFORT COOLING)	COOL	200	1901/01/01		ACTN

The search results grid will now display all the processes for cooling towers used for comfort cooling or process cooling that are currently in APIMS.

#### 3.17.2.3.1.1 Status

If the status of a process needs to be changed, click the edit 🚧 icon next to the process.

Process	s Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
🖸 Che	ange Current Sta	itus									
1 record	is found										
Displayi	ng records 1 - 1										
Actions	Status		Start C	Date			End Date			C	omments
1	ACTIVE		1901/0	11/01							

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Process Equipment Calculation	ins Regulatory Authorized Materials Industrial Contacts Zones Records Assessments Status
Status:"	INACT - INACTIVE
Start Date:" yyyy/mm/dd	2016/06/12
Comments.	
	Save

Select the appropriate status from the Status dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the Start Date enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status. This includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.17.2.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 2	200	
Location 2	BUILDING 200	Verified)
Complete Location Name:	AIR FORCE BASE \ BUILDING 200	
Office Symbol 2		Unvenfied)
Unit/Organization:		
Shop.	S0032 (Verified)	
Shop Name	HVAC - LARGE UNITS	
Source Type Z	FUG *	
Permitted Source?2	() Yes () No	
Emission Point:	ATMOSPHERE .	
Usage Interval	ANNUAL •	
Next Higher Process.	(Unvertied)	
Next Higher Process Name:		
EPA Source Class Code.	2820020000	
EPA Industry Group:		
GHG Scope:	Select \/alue •	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	© Yes * No	
Operating Schedule	Hrs/Day, Day(s)/Wk, Wks/Yr	
Comments:		

The **Building No**. field can be used to specify the building number or a general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing or maintaining the equipment on a regular basis and will be the best source of information regarding the unit. This is especially important for process cooling towers as they will be managed by the shop and not the centralized HVAC function on an installation.

Cooling towers are categorized as a fugitive source, FUG, in the **Source Type**.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Emission Point** for cooling towers is usually ATMOSPHERE.

The **Usage Interval** should be designated. Cooling towers are usually documented on an ANNUAL basis but may be different time intervals if a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for cooling tower operations are:

Process Type	SCC
Comfort Cooling Towers	2820020000
Process Cooling Towers	2820010000

#### 3.17.2.3.1.3 Sub-Processes

This source does not utilize this functionality.

#### 3.17.2.3.1.4 Equipment

This source does not utilize this functionality.

#### 3.17.2.3.1.5 Calculations

The next tab is the *Calculations* tab.

ocess Algorithm Assignm			
Create Process Algorithm Assig	Inment		
records tound.			

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

ligorithm Code:"	COOL-01 Verfied)	
formulia Agosthim Start Date Agosthim End Date:	NUNBER OF DAYS*WATER FLOW RATE*0.001*TOTAL DRIFT FACTOR*DISSOLVED SOLIDS*0.000001*EMISSION FA 1901/01/01	
mission Factor Characteristic."	(PARTICULATE EMISSIONS )	
Imission Flactor Citleria	PARTICULATE EMISSIONS	
mission Factor Bet ID	1026	
mission flactor Set Start Date. Imission Factor Set End Date.	1901/01/01	
<b>hart Dete</b> r" wywimiwidd	1901/01/01	
and Date yyy/mmidd	(D) -	

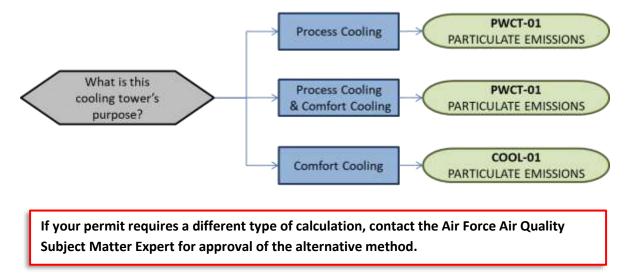
#### **Comfort Cooling Tower**

Algorithm Code." Formula Asporthm Start Date. Algorithm End Date.	PWCT01 Certified) NUMBER OF DAYS*WATER FLOW RATE*0.001*TOTAL DRIFT FACTOR*DISSOLVED SOLDS*0.000001*EMISSION FACTOR 1901/01/01
Emission Factor Characteristic." Emission Factor Citienta Emission Pactor Sel 30 Emission Factor Sel Start Date Emission Pactor Sel End Date	FARTICULATE EMISSIONS PARTICULATE EMISSIONS 14403 1901/01/01
Blant Date:" nyyyimmidd End Date nyyyimmidd	1901/01/01

#### **Process Cooling Tower**

Select the **Algorithm Codes** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Finish** button to save and return to the Calculations tab.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



The next step on this tab is to enter the Calculation Parameters: WATER FLOW RATE, TOTAL DRIFT FACTOR and DISSOLVED SOLIDS. These parameters are required for both comfort cooling (COOL-01) and process cooling (PWCT-01).

rocess Algorithn				
Create Process At	gorifint Assignment			
monds tound		10 - 20 miles		1000
Actions (Scotting a		Townson Presser Collaria	Start Date	Crist Dame
at (a (0000.81)	MUNISER OF DATEMATER FLOW RATER SETTIONAL DRIFT FACTOR DISSULGED BOLGET B000001 SHREEKIK FACTOR	PARTICIDUATE EMISSIONS	10010101	

To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Parameter Name	WFR		(Verified)
Parameter Value:"	4320000	GAL/DAY	
Start Date:" /yyyimm/dd	2016/01/01	9	
End Date: nyy/imm/dd		9	

Select the **Parameter Name** from the list of values and the corresponding number in the Parameter Value field. Use the table below for guidance on parameters and the parameter values.

Parameter Name	Parameter Description	Unit of Measure	Information Source
WFR	CIRCULATING WATER FLOW RATE	GAL/DAY	Shop Personnel
TLD	TOTAL LIQUID DRIFT FACTOR	LBS/MGAL	Manufacturer
TDS	TOTAL DISSOLVED SOLIDS	PPM	Testing Analysis

Enter the **Start Date** for the parameter. This date should match the start date of the algorithm or use 1901/01/01 as a default. However, for the TDS which may change based on new tests and analysis, the start date should match the test date.

Click the **Save & Create Another** button until the parameter is entered then click the **Save & Finish** button to return to the Calculations tab.

Process Algori	thm Assignment					
Greate Proces	Agorithm Assignment					
I records lound.						
Actions Notentie	Eorman			Emeranon Eactor Littleres	Mattinie	LSIG DATE
A 18 DOOL-01	NUMBER OF DAYN WATER FLOW	RATE'S BOPTOTAL SRET FACTOR DISSO	VED SOLED'S \$99001'EMEDION FACTOR	PARTICULATE BLASSIONS	18010101	
alculation Pa	ameter Assignment					
a secondary	ameter Assignment Ion Parameter Assignment					
Create Calcula 3 records found	ion Fixameter Assignment			_		
Create Colcula 3 records found Actives Colling	ion Fixameter Assignment	Prozenské Mikra	Parameter DOM		el Daix -	
Desite Calcula 3 records found Actives 57000	ion Fixameter Assignment		Pacameter (DOM Fine		ed Date	
Create Colcula 3 records found Actives	ion Fixameter Assignment		Promitter (JOM) Pres LISSADIAL	StartCode (2 20160101) 20160101	el Deix	

If the TDS changes it is important not to edit or delete the value of the existing parameter. A best practice is to end date the parameter record and create a new one with the new value.

To end date a parameter, click the edit icon 🔽 next to the parameter that needs to be end dated.

This will open the parameter, enter the last date of the year in the **End Date** field and click **Save**. This will allow for the creation of a new parameter value.

Process Equipment Calcu	lations Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
Parameter Name:		WFR						
Updating the parameter value v		te calculations if calcu	lated again.					
Parameter Value:"		4230000		GAL/DA	Ý			
Start Date:" oyo/mm/dd		2015/01/01	-					
End Date: yyy/mm/dd		2015/12/31	-					
		Save Cancel						

Enter the last date of the year in the **End Date** field and click **Save**. This will allow for the creation of a new parameter value.

Process	s Algorithm Assignment					
Great	tie Frocess Algorithm Assignment					
	i found			0.000	77553785	
	Akonin Extents			Ensities Factor Criteria PARTICIA ATE SAMERICAS	Stat Date	Lot Date
0.016	CDOT-01 MUMBER OF DWA-MA	CER FLOW RATE/DIB/PD/TAL ORET FACTOR/DISSO			10000	
alcula	tion Parameter Assignment					
(Jing	te Caluárion Parameter Assignment					
Creat records	te Caluárion Parameter Assignment	Parameter Mase	Parameter 10M		Cast Date	
Cited records Actives	ee Galtulotion Parameter Assignment Abund	Decamping Mine. (140)	Disconstitui JIOM Piline			_
Cites records Actives	re Caluation Positivete Assignment Aund Parameter assignment	A REAL PROPERTY AND A REAL	Parameter JOM PAN LISSNON	SantData	Cast Date	_
Creations Addees	re Catulation Parameter Assignment Aund Descrite Annual - 106	2400	PP46	Sari Data 2016/001	Cast Date	

As shown above, all the parameters will appear in the grid with the active parameters at the top. This maintains all the data used in AEIs for previous years.

#### 3.17.2.3.1.6 Materials

The last step in setting up the Unique Process record is to add the operating time or days of operation as the authorized material on the *Authorized Materials* tab.

Sav
Authoria Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regulatory	Authorized Materials Industrial Contacts Zones Records Assessments Stat
NSN:"	DAYS OF OPERATION
CAGE Code:	EMC
PNI	A
Material Name	DAYS OF OPERATION
Authorize?	🕷 Yes 🔍 No
	Save & Create Another Save & Finish Cancel

Select **NSN** of DAYS OF OPERATION or OPERATING TIME from the list of values. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

# 3.17.2.3.2 New Sources

# 3.17.2.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Wet Cooling Tower Data Collection Worksheet

GENERAL INFORMATION					
Building Number	_ Mission/Purpose				
Shop Name/Function	Management (	Organization			
Coordinates: Latitude:	Longitud	le:			
UTM: Zone	Easting	Northing 🛛 Feet 🗆 Meters			
Is this source in any of your permits?	□ Yes □ No				
If yes, does it have an emission unit nu	umber or other designation	n?			
	USAGE INFORMATION				
What is the purpose of the cooling tov	ver?  Comfort Cooling	Process Cooling			
What is the water flow rate?		Gal/Day			
How many days did the tower operate	during the year?	Days			
What is the Total Dissolved Solids?		ppm			
What is the liquid drift factor for the to If not known, find out the mar be obtained from the manufac	nufacturer and model/seria	lbs/mgal Il number so the liquid drift factor can			
Manufacturer					
Model/Serial Number					

# 3.17.2.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be at a minimum a Unique Process record for each cooling tower.

#### 3.17.2.3.2.2.1 Comfort Cooling

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:"	INDUSTRIAL .	
Process Type:"	MISCELLANEOUS OPERATIONS	Verified
Process Name:"	COOLING, EVAPORATIVE TOWER	Venfied
Base Specific:		
Local Process Name:"	COOLING TOWER - BLDG 200 (COMFORT COOLING)	
Start Date:" yyyyimmidd	1901/01/01	
Facility:"	AIR FORCE BASE	Venfiel
Mobile Source?"	1 Yes 1 No	
Source Category 2	COOL (Verified)	

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	HVAC	NOC	IHV1559
INDUSTRIAL	MISCELLANEOUS OPERATIONS	COOLING, EVAPORATIVE TOWER	IMI1260
INDUSTRIAL	MISCELLANEOUS OPERATIONS	COOLING, NATURAL CONVECTION	IMI1262

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is used for. Examples of process names are as follows:

- COOLING TOWER BLDG 328
- WET COOL TOWER BLD 1530 HOSPITAL ASF INDUCED
- BLDG 1 INDUCED DRAFT COOLING TOWER
- COOLING TOWER BLDG 200 (COMFORT COOLING)

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All cooling towers used for comfort cooling are assigned to the COOL **Source Category**. Process cooling towers and comfort cooling towers use the same emissions calculation methodology for actual emissions. However, when calculating PTE emissions, the potential differs. Comfort cooling towers potential use is dependent upon the weather and possible days that cooling would be required, whereas process cooling towers will be dependent upon the process workload. Therefore, these need to be placed in separate source categories.

For the population of all other tabs, refer to the Existing Sources sections.

# 3.17.2.3.2.2.2 Process Cooling Towers

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL 🔻	
Process Type:*	MISCELLANEOUS OPERATIONS	Verified
Process Name:*	COOLING, EVAPORATIVE TOWER	Verified
Base Specific:		
Local Process Name:*	WET COOLING TOWER - C-130 SIMULATOR - BLDG 700	
Start Date:* yyyy/mm/dd	1901/01/01	
Facility:*	AIR FORCE BASE	Verified
Mobile Source?*	O Yes  No	
Source Category:Σ	PWCT (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	HVAC	NOC	IHV1559
INDUSTRIAL	MISCELLANEOUS OPERATIONS	COOLING, EVAPORATIVE TOWER	IMI1260
INDUSTRIAL	MISCELLANEOUS OPERATIONS	COOLING, NATURAL CONVECTION	IMI1262

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is used for. Examples of process names are as follows:

- COOLING TOWER BLDG 328
- BLDG 1 INDUCED DRAFT COOLING TOWER
- WET COOLING TOWER C-130 SIMULATOR BLDG 700
- 2265 CRS FLW INDCD DRAFT (WET) TDS 569

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All cooling towers used for process cooling are assigned to the PWCT **Source Category**. Process cooling towers and comfort cooling towers use the same emissions calculation methodology for actual emissions, however when calculating PTE emissions the potential differs. Comfort cooling towers potential use is dependent upon the weather and possible days that cooling would be required, whereas process cooling towers will be dependent upon the process workload. Therefore, these need to be placed in separate source categories.

For the population of all other tabs, refer to the Existing Sources sections.

# 3.17.2.4 Year-to-Year Maintenance

### 3.17.2.4.1 Usage

The consumption for cooling towers will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption	module and click the	Create Consumption hyperlink.
-----------------------------	----------------------	-------------------------------

Process ID:"	EMI1260707416	(Verified)	
Start Date/Time:" /yyy/mm/dd hhmm	2016/01/01 0000	•	
End Date/Time:* /////mm/dd hhmm	2016/12/31 2359		
NSN:"	DAYS OF OPERATION	(Verified)	
	CAGE Code: EMC PNI: A I EESOH Product Detail ID:	Preparation Date: 1901/01/01	
Amount:"	178	DAYS - DAYS	
validate Consumption?	🛎 Yes 🔘 No		
Part		(Unverified)	
ssue #			
Comments:			

The consumption record should span the entire reporting period as shown above. The material should be days of operation. The amount should be the total days of operation. Make sure to select "Yes" to validate

the consumption. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the process and comfort cooling towers.

If the unit did not operate during the year but was still and active source, enter a consumption record with zero usage and a comment as to why it did not operate to track negative documentation. This type of documentation ensures that all equipment is accounted for from year to year and can be used to account for differences in AEI reporting from year to year.

# 3.17.2.4.2 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation**. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.17.3 Fiberglass (FIBR)

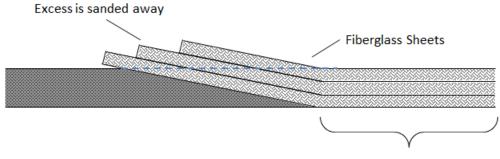
# 3.17.3.1 Source Types

Air Force installations with aircraft maintenance operations typically have Fiberglass repair operations in the aircraft repair shops. Fiberglass is made of plastic reinforced with thin glass filaments that are woven together which makes it a high strength, light weight material that is able to be molded into complex shapes.

Fiberglass repair is essentially a hazardous material use process in that the emissions are a result of solvent evaporating from the applied materials. It is often accounted for under the Miscellaneous Chemical (CHEM) source category. However, it can be separated out for tracking purposes.

A typical fiberglass repair will involve identifying the area that needs to be repaired and removing the damaged portion. The surrounding area will then be sanded then cleaned with a solvent to remove any grease or debris that may affect the adhesion bond. The next step will mix fiberglass fibers with resin to create a patch to fill the damaged area. A backer sheet may be needed until the filler can dry and harden. The damaged area is then filled and hardened. Once the filling has hardened the backer sheet can be removed. The next step is to apply the fiberglass sheets.





Damaged Area

Epoxy resin is brushed onto the repair area and fiberglass sheets are applied. This step is repeated as necessary to ensure the repair has the required strength. As the resin cures and dries the solvent evaporates as VOC emissions. The area can them be sanded smooth and painted.

# 3.17.3.2 Potential Data Sources

Fiberglass repair chemicals are considered hazardous materials and are typically procured through the Hazardous Materials Management System (EESOH-MIS). The best method for collecting usage data is through the EESOH-MIS to APIMS interface. To do this it is important to work with the Hazardous Materials Management personnel to segregate fiberglass repair materials into distinct processes. The EESOH-MIS process should track only the fiberglass repair related materials and not any other materials in the shop. If the fiberglass repair materials are authorized to a process that is also authorized for other materials used in the shop the process cannot be accounted for under the FIBR source category and must be calculated under the CHEM source category. If the fiberglass repair materials are separate processes in EESOH-MIS, the processes, materials and consumption data will automatically populate in APIMS.

When fiberglass repair materials are not tracked in EESOH-MIS, then the total amount in gallons or pounds of materials used, along with the Safety Data Sheets for the materials used during repair is needed.

The most common shops that have fiberglass repair operations fall under the following office symbols:

• Maintenance Squadron Fabrication Flight (MXMF)

The material information is essential to the fiberglass repair emissions calculations. For all usage information that is imported from EESOH-MIS there should also be material records that contain most if not all the required information. For manually entered usage, the Safety Data Sheets will need to be obtained. Most shops maintain Hazard Communication folders that contain all the Safety Data Sheets for materials used. If the Safety Data Sheets are not available in the shop, most are available on manufacturer websites. All materials will need the following information populated in APIMS.

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

The EESOH-MIS interface will populate most of this data, however if the VOC is not readily available on the SDS it may not be entered into EESOH-MIS. Since the EESOH-MIS interface inserts so many material records at one time it is not feasible to review each record for completeness. Therefore, it is recommended to initially assume the data required is present and run the initial calculations. Once the calculations have been run, there is a tab that will provide error messages that will identify all the records that are missing VOC or ingredient information. Refer to Section 2.7 Emissions Calculations for details on the calculation error messages. For these materials the VOC can be calculated based on the ingredients. A general knowledge of chemistry will be required for this. If the VOC or % Solids cannot be obtained from the SDS or the manufacturer the Air Emissions Guide for Air Force Stationary Sources provides estimated values in Table 22-1.

# 3.17.3.3 Standard Source Identification/Characterization

# 3.17.3.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	FIBR
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value 🔻
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 💌 All
Start Date: /yyy/mm/dd	From: To:
End Date: /yyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Bo

In the **Source Category** search field, type "FIBR" then select the row for FIBER GLASS from the dropdown results. Click the **Search** button.

	an Cr		sults						
	Cinii	e Pro	cess.						
		found recor	ds 1 - 5						
10	C901		Unique ID Base Specific	Local Process Name	Source Cat Code	Bhin No.	Start Date	End Own	Statu
10	14	20	159542	PREPARANCE AND A REPARED AND A REPARED MOLDING	100		10010101		ACTN
10		10	8.65	FIBEROLASS 413RD HAND LAY-UP RESIN MOLONIC KEDICI	PIGR		1095/01/01		ACTIN
10	14	10	546035	BASEWICE FIBEROLASS BONDING AND WOLDING	660	BASEWIDE	2012/01/01		ACTIN
1	1	01	648 F8R900	FIBERULADS - 453RO FIBR UHOP MATERIAL PREFIX20828	FBR		1998/12/31		Agen
	-	-01	601931	FIBEROLASS- 433RD FIBR SHOP ACHESINE FILM K00009	FIER		1901/01/01		ACTIN

The search results grid will now display all the fiberglass repair processes currently in APIMS. This may include processes created by the EESOH-MIS interface and APIMS created processes including a roll up Next Higher Process. To further filter out the EESOH-MIS processes, use the APIMS Entered Records radio button on the Data Source field in the Search criteria. This will then only display the APIMS created processes.

### 3.17.3.3.2 Status

If the status of a process needs to be changed, click the edit  $\bowtie$  icon next to the process. If this is a process that was entered into APIMS via the EESOH-MIS interface, the process status must be altered in EESOH-MIS.

Process	s Equipment	Calculations	Regulatory.	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
		9499									
	ange Current St	atus									
record	is found										
Displayu	ng records 1 - 1										
Actions	Status		Start D	ate			End Date			Co	mment
	ACTIVE		1901/0	101							
Page 1											

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
Start Date:" /yyy/mm/dd	2016/06/12
Comments.	

Select the appropriate status from the Status dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the Save button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

# 3.17.3.3.3 Information

There are basic data elements that are important to track and maintain for new or existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab. This data only needs to be populated for records that were created and maintained in APIMS, such as the next higher process used for data rollup. Any records that are created by the EESOH-MIS interface do not require this data.

Definition	Information	Sub-Process						
Desition	intormetion	Gonesconcean	65.					
Building No	Σ			BASEWIDE		Ī		
Location 2								Unventied)
Complete L	ocation Name:							
Office Symb	z loc							Unverified)
Unit/Organi	zation							
Shop:						-×	(Unverified)	
Shop Name								
Source Type	2.2			AREA	٠			
Permitted S	ource?2			⊖Yes ® No				
Emission Po	sint:			ATMOSPHERE				
Usage Inter	vai			ANNUAL	•			
Next Higher	Process:					21- ×	(Unverified)	
Next Higher	Process Name	<del>3</del> 1						
EPA Source	Class Code.							
EPA Industr	y Group.							
GHG Scope	Ľ.			-Select Value-				
Assessmen	8arcode							
Exclude Co Interface?	nsumption reco	ords from EESC	H-MIS	© Yes ♥ No	(			
Operating S	chedule			Hrs/Da	iy, Da	iy(s)/Wk,	WKs/Yr	
						en de Selan estad		
Comments:								
				1				
				Save Cano	-			

The **Building No**. field can be used to specify a general location or area of the emission source. If this is a next higher process for basewide emissions, BASEWIDE should be entered.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit. This field is not applicable to basewide next higher processes.

Fiberglass repair operations should be designated as an AREA in the **Source Type** field.

The **Emission Point** should be ATMOSPHERE for all operations.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated; this source is usually documented on an ANNUAL basis unless specified differently by a regulatory requirement. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

# 3.17.3.3.4 Sub-Processes

For Next Higher Process configuration, navigate to the Sub-Processes sub tab.

Pincess	Empriell Geculation	s Regulatory Authorized Materians mitustrian Contactle Zons	is macoros Abbezaménts	States			
Detriput	arbitration Sub-Proc	*****					
Crea	le Sub-Process Association						
records Jisplaviv	found. precords 1 - 7						
ctions	Unious ID Date Specific	Local Protess Name	Source Cal Code	Into No.	Statt.Date	End Date	Status
	12481	MAGNETIC PARTICLE INSPECTION	NOI		1997/06/26		ACTIVE
14	18400						
14	12460	EGUPMENT REPAR	NDI		2007/06/22		ALTI/E
	12460	EGUPMENT REPAR FILM DEVELOPINO, AUTOMATIC	NDI		2007/06/23		
	12480						ACTIVE
-	12460 52406	FILM DEVELOPING, AUTOMATIC	NDI		2000/03/21		ACTIVE ACTIVE ACTIVE

This sub tab is used to specify which processes should have their consumption rolled up to this next higher process. To add a process or processes, click the <u>Create Sub-Process Association</u> hyperlink.

<ul> <li>Search Processes</li> </ul>								
Process:								
Status		Select Value •						
Source Category:		FIBR		Null Source Category	- 13			
Facility:					CI-IX			
Permitted Processes:		© Yes ≢ No						
Permissing crocksaws:		○ Yes   No						
- Personal Crucksans								
Personal crocksaka		© Yes ≢ No Search   Clear Search						
records found.								
records found.	c Local Process Name	Search Clear Search		Source CallCode	Dita No.	StartDate	End Date	5121
records found. Save Cancel		Search Clear Search		Source Cal Code FBR		Start Date 1991/01/01	End Date	10,000
records found. Save Cancel <u>Unique ID Date Spect</u>	FIBERGLASS-MODI	Search Clear Search		2000/2007-701-1	Dida No.	100000	Ind Date	State ACT
records found. Save   Cancel   / Unious ID Base Specif # 153547	FIBERGLASS - MOOF PIBERGLASS 433RD	Search Clear Search		FBR	DHO.MI. EPN: GRPF/BRB	1901/01/01	End Date	ACT

Use the Search Processes fields to refine the search to find only the FIBR processes. Select the checkbox next to the appropriate process(es), then click the Save button.

# 3.17.3.3.5 Equipment

This source does not utilize this functionality.

# 3.17.3.3.6 Calculations

The next tab is the *Calculations* tab.

rocess Algorithm Assign		
Create Process Algorithm Ass		
records found.		

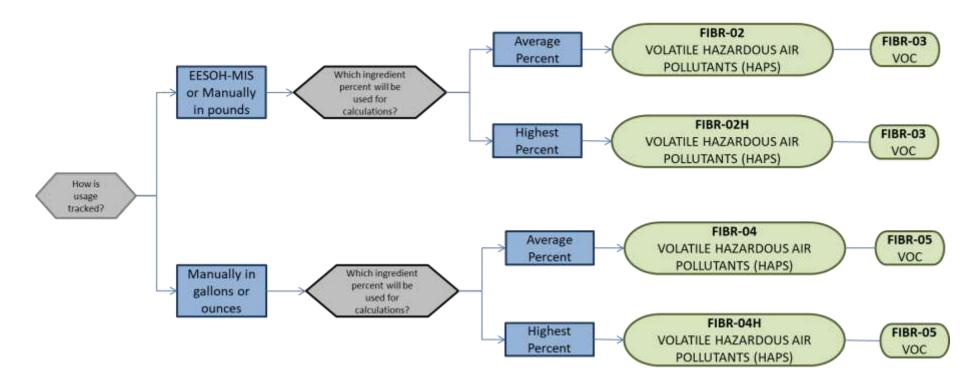
To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Process Equipment Calculations Regulato	ny Authonzed-Materialis Industrial Contacts Zones Records Assessments Status
Algorithm Code:"	FIBR-02 (Venfied)
Formula: Algorithm Start Date:	CONSUMPTION*INGREDIENT PCT (AVERAGE) 1901/01/01
Algorithm End Date.	
Emission Factor Characteristic."	EMISSION TYPE
Emission Factor Criteria	VOLATILE HAZARDOUS AIR POLLUTANTS (HAPS)
Emission Factor Set ID:	4904
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date	
Start Date:"	1901/01/01
End Date:	
yyyymm/dd	
	Save & Create Another Save & Finish Cancel

Fiberglass repair operation emissions are calculated utilizing the material VOC and a mass balance based on ingredients. Therefore, there are TWO algorithms that need to be associated to each FIBR process.

Select the **Algorithm Codes** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Create Another** button to associate another algorithm or click **Save & Finish** button to save and return to the Calculations tab.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

# 3.17.3.3.7 Materials

The last step in setting up the Unique Process record is to the authorized materials on the *Authorized Materials* tab. This step is only required for processes that use manual logs to track usage in APIMS. All processes that use the consumption data from EESOH-MIS are configured at the sub-process level by the interface.

Create Authorized Material			
moords found			Sav
ettons TTT	CAGE CHM	Phil Material Name	Authoris Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regulatory	Authorized Materials Industrial Contacts Zones Records Assessments Status
NSN:*	(Verified)
CAGE Code:	33584
PNI	At
Material Name	ADHESIVE, EPOXY RESIN
Authorize?	🖲 Yes 🔍 No
	Save & Create Another Save & Finish Cancel

Select the material record from the list of values, using the NSN or Material Name. If the material is not available the material record will need to be created. Next select "Yes" to **Authorize** the material, then Save & Finish or Save & Create Another. Repeat this step for all materials used by the process.

Create Authorized Material				
67 records found.				Sav
Actions <u>NSH</u>	CADE Com	25	Watertel Berns	Astrono
e#1006223273#	4010		AGETONE, TECHNICAL	8
10-100/100-01	33554	41	KOHERNE, EPOXY RESIN	*
8040011528104	33664	42	ADHESINE EPOXY RESIN	×
Alama water	2014	(C)	ADHESINE PLASTIC EPISIO	×
B110000100882	10184	CI	ADHESINE, PLAIITIC, EPOXY	
A 9340009330573	39071		ADHEAN RESELENTIETE	×

# 3.17.3.4 New Sources

# 3.17.3.4.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Fiberglass Repair Data Collection Worksheet

	GENERAL	INFORMATION		
Building Number	Mission/I	Purpose		
Shop Name/Function		Management Orga	anization	
Coordinates: Latitude	:	Longitude:		
UTM: Z	ZoneEast	ting	Northing 🛛 Feet	□ Meters
Is this source in any of y	vour permits? 🛛 Yes 🛛	] No		
If yes, does it have an e	mission unit number or ot	her designation? _		
	USAGE I	NFORMATION		
Are the materials purch	ased through EESOH-MIS?	? 🗆 Yes 🗆 No		
	and process designation ir Process			
If No, do you know the	total amount of materials	purchased in the la	ast year? 🛛 Yes 🗆 N	lo
If yes, do you have usag	ge records? 🗆 Yes 🗖 No			
If yes, collect the usage	records.			
	onnel to estimate how ofton h is used each time? (The s ach material.	•	• • •	
Material Name				
Amount Used				🗆 Lbs 🗖 Gal
Frequency				
Do they have Safety Da	ta Sheets for the materials	sused? 🗆 Yes 🗖 N	10	
If yes, collect copies.				
If no, collect the name a to obtain a Safety Data	and manufacturer of the p Sheet.	roduct. This can be	e used to contact the r	manufacturer

# APIMS AEI Procedure

# 3.17.3.4.1.1 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be at least one Unique Process record. If the EESOH-MIS processes are configured correctly to have fiberglass repair chemicals separated from other chemicals, a next higher process needs to be configured. If the data is not configured that way, then a nondestructive inspection process can be configured for each shop that conducts nondestructive inspection applications. A single process that tracks all nondestructive inspection applications basewide for manual APIMS tracking may also be used.

# 3.17.3.4.1.2 Shop Specific Process Configuration

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:*	INDUSTRIAL 🔻
Process Type:*	COMPOSITE WORK
Process Name:*	COMPOSITE WORK, MULTIPLE OPERATIONS
Base Specific:	
Local Process Name:*	BLDG 228 - STRUCTURAL MAINT - FIBERGLASS REPAIR
Start Date:* yyyy/mm/dd	1901/01/01
Facility:*	AIR FORCE
Mobile Source?*	◯ Yes ◉ No
Source Category:Σ	FIBR (Verified)

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	COMPOSITE WORK	MULTIPLE OPERATIONS	ICW1239

Use the value provided in the table above to enter the **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BLDG 336 – FIBERGLASS REPAIR.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All fiberglass repair activities are assigned to the FIBR Source Category.

#### 3.17.3.4.1.3 Next Higher Process Configuration

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL T
Process Type:*	
Process Name:*	
Base Specific:	
Local Process Name:*	BASEWIDE FIBERGLASS REPAIR OPERATIONS
Start Date:* yyyy/mm/dd	1901/01/01
Facility:*	AIR FORCE
Mobile Source?*	○ Yes ● No
Source Category:Σ	FIBR

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	COMPOSITE WORK	MULTIPLE OPERATIONS	ICW1239

Use the values provided in the table above to enter the Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify what the process is for example, BASEWIDE FIBERGLASS REPAIR OPERATIONS.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All fiberglass repair activities are assigned to the FIBR **Source Category**.

# 3.17.3.5 Year-to-Year Maintenance

# 3.17.3.5.1 Usage

# 3.17.3.5.1.1 Shop Specific Process Configuration

The consumption for FIBR emissions usually needs to be tracked annually or as required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the Create Consumption hyperlink.

Process ID:"	(CW1239848-FIBR909 ) (Verified)	
Start Date/Time:" /////imm/dd.hhmm	2016/01/01 0000	
End Date/Time:" yyyy/mm/dd hhmm	2016/12/31 2359	
NSN:*	8040006338373	
	CAGE Code: 34897 PNI: A1 Preparation Date: 1996/02/05 EESOH Product Detail ID:	
Amount'	4 GAL - GALLONS	•
validate Consumption?	* Yes 🖯 No	
Part	(Unverified)	
ssue #		
Comments:		

The consumption record should span the entire reporting period as shown above. The **Amount** should be recorded according to the algorithms selected, in pounds or gallons. Make sure to select "Yes" to **Validate Consumption**. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different materials used during the reporting period.

# 3.17.3.5.1.2 Next Higher Process Configuration

The consumption for FIBR emissions usually needs to be tracked annually or as required by a regulatory agency. For the Next Higher Process configuration, the consumption is imported from the EESOH-MIS interface with each interface run, however it is not validated. The consumption must be validated in the Consumption log. Navigate to the Consumption log.

From: To: To: 2016
From: To: To:
2016
FIBR X
◎ Validated Records ◎ Unvalidated Records ● Both
EESOH-MIS Interface Records O APIMS Entered Records O Both

Use the search criteria to narrow the search results. It is suggested to use the Source Category, Data Source and Year or Usage Timeframe to filter the results.

· Seats	h Consumption								
Global Fith	HE.		Clear Filter	1					
Creat	e Corsumption								
Explaying	7 of 7 records found <u>vision trans</u>	£							Sec.
Actions	Local Process Name	Start Oate/Time	End Date/Time	Manerial Norme *	Amount	AmountUOM	Issued	Validate 🕕	
14.	053A-4C FIBERGLASS/COM	2016/06/02 1125	2016/06/02 1125	DEH 52 EPOKY CURING AGENT	2,2533	185	2205345	*	
12.00	053A-4C/DBERQLASS/COM	20160602 1125	2016/06/02 1125	D.E.H. 52 EPOKY CURING AGENT	2.2530	LBS	2206350	×	
10.10	063A-00 FIBERGLASS BEP	2010/06/02 1125	2016/06/02 1125	EPON RESIN 828	9.7641	185	2216683	8	- 1
12.54	0534 SD FIBERGLASS REF.	2016/06/27 1651	2016/05/27 1651	EPON RESIN 628	H.7641	LBS	2215082		- 1
1212	053A-5D FIBERGLASS REP	2010/06/27 1661	2016/05/27 10E1	EPON REBIN 828	9.7641	LBS	2216681	2	
10.00	000A SE FIELROLASS REEV.	2010/06/19 1643	2016/05/19 1543	PW.	6.5409	LBS	2205682	ж	
	(55A-58 FIBEROLASS REPA	2010/05/10 1540	2010/05/19 1543	PA .	6.5029	188	22058985	~	

Check the checkbox next to each material then click **Save** to validate the consumption. Only consumption that is validated will be included in emissions calculations. The simplest use case for validating rows is to start by checking the top box in the grid to validate all rows present. After all boxes are checked, click **Save**.

# 3.17.3.6 Emissions Calculation

If the process utilizes EESOH-MIS data then it should be included in the **EESOH-MIS Calculation**, otherwise this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.17.4 Heaters / Ovens / Dryers (HEAT)

# 3.17.4.1 Source Types

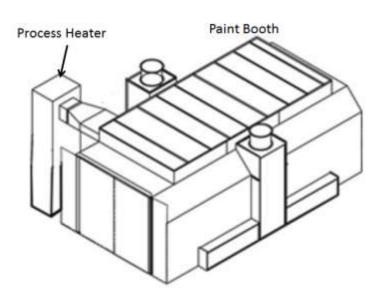
This source category includes external combustion equipment used to provide heat for industrial processes. The most common instances of process heaters are paint booth air intake preheaters and driers or kilns. While these sources are essentially external combustion sources, the potential to emit calculations are treated differently. Therefore, it is essential to segregate the different applications into their own source categories.

Emissions from external combustion engines will vary depending on several factors including the configuration, the size of the combustor, the firing configuration, the fuel type, the control devices used, and a variety of different design configurations.

The majority of process heaters used by the Air Force are fueled by natural gas and the only ones discussed in this section. Natural gas boilers used for process heating are usually smaller boilers, less than 100 MMBtu/hr and are often package units that are constructed off site and shipped to the location.

The example shown below is an externally mounted natural gas heater providing air flow into the paint booth inside the building. The best way to determine if the paint booth has a heater is to look for any type of natural gas line leading to an air intake for the paint booth.





If there are other types of process heaters, coordinate with the AFCEC Air Quality SME for proper configuration. Reference the External Combustion chapter of this document for more details.

# 3.17.4.2 Potential Data Sources

Process heaters are usually only going to be in the industrial areas of the base, specifically where paint booths are located. These boilers are usually managed by the shop personnel at each location. The Base Supply Fuels Maintenance office may know the location of all-natural gas delivery. The shops listed below are the most common shops with information for process heaters:

- Aircraft Structural Maintenance (MXS)
- CE Structures (CEOHS)
- CE Pavements and Equipment (CEOHP)
- Corrosion Control (MXS)
- Vehicle Maintenance (LGRV)
- Repair and Reclamation
- Aerospace Ground Equipment (MXMG)
- Base Supply Fuels Management (LGRF)

The data elements that are needed are as follows:

- Type of fuel combusted, usually natural gas.
- Total amount of fuel combusted in million cubic feet or the hours of operation.
- Size of boiler (heat input)

# 3.17.4.3 Standard Source Identification/Characterization

# 3.17.4.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Search Process			
Unique ID.			
Base Specific:		× ×	
Process ID			
Local Process Name:		×	
Source Category:	HEAT	- ×	
Building No.			
Facility:			
Location			X
Shop		X	
Zone		×	
NAICS Code:			
SIC Code:			
Status	-Select Value	•	
Permitted Source?	() Yes () No	Both	
Mobile Source?	Yes   No	O Unsure · All	
Start Date: yyyy/mm/dd	From.	To:	
End Date: yyyy/mm/dd	From:	To.	-
Data Source:	@ EESOH-MIS	Interface Records @ APIMS Er	ntered Records ® Bo
	Search		

In the **Source Category** search field, type "HEAT", then select the row for Heaters/Ovens/Dryers from the dropdown results. Click the **Search** button.

0	(ies	ez Pros	1000								
		is tours	6 m 8 - 92								
	1000		UNDAD DISABILITIES	Local Powers Nets	Anetoi Cat.Cente	iten fri-	Muttines .	Gas Dee	1164	Excelle	24.00
14	14	2	6001 90001	LECTURE BOTTLE RECYCLINE GALFLINE	Hild	00010	2000/01/181	38101201	PLACINE	ARPORT 19458	
14	10	10	1117 P0061	HEATER FOR THINKS FURIDE FACE, ITY ISLD IS 1949	10/7	8.011 1949	2010/01/01		WITHE	AN FORCE INVE	
a,	1.0	1	DATE STORY	IN A DRAFT THE REPORT AND AND AN AND AN AND AND AND	1610	NUMBER OF TAXABLE	1000001		107918	AR FORCE BADE	1103
1	14	11	Adda Accord	(ALE 2001 1200 0 GOLT WHITE AR PRESENTED	16.41	Amon's month	1000001001		ACTIVE	AW FORCE RAVE	1,5034
1	-		1981 00001	0UK294019027+100275-8/14/2487990240/09	16H	0.010 00007-4	10000101		ACTIVE	AR FORCE SALE	
1	-	2	MAL RUNKY	WALTERSTANDED IN A MUSICIPAL INTO A REPORT OF A PARTY AND A PARTY OF A PARTY	HERT	85310 8867710	Annual Annua		ALTINE	AR KONDE BASE	LTCL M
	1.0	2	And River	Gui, bein 18007-3-1 00/2714 effekt eit PREACHDA	1647	0.01948112	( painting )		401116	MAPONCE BARE	101.0
i.i	14	4	SAM DIGHT	BUILDING (BOOT - 3 BOOTH WITHOUT AN INTERCOM	1610	ELOID-BREEF (	14010101		ACTIVE	AR FORCE BADE	001.4
14	1		MAT ROOM!	NUM, DIGO 10/01/07 SET 14 APTING AN INDEADOTTON	16.11	NUT10-20001	(0010100)		30108	AR TORCE BASE	Victor
-	14	-	2+4# ACCEL	DEPENDER ANTE LIGARES OTEN- DOC-BOOD SEEN	HE-IT-	GLO G REER	2000110-00		ACTIVE	ARCORE INTE	

The search results grid will now display all the process heater, oven, and dryer processes currently in APIMS.

#### 3.17.4.3.1.1 Status

If the status of a process needs to be changed, click the edit  $\bowtie$  icon next to the process.

Process Equipment Calculat	ions Regulatory Authorized Materials	Industrial Contacts Zones	Records Assessments Status
Change Current Status			
1 records found			
Displaying records 1 - 1			
Actions Status	Start Date	End Date	Comment
ACTIVE	1901/01/01		
Page 1			

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE	
Start Date:" /yyy/mm/dd	2016/06/12	
	Unit no longer in use.	
comments.		
	Save Cancel	

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status. This includes any potential time spent offline and the reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.17.4.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 2	BLDG 13065
Location: 2	BUILDING 13065 (Verified)
Complete Location Name	AIR FORCE \ BUILDING 13065
Office Symbol I	(Unvertice
Unit/Organization:	
Shop	L3CM (Venfied)
Shop Name.	L3 COMM SHOPS
Source Type: 2	POINT +
Permitted Source?2	@ Yes 🕷 No
Emission Point.	ATMOSPHERE •
Usage Interval:	ANNUAL •
Next Higher Process	(Unverified)
Next Higher Process Name:	
EPA Source Class Code:	
EPA Industry Group	
GHG Scope:	1 •
Assessment Barcode	
Exclude Consumption records from EESOH-MIS Interface?	⊖ Yes ♥ No.
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr
Comments:	

The **Building No**. field can be used to specify a general location or area of the emission source. If the process is for multiple heaters, enter a description of the area such as, BASEWIDE, EAST SIDE, etc.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing or maintaining the equipment on a regular basis and will be the best source of information regarding the unit.

Process heater, oven and dryer operations are categorized as a POINT source in the **Source Type**.

The **Emission Point** for process heater, oven and dryer equipment is usually STACK.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis but may be a different time interval if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

### 3.17.4.3.1.3 Sub-Processes

This source does not utilize this functionality.

# 3.17.4.3.1.4 Equipment

The next tab is the *Equipment* tab. This is completely dependent upon how your installation is regulated by the regulatory agencies. For installations that are required to track dryers, ovens, and heaters this tab can be used to associate the boilers to the process. If there is no regulatory requirement by the local regulatory agency, then this tab does not need to be configured. To link the equipment to the process the equipment must already be entered in APIMS. Refer to Section 2.4 Equipment for specifics on how to properly document equipment in APIMS.

- smov	2010/02/02/02						
	Equipment.As						
records ft	bund:						
	records @ - Ø						
Intions 127	Content 20		Serial #	Model #	Manufacturer	Start Date	End Date

To link the equipment, click on the <u>Create Equipment Association</u> hyperlink.

Equipment ID:"	HEATER-6952-1 (Ventied)
Senal #.	EMRM29978
Model #	P3USD08N06501A
Manufacturer	
Description	GAS HEATER
Equipment Start Date: yyyy/mm/dd	1901/01/01
Equipment End Date: yyyy/mm/dd	
Start Date:" yyyy/mm/dd	1901/01/01
End Date: yyyy/mm/dd	
Comments.	
and the first set.	

Search for the **Equipment ID** in the list of values, enter the start date and click the **Save & Finish** button.

If the process is for a group of boilers, multiple boilers can be associated on this tab by using the **Save & Create Another** button.

# 3.17.4.3.1.5 Calculations

The next tab is the *Calculations* tab.

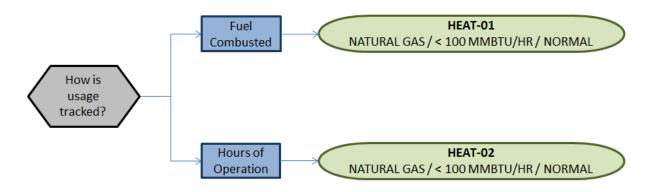
24267 (2012-2119832128) (2022)	CONTRACTOR CONTRACTOR		
ocess Algorithm A			
Create Process Algorit	tm Assignment		
ecords tound.			End Outs

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

Algorithm Code:"	HEAT-02 (Venfied)					
Formula:	HRS OF OPERATION*CAPACITY/HEAT CONTENT*EF 1901/01/01					
Algorithm Start Date						
Algorithm End Date						
Emission Factor Characteristic."	FUEL / HEAT INPUT / FIRING					
Emission Factor Criteria	NATURAL GAS / < 100 MMBTU/HR / NORMAL					
Emission Factor Set ID:	10253					
Emission Factor Set Start Date	1901/01/01					
Emission Factor Set End Date.						
Start Date:"	1901/01/01					
End Date: yyyy/mm/dd						
	Save & Create Another Save & Finish Cancel					

Select the **Algorithm Codes** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Finish** button to save and return to the Calculations tab.

Use the flowchart below to find the correct Algorithm Code and Emission Factor set.



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

If using the HEAT-02 algorithm, the Calculation Parameter, RATED CAPACITY is required.

Count Passau Aguitto	n Assignment		
Actors Actors	HIS CONTRACT OF CONTRACT.	Environ Factor Colora Satisficação - registary contractorias	Putitian (100 provide)

To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Parameter Name;	RATED CAPACITY		Venfie
Parameter Value:"	2.475	MMBTU/HR	
Start Date:" yyyy/mm/dd	1901/01/01		
End Date yyyy/mm/dd			
	Save & Create Anot	ther Save & Finish Cancel	

Select the **Parameter Name**, RATED CAPACITY from the list of values.

Enter the rated capacity (heat input) of the heater, oven, or dryer in the **Parameter Value** field.

Enter the **Start Date** for the parameter, this date should match the start date of the algorithm or use 1901/01/01 as a default.

Click the **Save & Finish** button.

#### 3.17.4.3.1.6 Materials

The last step in setting up the Unique Process record is to add the fuel as the authorized material on the *Authorized Materials* tab.

Create Authorized Material			
mecords found			
			Sav
letions	CAGE CHM	Ehli Material Name	Authoria Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations	Regulatory Authorized Materials Industr	uli Contacta	Zones	Records	Assessments	Status
NSNT	NATURAL GAS		(Verified)			
CAGE Code:	EMC					
PNE	A					
Material Name:	NATURAL GAS					
Authorize?	🛎 Yes 🔍 No					
	Save & Create Another	Save & Finish	Cancel			

Select the fuel used (e.g. NATURAL GAS) or HRS OF OPERATION from the list of values. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

I records hand				Sav
Account WIM	CAGE Code	EW	Material Name	Autoria Pilaj
RATURAL OXS	active second	.120	NATURAL CAS	· · ·

# 3.17.4.3.2 New Sources

# 3.17.4.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Heaters, Ovens and Dryers Data Collection Worksheet

e
gement Organization
Longitude:
Northing 🛛 Feet 🗆 Meters
signation?
RMATION
nput MMBtu/hr
Number
ation Date
IATION
□ Hours of Operation MCUFT <sup>-</sup> s

# 3.17.4.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be at a minimum a Unique Process record for each fuel type and usage tracking method.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL V
Process Type:*	FUELS (Verifie
Process Name:*	COMBUSTING FUEL, NATURAL GAS, EXTERNAL
Base Specific:	
Local Process Name:*	BLDG 456 PAINT BOOTH INTAKE AIR PREHEATER
Start Date:* yyyy/mm/dd	1901/01/01
Facility:*	AIR FORCE BASE
Mobile Source?*	◎ Yes ● No
Source Category:Σ	HEAT (Verified)

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	FUELS	COMBUSTING FUEL, NATURAL GAS, EXTERNAL	IFU1218
INDUSTRIAL	METALS TREATMENT	HEAT TREATING/HARDENING, NOC	IMT1548
INDUSTRIAL	MISCELLANEOUS OPERATIONS	CURING/DRYING/BAKING, AUTOCLAVE	IMI1284
INDUSTRIAL	MISCELLANEOUS OPERATIONS	CURING/DRYING/BAKING, DRYER	IMI1285
INDUSTRIAL	MISCELLANEOUS OPERATIONS	CURING/DRYING/BAKING, OVEN	IMI1286

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is, fuel used and size. Examples of process names are as follows:

- BLDG 7437 PROCESS HEATER NATURAL GAS 4.4 MMBTU/HR
- OVEN, NATURAL GAS, 2.75 MMBTU/HR
- AUTOCLAVE NATURAL GAS 12 MMBTU/HR

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All process heater, dryer and oven sources are assigned to the HEAT **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

3.17.4.4 Year-to-Year Maintenance

#### 3.17.4.4.1 Usage

The consumption for the process heater, oven and dryer sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	FU12185497-EC002	Venfied)	
Start Date/Time:* yyyy/mm/dd hhmm	2016/01/01 0000	-	
End Date/Time:" yyyy/mm/dd-bhmm	2016/12/31 2359	9	
NSN:"	HRS OF OPERATION	Venfied)	
	CAGE Code: EMC PNI: A P EESOH Product Detail ID:	reparation Date: 1901/01/01	
Amount"	23	HRS-HOURS	
Validate Consumption?	* Yes 💿 No		
Part	[	Cale x (Unverified)	
Issue #			
Comments:			

The consumption record should span the entire reporting period as shown above. The material or **NSN** should be the fuel combusted or hours of operation. The **Amount** should be the value for the total amount of fuel combusted or hours of operation. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the process heater, oven, and dryer processes. If the unit did not operate during the year but was still an active source, enter a consumption record with zero usage and a comment as to why it did not operate to track negative documentation. This type of documentation ensures that all equipment is accounted for from year to year and can be used to account for differences in AEI reporting from year to year.

#### 3.17.4.4.2 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation**. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.17.5 Incinerators (INCN)

# 3.17.5.1 Source Types

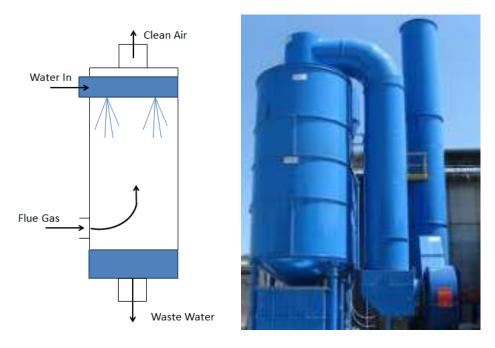
There are several types of incinerators likely to be found on Air Force installations including classified waste incinerators, and medical waste incinerators.

Classified waste incinerators are used to dispose of classified information. This information is typically in the form of paper documents, plastic (microfiche) sheets, or computer tapes/discs. For emissions estimation purposes, "industrial/commercial" incinerator emission factors are used as a surrogate for classified waste incinerators. Classified waste incinerators have either a multiple chamber or single chamber design.

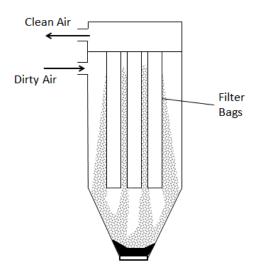
Medical waste incinerators are used to burn wastes produced by hospitals, clinics, veterinary facilities, and medical research facilities. The wastes burned may include both infectious (i.e., red bag) wastes as well as non-infectious (e.g., general housekeeping) wastes. There are three major types of medical waste incinerators used: controlled-air incinerators, excess-air incinerators, and rotary kiln incinerators. The most common type used by the Air Force is the controlled-air incinerator.



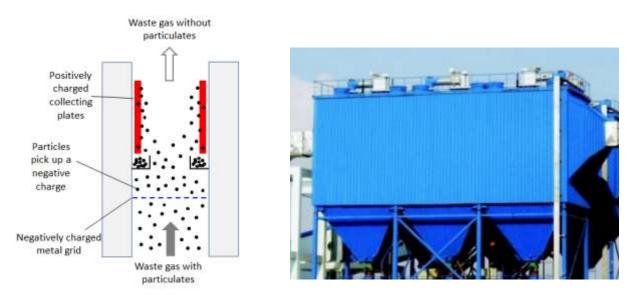
Incinerator often have control devices such as wet scrubbers, fabric filters, electrostatic precipitators, dry sorbent injection and carbon injection. All of these control devices will be external to the incinerator. The stack from the incinerator will route the off gas through these control devices prior to release to the atmosphere.



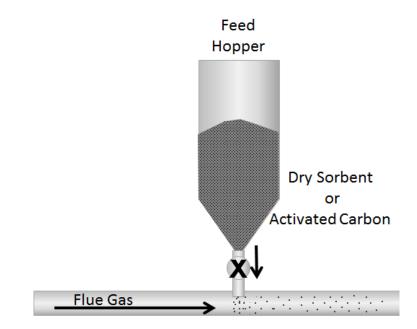
In a wet scrubber, flue gas enters through an inlet at the bottom of the column. Liquid enters through a nozzle or pipe at the top. As the gas flows up through the scrubber it is contacted by a liquid mist, often water, flowing down. Particulates are either formed into droplets or are forced against the wall much like in a cyclone and drop to the bottom. In addition to the particulate removal, acidic gases react with the water to become salts that also fall out to the bottom. There are three energy usage levels for wet scrubbers: low, medium, and high. A low energy wet scrubber, such as a spray tower, utilizes pressure drops less than 5 inches of water column and are capable of removing particles greater than 5-10 micrometers in diameter. A medium energy scrubber has a pressure drop form 5-25 inches of water column and is capable of removing micrometer-sized particles. A high energy scrubber, such as a venturi scrubber, expends the most energy and has a pressure drop of 25 to over 100 inches of water column, which can remove sub-micrometer particles.



A Fabric Filter (FF) is used to separate dust particles from dusty gases. Flue gas passes through fabric filter and the particulates collect on the filter pack crated on the surface of the filter and fall to the bottom during cleaning cycles and the clean air exits through the top. This type of control will only control the emissions of PM, PM<sub>10</sub>, PM<sub>2.5</sub>.



Electrostatic Precipitator is an electrostatic device that uses an induced charge to remove particulates. The flue gas flows over highly charged electrodes becoming ionized and in turn contacts the particles inducing a charge. As the charged particles pass the plates, the electrostatic forces cause the particles to collect on the plates and are removed from the gas. The plates are then rapped, vibrated, or washed with water to dislodge the particles, which fall into a hopper to be disposed. Electrostatic precipitators control emissions of PM, PM<sub>10</sub> and PM<sub>2.5</sub>.



Dry sorbent injection (DSI) systems remove hydrogen chloride (HCI) and other acid gases through a twostep process. The first step injects a powdered sorbent into the flue gas where it reacts with the HCI. The most common sorbents used are trona (sodium sesquicarbonate), sodium bicarbonate and hydrated lime. The second step uses a downstream control device such as an ESP or fabric filter.

Carbon Injection (CI) systems are similar to DSI systems as they inject powdered activated carbon from a storage silo or feed hopper into the flue gas stream. The activated carbon can adsorb many contaminants such as vaporized mercury from the flue gas and is then collected by the particulate matter control system.

# 3.17.5.2 Potential Data Sources

Most Air Force installations that have a hospital or clinic will have a medical waste incinerator. The medical facility manager should be able to provide the information required for emissions calculations. Classified waste incinerators are usually operated by the base Information Systems office.

The information required for emissions calculation is as follows:

- Type of incinerator (MSW, medical waste, single chamber or multiple chamber classified waste)
- Emissions test data (if available)
- Control devices (if applicable)
- Control device chemical removal efficiencies (if available)
- Tons of waste incinerated

# 3.17.5.3 Standard Source Identification/Characterization

#### 3.17.5.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category	
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	Yes No Unsure All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	$\odot$ EESOH-MIS Interface Records $\odot$ APIMS Entered Records $\odot$ Both
	Search

In the **Source Category** search field, type "INCN" then select the row for INCINERATOR from the dropdown results. Click the **Search** button.

Search R	esults								0
Create Fi	0.000								
records four	et								
Displaying rec	ands 1-1								
Actions	Divites ID Date State Pt	Lacal Wooma Nata	Scarrow Cat Loda	Ditt. No.	StatDate	Endition	Status	LAURY .	State
12 14 10	406 H001	INTHOLOGICAL (MEDICAL) INCIVERATOR BRIDO	0.01	1301	That drigh		ACTINE.	NELLIE APR	RASENIDE RELLINIAG
									« Previous I Next

The search results grid will now display all the woodworking processes currently in APIMS.

The **Local Process Name**, **Base Specific** and **Bldg No**. can all be used to identify a specific source. This list should be reviewed to make sure the source is configured in a way that it is easy to identify and locate. The status of each source should also be reviewed and kept current.

# 3.17.5.3.2 Status

If the status of a unit needs to be changed, click the edit  $\boxed{2}$  icon next to the process.

Process Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
Change Current St	atus									
1 records found										
Displaying records 1 - 1	t									
Actions Status		Start D	late			End Date			1	Comment
ACTIVE		1901/0	1/01							
Page 1										

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Process Equipment Calculat	ions Regulatory Authonized Materials Industrial Contacts Zones Records Assessments S	tatus
Status:"	INACT - INACTIVE	
Start Date:" /yyy/mm/dd	2016/06/12	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Unit no longer in use.	
Comments:		
	e e e e e e e e e e e e e e e e e e e	
	Save Cancel	

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline, reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.17.5.3.3 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No.: 2	1301	
Location: Σ	BUILDING 1301	Venfied)
Complete Location Name	AIR FORCE BASE / BUILDING 1301	
Office Symbol I	(	Unverified)
Unit/Organization:		
Shop.	NELMED07 (Verified)	
Shop Name:	HOSPITAL	
Source Type: 2	POINT	
Permitted Source?E	🛎 Yes 🚇 No	
Emission Point:	STACK •	
Usage Interval:	MONTHLY .	
Next Higher Process:	(Unventied)	
Next Higher Process Name:		
EPA Source Class Code:	50200504	
EPA Industry Group		
GHG Scope:	Select Value •	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	O Yes 🖲 No	
Operating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr	
Comments:		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit.

Incinerators are categorized as a point source in the **Source Type**, since a stack or control device with a stack is typically utilized. This also means that the **Emission Point** would be a STACK.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. Incinerators are usually documented on an ANNUAL basis. However, documentation time intervals may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module. The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. Source Classification Codes for incinerators are:

Process Type	SCC
Solid Waste Disposal – Commercial/Institutional, Incineration, Single Chamber	50200102
Solid Waste Disposal – Commercial/Institutional, Incineration, Multiple Chamber	50200101
Medical Waste Incinerator, Unspecified Type	50200504

#### 3.17.5.3.4 Sub-Processes

This source does not utilize this functionality.

#### 3.17.5.3.5 Equipment

The next tab is the *Equipment* tab. This can be used to link the equipment record in APIMS to the process, which is not required if utilizing the standard calculation methodologies that include different control efficiencies in the emission factors.

This step is only needed for incinerators if there are specific control devices that have documented pollutant removal efficiencies.

APIMS uses the control efficiency on the equipment associated to the process to accurately account for these pollutant control efficiencies in emission calculations. To link the equipment to the process, the equipment must already be entered in APIMS.

Equipment ID: 123-CYL		Start Date: 1901/01/01
Sental # 667164T	and a second second second	
Model # T4/1	Model Description: CYCLONE	End Data
Equipment Equipment	Type Process Weguared Unit Down Control Stark Stark	
Cantinal Education C	antrol Efficiencies	
Create Control Effic	BDCX	
Create Control Effic	enca:	
	8952	
3 records found.		
Frecords found.		Control Efficiency (%) Commertin
Displaying records 1 - 3 Actions (P.111)		
3 records found Displaying records 1 - 3	Pallutant Name	Control Efficiency (%) Comments
3 records found. Displaying records 1 - 3 Actions POTE 10 Record POTE 10	Palloant Name INATOELLASE WATTER	Control Efficiency (the Comments

In the control tab of the equipment record, the control efficiency for the device needs to be created for each specific pollutant, as shown in the equipment screen below. Refer to Section 2.4 Equipment for specifics on how to properly document equipment in APIMS.

1111111111111				
Serial V	Model #	Manufacturer	Start Date	End Date
	Serial #	Secial V Model V	Senial # Model # Manufacturer	

To link the equipment, click on the Create Equipment Association hyperlink.

Equipment ID:"	(CIN-408 (Venfied)
Senal #	U-ICIN-001
Model #:	U-INCINERATOR-001
Manufacturer	
Description:	PATHALOGICAL NATURAL GAS INCINERATOR
Equipment Start Date: yyyy/mm/dd	1941/01/25
Equipment End Date: yyyymmidd	
Start Date:" yyyymm/dd	1941/01/25
End Date: yyy/mm/dd	
Comments	

Search for the **Equipment ID** in the list of values, enter the start date and click the **Save & Finish** button.

# 3.17.5.3.6 Calculations

The next tab is the *Calculations* tab.

rocess Algorithm Assignm	ment		
Create Process Algorithm Assi			
records found.			

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

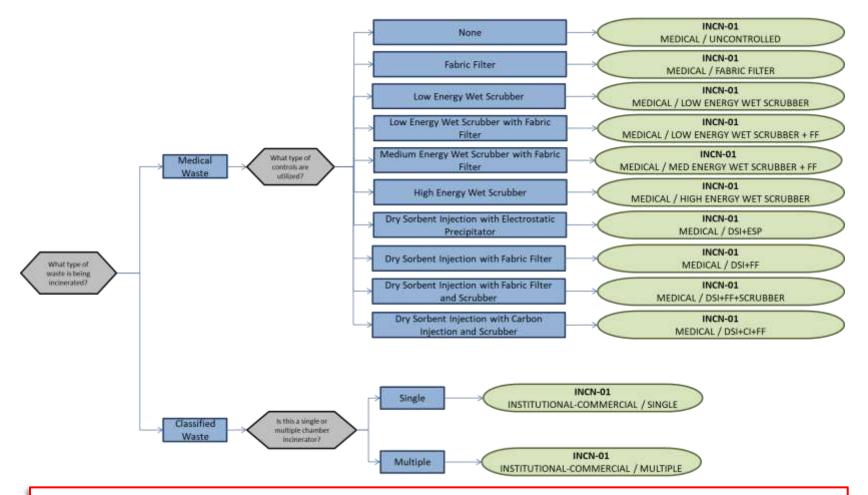
Process Equipment Calculations Regulatory	Authorized Materials Industrial Contacts Zones Records Assessments Status
Algorithm Code:"	(NCN-01 (Venfied)
Formula:	CONSUMPTION*EF
Algorithm Start Date:	1901/01/01
Algorithm End Date	
Emission Factor Characteristic:"	TYPE / CONTROL
Emission Factor Criteria	MEDICAL / LOW ENERGY WET SCRUBBER
Emission Factor Set ID.	4325
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date:	
Start Date:"	1945/01/25
End Date: yyyvimin/dd	
AXAAuuunooo	
	Save & Create Another Save & Finish Cancel

For incinerator processes it is highly recommended to use incinerator specific emission factors based on test data and documented control efficiencies.

In the absence of site-specific data, there is only one standard calculation methodology recommended by the Air Force. This calculation is based on the amount of waste incinerated in tons and the type of control equipment.

Select the **Algorithm Code** and the **Emission Factor Characteristic** that most closely matches the type of incinerator and associated control equipment. Enter the **Start Date** to match the start date of the process.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Characteristic.



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

If the specific control efficiencies of the control devices are known, it is recommended to select the uncontrolled emission factor set and associate the equipment with these control efficiencies configured. This will then apply the known control to the emission calculations.

#### 3.17.5.3.7 Materials

The last step in setting up the Unique Process record is to add WASTEBURNED or anther generic material as the authorized material on the *Authorized Materials* tab.

Counter Authorized Male	erial		
0 models found			Sam
Actions Inth -	CAGE Crite	Phi Material Narre	Authorize
		No records found	

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculations Regulatory	Authorized Materials Industrial Contacts Zones Records Assessments Stat
NSN:"	WASTEBURNED (Verified)
CAGE Code:	EMC
PNI	A
Material Name:	MATERIAL WASTE BURNED
Authorize?	🖲 Yes 💿 No
	Save & Create Another   Save & Finish   Cancel

Select WASTEBURNED or another generic material name from the list of values. If there are no generic materials matching this available, the material record will need to be created. Next select "Yes" to **Authorize** the material, then Save & Finish.

#### 3.17.5.4 New Sources

#### 3.17.5.4.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Incinerator Data Collection Worksheet

	GENERAL INFORMATION
Building Number	Mission/Purpose
Shop Name/Function	Management Organization
Coordinates: Latitude:	Longitude:
UTM:Zone	Easting Northing D Feet D Meters
Is this source in any of your permits?	□ Yes □ No
If yes, does it have an emission unit n	umber or other designation?
	EQUIPMENT INFORMATION
What is the incinerator type?   Single Chamber for C  Multiple Chamber for  Medical Waste	Classified Waste
Manufacturer	
Model Number	Serial Number
Does the incinerator have any of the	following control devices? (check all that apply)
□ Fabric Filter	Dry Sorbent Injection
<ul> <li>Low Energy Wet Scrubber</li> <li>Medium Energy Wet Scrubber</li> <li>High Energy Wet Scrubber</li> </ul>	<ul> <li>Carbon Injection</li> <li>Electrostatic Precipitator</li> </ul>
Is the control efficiency of any of thes If yes, collect the data.	e control devices known? 🗆 Yes 🗖 No
Has any testing or analysis been cond □ Yes □ No If yes, collect the emi	ucted to capture the emissions profile from this incinerator? ssions profile data.
	USAGE INFORMATION
What type of material is incinerated?	Medical Waste     Classified Waste

How much material was incinerated? \_\_\_\_\_\_ tons

#### 3.17.5.4.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each incinerator.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

INDUSTRIAL •	
WOODWORKING	(Verified)
WOODWORKING, MULTIPLE OPERATIONS	(Verified)
EU 25	
BLDG 123 - WOOD HOBBY	
1901/01/01	
	Unverifie
Yes I No	
WOOD (Verified)	
	WOODWORKING WOODWORKING, MULTIPLE OPERATIONS EU 25 BLDG 123 - WOOD HOBBY 1901/01/01

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	INCINERATING	INCINERATION, MULTIPLE CHAMBER	IIN1565
INDUSTRIAL	INCINERATING	INCINERATION, SINGLE CHAMBER	IIN1566
INDUSTRIAL	MISCELLANEOUS	DISPOSING/RECYCLING, NOC	IMI1359
	OPERATIONS		

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BLDG 123 – MEDICAL WASTE INCINERATOR or CLASSIFIED WASTE INCINERATOR – BLDG 156.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The Mobile Source? flag should be "NO" as this is considered as stationary source.

All incinerator emission units are assigned to the INCN **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

# 3.17.5.5 Year-to-Year Maintenance

#### 3.17.5.5.1 Usage

The consumption for incinerators will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	IIN1565408H001	(Venfied)	
Start Date/Time:" //////imm/dd.hhmm	2016/01/01 0000		
End Date/Time;* ////mm/dd bhmmi	2016/12/31 2359		
NSN:	WASTEBURNED	(Verified)	
	CAGE Code: EMC PNI: / EESOH Product Detail ID:	A Preparation Date: 1901/01/01	
Amount."	0.14	TONS - TONS	
Validate Consumption?	🖲 Yes 💿 No		
Part		Cy- x (Unverified)	
Issue #:			
	1		
Comments:			
		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	

The consumption record should span the entire reporting period as shown above. The material, **NSN** should be WASTEBURNED or the generic material authorized to the process. The **Amount** should be the amount of waste incinerated in tons. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

#### 3.17.5.5.2 Emissions Calculations

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.17.6 Landfills (LAND)

# 3.17.6.1 Source Types

A landfill is a defined area of land, used explicitly to deposit wastes. Both active landfills (wastes currently being deposited) and closed landfills (wastes no longer being deposited) are significant sources of air pollution. While there are only a few active landfills at Air Force installations, there are several Air Force bases that have closed landfills on their property.

There are a variety of different wastes which may be deposited in landfills, including municipal solid waste (MSW), construction and demolition wastes, commercial and industrial organic wastes, agricultural wastes, etc. All landfills containing any organic wastes will generate and release gaseous emissions.



In general, a three-step process is followed when depositing waste into an active landfill. The waste is spread over an area, compacted, and then covered with a layer of soil. The covering of the waste is typically performed using heavy equipment (e.g., bulldozers, graders). The use of heavy equipment results in the generation of fugitive dust emissions coming from the ground surface. However, the primary source of emissions at landfills comes from the generation of landfill gas. VOC, HAP and GHG emissions are calculated using the Landfill Gas Emissions Model (LandGEM). The LandGEM is an automated tool developed by the EPA for estimating emissions from the MSW landfills. The model can be used to estimate uncontrolled pollutants of concern, including  $CH_4$ ,  $CO_2$ , NMOCs, and individual air pollutants from landfills by using a first order decay equation rate. The model requires users to input data such as the year the landfill opened and closed, the waste design capacity, and the annual waste deposited in the landfill.

# 3.17.6.1.1 Regulatory Applicability

MSW landfills primarily receive household wastes, but may also receive commercial solid waste, nonhazardous sludge, and industrial solid waste. MSW landfills are required to comply with the federal regulations promulgated under subtitle D of the Resource Conservation and Recovery Act (RCRA). These regulations describe location restrictions, detail emissions modeling and corrective actions, and provide design and operating criteria applicable to MSW landfills. The landfills subject to the regulations promulgated under RCRA are required to monitor methane emissions and prevent off-site migration for active landfills and for a period of 30 years after landfill closure. Details regarding these requirements are provided in 40 CFR 258, Criteria for Municipal Solid Waste Landfills. In Subpart C of this CFR, the operating

criteria include stating that owners and operators of all MSW landfills must not violate SIP requirements. Landfills are primarily the responsibility of state and local governments, therefore stricter regulations may vary from state to state.

Several NSPS have been developed to aid in the reduction of pollution from active and closed landfills. Emission guidelines for MSW landfills are provided in 40 CFR 60 Subpart CC, Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills. These standards are applicable to landfills whose construction, reconstruction, or modification commenced before May 30, 1991. According to this Subpart, any landfill with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters that also has a non-methane organic compound (NMOC) emission rate of at least 50 megagrams per year must have control devices installed to monitor and control the amount of NMOC released to the atmosphere. For those landfills whose construction, reconstruction, or modification construction, reconstruction, or after May 30, 1991, the air emissions standards are provided in 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills.

In addition to the NSPS described in part 60 of 40 CFR, there are also NESHAPs applicable to landfills. 40 CFR 63 Subpart AAAA, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, applies to any MSW classified as a major source of HAPs or is an area source with a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters that is estimated to produce 50 megagrams or more of NMOC annually. For more information regarding the requirements of the standards applicable to landfills, including reporting requirements and minimum control efficiencies, refer to 40 CFR 60 Subparts CC and WWW, and 40 CFR 63 Subpart AAAA.

According to 40 CFR 98.2, any facility located in the United States or attached to the Outer Continental Shelf that has a municipal solid waste landfill that generates 25,000 metric tons or more of equivalent CO<sub>2</sub> (CO<sub>2</sub>e) per year is subject to the greenhouse gas (GHG) reporting rules as outlined in 40 CFR 98. CH<sub>4</sub> generation from landfills as well as CH<sub>4</sub> destruction resulting from landfill gas collection and combustion systems are required to be reported. The calculation of the methane generated is described in detail in 40 CFR 98 Subpart HH, though the use of modeling software, as described below, may be used for this calculation. Note that the mandatory reporting rule applies to municipal solid waste landfills which generate 25,000 or more metric tons of CO<sub>2</sub>e per year and accepted waste on or after January 1, 1980 unless: 1) The landfill did not receive waste on or after January 1, 2013; 2) The CH<sub>4</sub> generation was less than 1,190 metric tons in the 2013 reporting year; and 3) An annual report was not required under any requirement in 40 CFR 98 Subpart HH in any reporting year prior to 2013.

#### 3.17.6.2 Potential Data Sources

Base Civil Engineering is typically responsible for operating and maintaining on-base landfills. Base weather may be contacted to determine the annual average rainfall received by the base. The average rainfall is required to determine the proper k value (CH<sub>4</sub> generation rate constant) to use when calculating uncontrolled emissions

The data elements that are needed are as follows:

• Tons of refuse accepted during the year

- Years closed (number of years the landfill been closed or no longer accepting waste)
- Years since opening (number of years since first opened or first accepted waste)
- Ambient Temperature in degrees Fahrenheit
- Average rainfall

# 3.17.6.3 Standard Source Identification/Characterization

#### 3.17.6.3.1 Existing Sources

Most installations will only have one landfill and therefore have only one process. However, if there is more than one landfill there will need to be a process for each landfill. To view the current process configuration, navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 💿 All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both
	Search

In the **Source Category** search field, type "LAND" then select the row for LANDFILLS from the dropdown results. Click the **Search** button.

	ch R	esults						
Ca	eate Pa	00055						
2 recon	ds four	d.						
		ords 1 - 2						
Acti	10115	Unique ID Base Specific	Lucal Process Name	Source Cet Code	Enda No.	Start Date	End Date	Status
En E	* (J)	114 M0002	MUNICIPAL SOLID WASTE LANDFILL - OPEN	LAND	LANDFELL	10010001		ACTIVE
100.00	R 13	115 NO001	MUNICIPAL SOLID WASTE LANDFILL - CLOSED	LAND	M0001	1978/01/01		ACTIVE
	H. 101							

The search results grid will now display all the landfill processes currently in APIMS.

#### 3.17.6.3.2 Status

If the status of a process needs to be changed, click the edit  $\boxed{12}$  icon next to the process. Remember even if the landfill is not currently accepting refuse, there are still emissions associated that will need to be calculated, so those processes should remain active.

Process	s Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
🖸 Che	ange Current Sta	atus									
1 record	is found										
Displayi	ing records 1 - 1										
Actions	Status		Start D	ate			End Date				Comments
-	ACTIVE		1901/0	101							
Page 1											

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE	•
itart Date:" yyy/mm/dd	2016/06/12	
Comments		

Select the appropriate status from the Status dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

## 3.17.6.3.3 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

ilding No.: 2	LANDFILL	
cation: Σ	AIR FORCE BASE	(Venified)
mplete Location Name	AIR FORCE BASE	
fice Symbol I	MHD-PW	Venfied)
it/Organization	DPW	
op:	(Unveri	ified)
op Name		
urce Type: D	AREA .	
mitted Source?2	Yes <sup>(i)</sup> No	
nission Point:	ATMOSPHERE .	
age Interval	ANNUAL •	
xt Higher Process	(Unver	(fied)
xt Higher Process Name:		
A Source Class Code:	50100402	
A Industry Group:		
IG Scope	1	
sessment Barcode:		
clude Consumption records from EESOH-MIS enface?	O Yes * No	
erating Schedule:	Hrs/Day, Day(s)/Wk, Wks/	/Yr
		Ĩ
mments:		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** can be used to indicate the personnel that are responsible for the activity and will be the best source of information regarding the activity.

Landfill emissions should be designated as AREA in the **Source Type** field, since they are considered stationary area emissions.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Emission Point** should be ATMOSPHERE for all activities.

The **Usage Interval** should be designated, this source is usually documented on an ANNUAL basis however may be different if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

The **EPA Source Class Code** is a process level EPA code that describes the equipment and/or operation that is the source of the emissions. The Source Classification Code for municipal solid waste landfills is 50100402.

#### 3.17.6.3.4 Sub-Processes

This source does not utilize this functionality.

#### 3.17.6.3.5 Equipment

This source does not utilize this functionality.

#### 3.17.6.3.6 Calculations

The next tab is the *Calculations* tab.

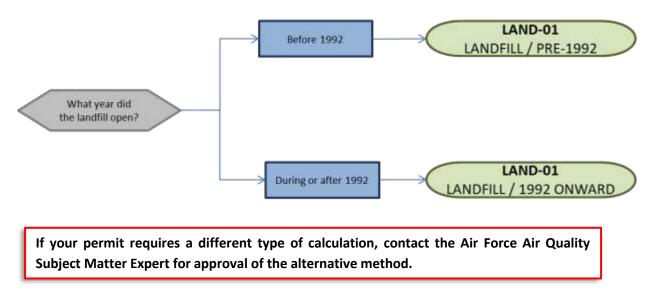
	gulatony Author	rood Materialis - Induktri	ar Contacts Z	ones Records	Alexandratis	Statute		
Process Algorithm Assignment								
Create Process Algorithm Assignment								
0 records tound Actions (20 officers # =	Formula	Emission Fact	or Citteria			lart Date	End Outs	

To associate a new algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

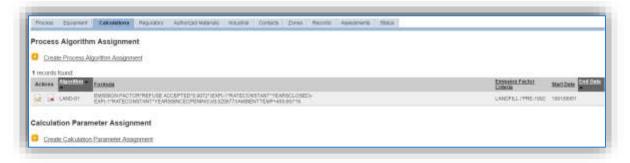
Algorithm Code:"	LAND-01 (Verified)				
Formula:	EMISSION FACTOR*REFUSE ACCEPTED*0.9072*(EXP(-1*RATECONSTANT*YEARSCLOSED EXP(-1*RATECONSTANT*YEARSSINCEOPENING))/0.020877/(AMBIENTTEMP+459.69)*16				
Algorithm Start Date:	1901/01/01				
Algorithm End Date					
Emission Factor Characteristic:"	LANDFILL / AGE				
Emission Factor Criteria:	LANDFILL / PRE-1992				
Emission Factor Set ID	4573				
Emission Factor Set Start Date	1901/01/01				
Emission Factor Set End Date:					
Start Date:"	1991/06/01				
End Date:	HID .				
yyyy/mm/dd					

Select the **Algorithm Code** and **Emission Factor Characteristic** from the list of values that matches the correct scenario. Enter the **Start Date** to match the start date of process, which should also be the date the landfill opened. Click **Save & Finish** button to save and return to the Calculations tab.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Set.



The next step on this tab is to enter the Calculation Parameters required to complete the calculations. The RATE CONSTANT, YRS CLOSED, YRS SINCE OPENING and AMBIENT TEMPERATURE are required by the algorithm to complete the emissions calculations for landfills.



To add a calculation parameter to the process, click on the <u>Create Calculation Parameter Assignment</u> hyperlink.

Parameter Name:	RATE CONSTANT		Verified)
Parameter Value:"	0.04	1/YRS	
Start Date:" /yyy/mm/dd	1901/01/01	•	
End Date: //yy/mm/dd	-	-	

Select the **Parameter Name** from the list of values.

The **Parameter Value** should be entered according to the following guidance for each parameter required by the algorithm.

The RATE CONSTANT value should be entered according to the following table.

k Value	Landfill Conditions
0.02	Areas receiving <25 inches/yr rainfall
0.04	Areas receiving >25 inches/yr rainfall

For the YRS CLOSED parameter value, enter the number of years the landfill has been closed or zero for active landfills that are accepting waste.

For the YRS SINCE OPENING parameter value, subtract the year the landfill opened from the AEI year to get the years since opening.

For the AMBIENT TEMPERATURE parameter value, utilize the average annual temperature in degrees Fahrenheit as obtained by the weather service.

The **Start Date** for the RATE CONSTANT and AMBIENT TEMPERATURE parameters should match the start date of the algorithm and process. The YRS CLOSED should be specific to the AEI year with a new parameter record for each year. If the landfill is active and the YRS CLOSED parameter is 0, then there can be one parameter record with the **Start Date** matching the process start date. The YRS SINCE OPENING parameter needs to be specific to the AEI year with a Start Date at the first of the year and the End Date at the end of the year.

Click the Save & Create Another button to add another parameter or Save & Finish.

If this process already has parameters entered, the YRS SINCE OPENING for the previous AEI year will need to be end dated prior to entering a new parameter.

Process Algorithm Assignment					
Greate Process Algorithm Assignment					
oecords found.					
Activitie Exercity				Eminious Factor Criterio	Shetlink
CE CANDER ENSERION FACTOR REFLICE ADD	APTED 0, 802-SEXPL TRATECONSTRUCT/FEARDCLOSE	б)-		LANOPEL (PRE-1985	
And a state of the second second second second	SINCECPENING UL0206776AVIBENTTENP~450.00(*10				
Create Calculation Parameter Assignment					
Greate Coloniation Parameter Assignment records found	Parameter Miles	Transmission DOM	Mari Date	End Table	
Grante Calculation Parameter Assignment records found	The annual Wite	December 00M		End Take	
Clastic Calviaton Parameter Assements records frund Miteria Contraction Contract			Mart Date Two (dod) 1001/0001	Educe Trade	
Casate Calvulation Parameter Assignment records found Motions: Depresent Next Inc.	10	CROF	1991/06/01	End Date	_
Canada Cakvalation Parameter Assignment records found Materia Carpentin Meret Autor Autor Carpentin Meret Autor Carpentin Autor Context Autor Carpentin Autor Context Autor Context Auto	10	CROF	rwindeld) Derivdeldt	East Date	
Canate Calculation Parameter Assignment records found Address Engineeric Marcine Address Transfereture Address	18 12 8	DEGP 177985 VNE	1911/0601 0911/0601 1981/0601	End Date Stration	
RAFE CONSTANT     MIS CLOSED     VIS CLOSED     VIS INCE OPENING	100 202 20 20	CROF Triving VINE VINE	rwindedn Darhdedn Taandedn 29-50 non		

Click the edit icon  $\bowtie$  next to the parameter that needs to be end dated.

Process Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
Parameter Name:			YRS SINCE OPE						
Updating the parameter vi	alue will effect	ald emission	s calculations if calcul	lated again					
Parameter Value:"			24		YRS				
Start Date:* /yyy/mm/dd			2015/01/01	-					
End Date: /yyy/mm/dd			2015/12/31						
			Save Cancel						

Enter the last date of the year, click **Save**. This will allow for the creation of a new YRS SINCE OPENING parameter for the current AEI year.

Process Algorithm Assignment					
Create Process Algorithm Assignment					
I seconda Itaanat					
Actions Entran				Emmana Factor Crimena	Stattine .
	CPTECTO VITTI CAPILITINATECONSTANTITE ANGELO 68 NGEOPEN NUMBOLO VITTI ANGENTIEME-ANGENTIE	0-		LANOPEL IPHE 1942	_
Calculation Parameter Assignment					
Create, Calculation Planametin, Assignment					
Create, Calculation Planametin, Assignment	Parameter, Water	Paratisities 110M	Mart Date	End Date	0
Create, Galculation. Parameter: Assignment Records found:	Parameter Mines	Parameter UOM DEGF	Mart Date	End Date	(
Create Calculation Parameter Assorment Records found Actions (2000) 11 Com				Lad Dela	<u>e</u>
Create Galculation Plaumeire Assgnment records trans. Address Enternal Assent Transport	14	DEGF	10041304.01	100 348	0
Create Calculation Parameter Assgnment records found: Address (2000) IN Communication Address (2000) IN Communication Address (2000) IN Communication Address (2000) IN Communication	88.	DEGF STHES	rowing and the second sec	LEG Dale	0
Create Calculation Parameter Assgnment records faunt Address (2000) In Accord Address (2000) In Accord Address (2000) Acceleration Accel	18. 100 2	DEGF VYHS VHD	HARRING BIT TARTAGENT HARRING BIT	20(2)(201	
Create Calculation l'internete Assgnment records faunt Addess Addes	44 30 9 23	0666 17998 998 988	roscoladare Nacionality Nacionality 2014/00/14/1		
Create Calculation l'anamete Assgmment Records found Anteres Calculation d'anameter and Anteres A	44 107 10 23 23 25	0664 5785 988 988 988 988	Inscription Nacional Scription Scription 201205-001	2012/12/01	1

As shown above, all the parameters will appear in the grid with the active parameters at the top. This maintains all the data used in AEIs for previous years.

#### 3.17.6.3.7 Materials

The last step in setting up the Unique Process record is to authorize materials on the *Authorized Materials* tab.

Create Authorized Material				
records found				Sav
ctions	CAGE Com	ENI	Material Name	Authoris Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

NSN:"	REFUSE (Verified)
CAGE Code:	EMC
PNI	A
Material Name:	REFUSE ACCEPTED
Authorize?	Yes O No
	Save & Create Another Save & Finish Cancel

Select the material record from the list of values, using the **NSN** or Material Name. If the material is not available, the material record will need to be created.

Next select "Yes" to Authorize the material, then Save & Finish.

#### 3.17.6.4 New Sources

#### 3.17.6.4.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Landfill Data Collection Worksheet

	GENERAL INFORMAT	ION	
Building Number	Mission/Purpose		
Shop Name/Function	Manageme	nt Organization	
Coordinates: Latitude:	Longi	tude:	
UTM: Zone	Easting	Northing	Feet     Meters
Is this source in any of your permi	ts? □ Yes □ No		
If yes, does it have an emission un	it number or other designat	tion?	
	USAGE INFORMATIC	)N	
What year did the landfill open?			
Is the landfill currently open and a	ccepting waste?	□ No	
If Yes, how much refuse w	vas accepted this year?		tons
If No, what year did the la	ndfill close?		
What is the average ambient temp	perature?	°F	
What is the average annual rainfa	II?	inches	

# 3.17.6.4.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each landfill.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

rocess Category:"	INDUSTRIAL +	
rocess Type:"	TRANSPORTATION	Verified
rocess Name:"	DRIVING, PAVED ROADS	Verified
ase Specific:		
ocal Process Name:"	GOV - LIGHT DUTY DIESEL TRUCK - LDDT	
tart Date:* yyy/mm/dd	1901/01/01	
acility:"	AIR FORCE BASE	Verified
fobile Source?'	* Yes O No	
iource Category:Σ	VEHE (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	MISCELLANEOUS	SANITATION LANDFILL OPERATION	IMI1892
	OPERATIONS		

Use the values in the table above to appropriately populate the **Process Category**, **Process Type** and **Process Name**.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is. For example, LANDFILL – MUNICIPAL SOLID WASTE, LANDFILL OPERATIONS – ACTIVE, LANDFILL SITE – CLOSED.

The **Start Date** should be the date the landfill opened or first accepted waste. This date is very important for landfill sources as it is utilized to properly calculate emissions.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered a stationary source.

All landfill operations should be assigned to the LAND **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections

# 3.17.6.5 Year-to-Year Maintenance

#### 3.17.6.5.1 Usage

The consumption for landfill operations will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

At least one search criterion in addition	to View and Data Source is required to perform a search.
Search Consumption	
Process ID:	
Usage Timeframe: yyyy/mm/dd hhmm	From: To:
Year. YYYY	
Building:	
Source Category:	
NSN:	
APIMS Facility:	
Shop:	
Issue #:	
View:	Validated Records Unvalidated Records Both
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Both
	Search Clear Search

To create a consumption record, click the <u>Create Consumption</u> hyperlink.

Process ID:	(MI1892114-MO002 (Verified)	
Start Date/Time:* yyyy/mn/dd hhmm	2016/01/01 0000	
End Date/Time:" yyyy/mm/dd hhmm	2016/12/31 2359	
NSN:"	REFUSE (Verified)	
Amount	CAGE Code: EMC PNI: A Preparation Date: 2006/01/01 EESOH Product Detail ID: 42500 TONS-TONS	
Validate Consumption?	♥ Yes ◎ No	
Part:	(Unverified)	
issue #:		
Comments		
Contributes.		

The consumption record should span the entire reporting period or the duration of the activity as shown above. Click the **Save** button to complete the entry.

#### 3.17.6.5.2 Parameters

Landfill operations require parameter values to properly complete the emissions calculations. The parameter values are entered into the Unique Process record. Search for the correct record in Unique Process and click the edit icon  $\boxed{}$  next to the process.

Crest	se Pros	.53						
2 records	found							
Displayin	g recor	di 1 - 2						
Action		da 1 - 2 Unique ID Bean Scattle	Local Procasa Name	Source Cat Code	mag.No.	Start Date	End Date	Shitu
			Local Process Name MUNICIPAL SOLD WASTE LANDFILL - OPEN	Source Cat Code			End Dala	ACTT:

Once in the process record, click the Calculations tab.

rocess Algorithm Assignment				
Grade Process Algorithm Assignment				
records found:				
Actions Lemma				Eminsten Excitat Shettlets
EMBISION FACTOR REFUSE ALC	EFTED A 8072-BER-1-RATEC DISETANT VEABLODE	Φ)-		LANOPELL (THE-1982 - 199100401
alculation Parameter Assignment				
Greate Cokvision Parameter Assignment				
Genete Calculation Parameter Assignment records found	Paramou Wake	Terrenter DOM	Marillano	East Take
Gester Calculation Parameter Assignment records found	Paramote With	December 2014 CDOF	Mari Date vrav dodr	End Date
Canate Calculation Parameter Asseptment records found Calculation Contract Calculation Calculation Contract Calculation				End Date -
Canada Soluviation Parameter Assignment records found Uteres: Depresent form == 	10	DEGF	1991/06/01	End Date -
Conste Column Parameter Assemment econte found telene Department Assemment Transformung (a) Anne Columnary	10	CRGP 1778g	nerden Der Gebr	End Date-
Casada Sakulatan Parameter Assemment records found Adams Enforcementer Adams Transferrume Adams Transferrume Adams	10 102 11	DEGP 17988 VNE	rendedr Deridedr Tanidedr	End Date-
RAFE CONSTANT     NTIL CLOSED     NTIL SUNCE OPENING	100 202 20 24	DDGP 10%g VME VME	1991-05001 1991-05001 1991-05001 291-501-001	

For landfills the YRS SINCE OPENING should have multiple parameter records. The parameter for the previous AEI year will need to be end dated. Click the edit icon  $\boxed{2}$  next to the parameter that needs to be end dated.

Process Equipment Calculations	Regulatory Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
Parameter Name:	YRS SINCE OPI	INING					
Jpdating the parameter value will effect	old emissions calculations if calc	itated again					
Parameter Value:"	24		YRS				
Start Date:" yyy/mm/dd	2015/01/01	-					
nd Date: yyyimmidd	2015/12/31	-					
111							
	Save Cancel						

Enter the last date of the year, click **Save**. This will allow for the creation of a new YRS SINCE OPENING parameter for the current AEI year.

Process Algorithm Assignment					
Create Process Algorithm Assignment					
I seconda litarat					
Actions (Action Entryin				Emanion Factor	Statting and
	PTECTURE 21 EARS I THAT ECONSTANT TEARSOLOGE	(a.)			_
M 1. LMD01 EXPOSION FACTOR FLEPOSE ALL EXPL-TRATECONSTANT MEARSS	EFTECTURE721EAFF-11NATECTINETANT11EARSCLOBE NCEOPENING (DOCIDE7704A9ENTTEMP+430480118			LANDERT LEHE 1965	cateropean.
records found.					
records found. Activity: Patient Manuel	Parameter Netwo	Funamenter UOM	Mart Date	End Date	6
incode faind Actives Communications Actives Autoput Teleforkature	88	DEGF	10001000.011	End Date	9
Incode found. Actions [2000101 Second and Actions ] Action of the Constant Action of the Constant	48. 102	DEGF VHHS	1994-1998-001 1994-1998-001	Lod Date	-
Incode found. Actives Extended found Actives Antipological and Actives Antipological and Actives Antipological and Actives Antipological and Actives Actives Act	88	DEGF	10001000.011	End Date	
I records found. Artises [20001010 Access = 2000] Available: Available: Avail	48. 102	DEGF VHHS	1994-1998-001 1994-1998-001	End Delte	0
Incode found. Actives Extended found Actives Antipological and Actives Antipological and Actives Antipological and Actives Antipological and Actives Actives Act	14. 100 11	DEGF UNHS VIIII	106/10531 106/10531 106/10541	20(2)(20)	0
Actives Entert Telespectuale Antibioti Telespectuale Antibioticologi Antibioti	44 30 23	DEGF VHB VHD VRD	holining gan Haring and Kaling and Kaling and Kaling and		4
	84 20 20 20	0664 17988 980 980 980 980	inacide en Nacide en Sciences Sciences Sciences	2012/12/01	11

For active landfills the YRS CLOSED parameter can be used from the previous years as it will be 0 until the landfill closes. If the landfill is closed this parameter will need to be end dated for the previous AEI year and a new parameter entered for the current AEI year using the same process utilized for the YRS SINCE OPENING parameter.

#### 3.17.6.5.3 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation**. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 3.17.7 Munitions (MUN)

#### 3.17.7.1 Source Types

This source category includes both indoor and outdoor firing ranges used for small arms training. Indoor firing ranges are usually exhausted to the atmosphere and are therefore considered stationary point sources.



#### **Indoor Firing Range**

Outdoor firing ranges, which are the most common, can be either stationary or mobile depending upon the shooter position. If the shooter always located is at a fixed position the range is considered stationary. However, if the shooter is moving around the range, that would be considered a mobile source and should not be included in calculations.



#### Outdoor Range - Stationary Source

**Outdoor Range - Mobile Source** 

Munitions and assembled energetic materials are defined as items in which the explosive materials are contained within a metal casing. Munitions include small arms ammunition and HEI cartridges. Emissions are generated when the energetic material within ammunition is detonated. This is caused by both the projectile and primer. This results in the emission of criteria pollutants, GHGs and HAPs.

#### 3.17.7.2 Potential Data Sources

The most common shops that conduct small arms training fall under the following:

- Gun range
- Test and Training Range
- Security Forces
- Munitions Accountability (MUNS)

The total number of rounds fired for each type of munition identified by the Department of Defense Identification Code (DODIC) is required to properly calculate emissions. These amounts are usually readily available from the organization conducting the small arms training.

# 3.17.7.3 Standard Source Identification/Characterization

# 3.17.7.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	MUN
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value 🔻
Permitted Source?	O Yes ○ No ● Both
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 💌 All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	○ EESOH-MIS Interface Records ○ APIMS Entered Records ● Both
	Search

In the **Source Category** search field, type "MUN" then select the row for Munitions from the dropdown results. Click the **Search** button.

			sults						
0	Great	te.Psix	855						
4 rec	ords	found							
Displ	laying	recon	di 1-4						
	letion	8	Unique ID Base Specific	Local Process Matte	Source Cat Code	Hide No.	Start Date	Endliste	Status
			008043	CAT'M FACILITY - DODIC A3R3 (MBR2 IF-NM BALL)	MUR	3420	1001/01/01		ACTIV
14		140							
10		5	000044	CATW FACILITY - DODIC AAAD (FRANDBLE S 50HW)	MUN	3420	101/01/01		ACTN3
R. R. E.	1			CATM FACELITY - DODIC AAAD (PRANDBLE 5.586M) CATM FACELITY - DODIC AA16 (WK254 9.4W BALL)	MUN MUN	3420 3420	1901/01/01		ACTN A

The search results grid will now display all the fire training processes currently in APIMS.

#### 3.17.7.3.1.1 Status

If the status of a process needs to be changed, click the edit  $\mathbb{P}$  icon next to the process.

Chi Chi	ange Current Status			
1 record	is found			
Displayi	ing records 1 - 1			
Actions	Status	Start Date	End Date	Comments
1	ACTIVE	1901/01/01		

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE
Start Date:" /yyy/mm/dd	2016/06/12
Comments	Unit no longer in use.

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status. This includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.17.7.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No.: Z	3420
Location 2	BUILDING 3420 (Venfied)
Complete Location Name.	AIR FORCE \ BUILDING 3420
Office Symbol 2	(Unverified)
Unit/Organization:	
Shop.	(Unverified)
Shop Name	
Source Type:2	POINT •
Permitted Source?2	💷 Yes 🖷 No
Emission Point	STACK •
Usage Interval.	ANNUAL •
Next Higher Process:	(Unverified)
Next Higher Process Name:	
EPA Source Class Code:	
EPA industry Group:	
GHG Scope:	1
Assessment Barcode:	
Exclude Consumption records from EESOH-MIS Interface?	© Yes ★ No
Operating Schedule	Hrs/Day, Day(sj/Wk, Wks/Yr
Comments:	

The **Building No**. field can be used to specify a general location or area of the emission source. For example, EAST SIDE if this is an outdoor firing range.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location. The **Shop** is important as it establishes the personnel that are conducting the training and will be the best source of information regarding the activity.

Small arms training operations are categorized as a POINT source for indoor ranges and a FUGITIVE source for outdoor ranges in the **Source Type**.

Indoor ranges would have an **Emission Point** of STACK and outdoor ranges would be ATMOSPHERE.

The **Permitted Source?** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis but may be a different time interval if it is a permitted source. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.17.7.3.1.3 Sub-Processes

This source does not utilize this functionality.

*3.17.7.3.1.4 Equipment* This source does not utilize this functionality.

# 3.17.7.3.1.5 Calculations

The next tab is the *Calculations* tab.

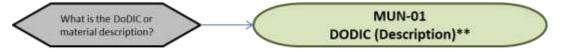
			aller a sure service and a sure of the		
ocess Algorithm Assign					
Create Process Algorithm As	signment				
ecords tound.					
	Formula	Emission Factor Criteria		Start Date	Endloute

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

Algorithm Code:"	MUN-01 (Verified)	
Formula	NUMBER OF ROUNDS*EF	
Algorithm Start Date:	1901/01/01	
Algorithm End Date		
Emission Factor Characteristic:"	DODIC (DESCRIPTION)	
Emission Factor Criteria	A363 (MB82 9-MM BALL CARTRIDGE)	
Emission Factor Set ID:	4514	
Emission Factor Set Start Date:	1901/01/01	
Emission Factor Set End Date:		
Start Date:"	1901/01/01	
End Date:		
yyyy/mm/dd		

Select the **Algorithm Code** MUN-01 from the list of next select the **Emission Factor Characteristic** that matches the DODIC. If the DODIC used does not have an emission factor set in APIMS, contact the munitions personnel to find a surrogate that has an emission factor set that most closely matches the munition used. Enter the **Start Date** to match the start date of the process.

For small arms firing there is only one standard calculation methodology recommended by the Air Force.



\*\*Each DODIC has it's own specific emission factor set.

**Note:** If the DoDIC is not listed a surrogate factor may be selected that most closely matches the munition not found. Consult a munitions specialist to determine the best match.

If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

## 3.17.7.3.1.6 Materials

The last step in setting up the Unique Process record is to add the munition as the authorized material on the *Authorized Materials* tab. For ease of use and to minimize maintenance time it is recommended to create a generic material record for NUMBER OF ROUNDS or MUNITIONS that is associated to all MUN processes. The calculation for munitions does not utilize any material record attributes so a single record will suffice.

Create Authorized Materi	d.		
0 mcords found			
V tecords tound			Sav
in the second			Authoriz
Actions Little	CAGE CHOR	ENI Material Name	Plag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

NSN:"	NUMBER OF ROUNDS	
CAGE Code:	EMC	
PNI	A	
Material Name:	NUMBER OF ROUNDS	
Authorize?	🕷 Yes 🔍 No	
	Save & Create Another Save & Finish Cancel	

Select the munition record (i.e. NUMBER OF ROUNDS or MUNITIONS etc.) from the list of values. If the munition record is not available, the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

#### 3.17.7.3.2 New Sources

#### 3.17.7.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Small Arms Firing Data Collection Worksheet

GENERAL INFORMATION				
Building Number Mission/Purpose				
Shop Name/Function Management Organization				
Coordinates: Latitude: Longitude:				
UTM: Zone Easting Northing 🛛 Feet 🗆 Meters				
Is this source in any of your permits?  Yes No				
If yes, does it have an emission unit number or other designation?				
Is the range indoor or outdoor? 🛛 Indoor 🔲 Outdoor				
Are the shooters in a fixed position? $\Box$ Yes $\Box$ No				
USAGE INFORMATION				

DODIC/Description:	Total Rounds:
DODIC/Description:	Total Rounds:

#### 3.17.7.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of material detonated.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL 🔻
Process Type:*	WEAPONS & ORDNANCE
Process Name.*	WEAPONS/SMALL ARMS FIRING, OUTDOOR RANGE
Base Specific:	
Local Process Name:*	MUNS-OUTDOOR-BLDG 340-5.56 MM TRACER - (DODIC-A)
Start Date:* /yyy/mm/dd	1901/01/01
Facility:*	AVIANO AB
Mobile Source?*	○ Yes ● No
Source Category:Σ	MUN (Verified)

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	PROTECTIVE SERVICES-	SMALL ARMS FIRING	IPS1928
	SECURITY		
INDUSTRIAL	WEAPONS & ORDNANCE	WEAPONS/SMALL ARMS FIRING,	IWP2114
		INDOOR RANGE	
INDUSTRIAL	WEAPONS & ORDNANCE	WEAPONS/SMALL ARMS FIRING, NOC	IWP2115
INDUSTRIAL	WEAPONS & ORDNANCE	WEAPONS/SMALL ARMS FIRING,	IWP2116
		OUTDOOR RANGE	

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, MUN – CARTRIDGE 12 GAUGE MK275 or MUN, INDOOR, BLDG 1200, M6 ELECTRIC BLASTING CAPS, DODIC-M130.

The **Start Date** should be the date the source became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" for all ranges that are indoor or are outdoor with fixed shooter positions as these are considered stationary sources. Outdoor ranges that do not have fixed shooter positions are considered mobile sources and should not be included in calculations.

All small arms firing activities are assigned to the MUN Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

## 3.17.7.4 Year-to-Year Maintenance

### 3.17.7.4.1 Usage

The usage for small arms firing sources will need to be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Process ID:"	IWP2116159575	(Ventied)	
Start Date/Time:" yyyy/mm/dd-hhmm	2016/01/01 0000		
End Date/Time:" yyyy/mn/dd hhmm	2016/12/31 2359		
NSN:	NUMBER OF ROUNDS	(Venhed)	
	CAGE Code: EMC PM EESOH Product Detail	II: A Preparation Date: 1901/01/01 ID:	
Amount:"	13500	RND - ROUNDS OF AMMUNITION	
Validate Consumption?	🖲 Yes 😳 No		
Part	(	Unvenified)	
Issue #			
Comments:			

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

The consumption record should span the entire reporting period as shown above. The material should be the NUMBER OF ROUNDS or other generic material record and the amount should be the total rounds of ammunition. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

### 3.17.7.4.2 Emissions Calculations

To correctly calculate emissions, this emission source should only include **Stationary Source Calculations** as described above.

## 3.17.8 Nondestructive Inspection (NDI)

#### 3.17.8.1 Source Types

Air Force installations with aircraft maintenance operations typically have a Non-Destructive Inspection (NDI) shop where metal parts are inspected for cracks, fractures, and other flaws. NDI shops use a variety of chemicals to inspect and clean metal parts such as inspection penetrants, penetrant removers, penetrant developers, alcohol cleaners (e.g., isopropyl, denatured ethanol, methanol), and other cleaning compounds. NDI is calculated the same way as miscellaneous chemical use and is often accounted for under the CHEM source category, however if the processes need to be separated for regulatory purposes or other tracking purposes this source category can be used.

Generally, there are two methods used at NDI shops to inspect and clean mechanical parts. The first method involves placing chemicals into a tank in which the parts to be inspected are submerged/soaked. These chemicals are periodically replaced as they become dirty or no longer meet specifications. Any waste chemicals are collected and sent off-site for disposal. Pollutants are emitted as the chemicals vaporize when loaded into the tank, during use within the tank, and as they evaporate off the parts removed from the tank. To quantify these emissions, the volume of chemical removed from the tank during the year may be subtracted from the volume of chemical added to the tank during the year. This difference is assumed to completely evaporate into the air. The resultant emissions are a function of the volume evaporated and the density of the chemical.



The second method involves the application of chemicals onto parts with the use of a spray can or bottle. Emissions from this technique are conservatively estimated by assuming the entire amount of chemical applied is emitted to the atmosphere. To calculate the emissions of a particular pollutant for the spraying method, the volume of chemical used is multiplied by its density and the weight percent of the pollutant in the chemical.



## 3.17.8.2 Potential Data Sources

NDI chemicals are considered hazardous materials and are typically procured in one of two ways. The first is to have an independent contractor that services the various inspection tanks on base. The contractor usually comes and collects the waste solvent and refills the tank with new chemicals to the level required. A report that documents the amount of chemical added and amount of chemical removed as hazardous waste. The other way chemicals are procured is through the Hazardous Materials Management System (EESOH-MIS). It is important to work with the Hazardous Materials Management personnel to configure the processes and material authorizations to separate the non-destructive inspection chemicals from other material and activities. The data required for NDI processes is the net loss of chemical; this is the amount of new chemicals added minus the amount of waste collected or the total amount used. The specific chemical used and the SDS for the chemical that should include the following information:

- Product Name
- Density
- Ingredient Name and % by weight
- VOC content

For all usage information that is imported from EESOH-MIS there should also be material records that contain most if not all the required information. For manually entered usage, the Safety Data Sheets will need to be obtained. Most shops maintain Hazard Communication folders that contain all the Safety Data Sheets for materials used. If the Safety Data Sheets are not available in the shop, most are available on manufacturer websites.

The most common shop that has NDI operations is:

• Maintenance Squadron Fabrication Flight (MXMF)

### 3.17.8.3 Standard Source Identification/Characterization

#### 3.17.8.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	NDI ) 🔄 🗸
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	O Yes ○ No ● Both
Mobile Source?	○ Yes ○ No ○ Unsure ● All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	◎ EESOH-MIS Interface Records ◎ APIMS Entered Records ● Both
	Search

In the **Source Category** search field, type "NDI" then select the row for NONDESTRUCTIVE INSPECTION from the dropdown results. Click the **Search** button.

	Creat	ne Fra									
		licune g neco	rds 1 - B								
124	ctild	18	Unique ID Base Apecific	Local Process Name	Source Cat Code	HOLE.NO.	Martillatt	Ent Date	30ABAR	Eacith	38.50
14		2	12451	MAGNETIC PARTICLE INSPECTION	NOP		18870505		ACTIVE.	LAUGHLINATE	
1		- 21	12408	EQUEMENT REPAIR	ACI		2007/08/23		ACTIVE	LAUGHUN AFB	
14	-	12	12458	PLALDEVELOPINO, AUTOMATIC	MON.		2890/05/21		ACTIVE	LAUTHUN HE	1.4062
1		9	12602	ALTRABORIE TEETING MAPERTICIN	101		2001-04-310		ACTIVE	EAUTHUN APE	
		1	12458	LIQUE REIETRANT ASPECTION	Ada		200500111		ACTIVE	LAUGHLIN AFE	LAURE
14	-	127	-528	NON DESTRUCTIVE INSPECTION OPERATIONS - BASEWICE	HOF	39	1901/01/01		ACTIVE.	LAUGHUMAER	
1		- 22	1040	CLEAN X-RAF FILM PROCESSOR IN ENCLOSED WARHER	101		2010/02/15		ACTIVE .	LAUGHLINAPE	LACORD
1	12	3	262	WINHS K RAY FEMILIEND, OPING DIRECKLIS	101		10010101	20141201	WACTH'E.	LAUTHUN APR	1178.

The search results grid will now display all the nondestructive inspection processes currently in APIMS. This may include processes created by the EESOH-MIS interface and APIMS created processes including a roll up Next Higher Process. To further filter out the EESOH-MIS processes, use the radio button next to APIMS Entered Records on the Data Source field in the Search criteria. This will then only display the APIMS created processes.

#### 3.17.8.3.2 Status

If the status of a process needs to be changed, click the edit  $\mathbb{P}$  icon next to the process.

If this is a process that was entered into APIMS via the EESOH-MIS interface, the process status must be altered in EESOH-MIS.

Process Equipment Calculations	Regulatory Authorized Materials	Industrial Contacts	Zones Records	Assessments	Status
Change Current Status					
1 records found					
Displaying records 1 - 1					
Actions Status	Start Date		End Date		Comment
ACTIVE	1901/01/01				
Page 1					

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE 🔻
Start Date:" /yyy/mm/dd	2016/06/12
	Unit no longer in use.
Comments:	
	Save Cancel

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status; this includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.17.8.3.3 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Definition Information Sub-Processes		
Building No. 2	52	
Location 2	BUILDING 00052	V- × (Venfied)
Complete Location Name	AFB \ BUILDING 00052	
Office Symbol 2	[	Unverified)
Unit/Organization	N	
Shop:	(Unventied)	
Shop Name		
Source Type: 2	AREA *	
Permitted Source?Σ	O Yes 🖲 No	
Emission Point	ATMOSPHERE .	
Usage Interval	ANNUAL 🔻	
Next Higher Process	(Unverified)	
Next Higher Process Name:		
EPA Source Class Code:		
EPA Industry Group		
GHG Scope:	Select Value •	
Assessment Barcode:		
Exclude Consumption records from EESOH-MIS Interface?	⊖ Yes ● No	
Operating Schedule	Hrs/Day, Day(s)/Wk; Wks/Yr	
Comments		
	· · · · · · · · · · · · · · · · · · ·	
	Save Cancel	

The **Building No**. field can be used to specify a general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are utilizing the equipment on a regular basis and will be the best source of information regarding the unit. This field is not applicable to basewide next higher processes.

Nondestructive inspection operations should be designated as an AREA in the **Source Type** field.

The **Emission Point** should be ATMOSPHERE for all operations.

The **Permitted Source?** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis unless specified differently by a regulatory requirement. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

## 3.17.8.3.4 Sub-Processes

For Next Higher Process configuration, navigate to the Sub-Processes sub tab.

Pincess	Empriell Geculation	s Regulatory Authorized Materians mitustrian Contactle Zons	is macoros Abbezaménts	States			
Detriput	arbitration Sub-Proc	*****					
Crea	le Sub-Process Association						
records Jisplaviv	found. precords 1 - 7						
ctions	Unious ID Date Specific	Local Protess Name	Source Cal Code	Into No.	Statt.Date	End Date	Status
	12451	MAGNETIC PARTICLE INSPECTION	NOI		1997/06/26		ACTIVE
14	18400						
14	12460	EGUPMENT REPAR	NDI		2007/06/22		ALTI/E
	12460	EGUPMENT REPAR FILM DEVELOPINO, AUTOMATIC	NDI		2007/06/23		
	12480						ACTIVE
-	12460 52406	FILM DEVELOPING, AUTOMATIC	NDI		2000/03/21		ACTIVE ACTIVE ACTIVE

This sub tab is used to specify which processes should have their consumption rolled up to this next higher process. To add a process or processes, click the <u>Create Sub-Process Association</u> hyperlink.

Proces		Reputatory	Authorized Materials Industrial Con	tacts Zones	Records Arm	estments	Statue		
Defititio	e Internation Sub-Proce								
• <u>5ea</u>	rch Processes								
Pro	0(655)								
Str	sturs:		Select Value •						
50	urce Categoryi		NDI	I N N	Null Source C	ategory	0		
	cility:		(				- X		
Pe	rmitted Processes:		🔍 Yes 🔅 No						
			Search Clear Search						
record	s found.								
Save	Cancel								
6	Unique ID Base Specific	Local Proces	s Name	Source Cat Ci	odr 5M	ta No.	Start Date	End Date	Status
6	12839	LIQUID PENE	TRANT INSPECTION	NDF			2005/02/11	5V)	ACTIV
Stup	Cancel								

Use the Search Processes fields to refine the search to find only the NDI processes. Select the checkbox next to the appropriate process(es), then click the **Save** button.

#### 3.17.8.3.5 Equipment

This source does not utilize this functionality.

## 3.17.8.3.6 Calculations

The next tab is the *Calculations* tab.

2.250			
rocess Algorithm Assign			
Create Process Algorithm As	signment		
records tound.			

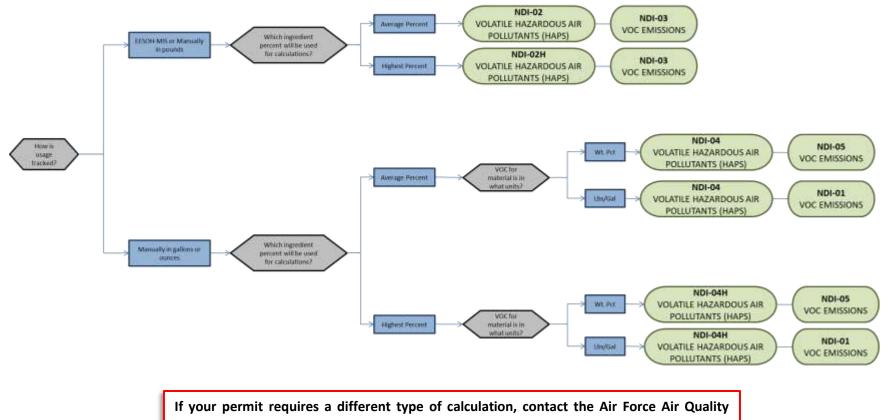
To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Algorithm Code:"	NDI-02 (Verified)				
Formula: Algorithm Start Date: Algorithm End Date:	CONSUMPTION*INGREDIENT PCT (AVERAGE) 1901/01/01				
Emission Factor Characteristic:	EMISSION TYPE				
Emission Factor Criteria	VOLATILE HAZARDOUS AIR POLLUTANTS (HAPS)				
Emission Factor Set ID:	5874				
Emission Factor Set Start Date:	1901/01/01				
Emission Factor Set End Date					
Start Date:" yyyyimm/dd	1901/01/01				
End Date: yyyy/mm/dd	-				
	Save & Create Another Save & Finish Cancel				

Select the **Algorithm Codes** from the list of values that matches the correct scenario. Next select the **Emission Factor Characteristic** available. Enter the **Start Date** to match the start date of the process. Click the **Save & Create Another** button to associate another algorithm or click **Save & Finish** button to save and return to the Calculations tab.

NDI emission calculations utilize the material VOC and a mass balance based on the ingredients in the material used for the NDI. Therefore, TWO algorithms need to be associated to each NDI process.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Set.



Subject Matter Expert for approval of the alternative method.

#### 3.17.8.3.7 Materials

The last step in setting up the Unique Process record is to authorize the materials on the *Authorized Materials* tab. This step is only required for processes that use manual logs to track usage in APIMS. All processes that use the consumption data from EESOH-MIS are configured at the sub-process level by the interface.

Create Authorized Maters				
records found				Sav
tions bill e	CAGE CHM	ENI	Naterial Name	Authoria Flag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

Process Equipment Calculat	tions Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
NSNT		6850012686695			(Verified)			
CAGE Code:		37676						
PNE		A1						
Material Name		INSPECTION PENE	TRANT					
Authorize?		🖲 Yes 🛛 No						
		Save & Create Anot	her Saw	e & Finish	Cancel			

Select the material record from the list of values, using the **NSN** or Material Name. If the material is not available, the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish** or **Save & Create Another**. Repeat this step for all materials used by the process.

#### 3.17.8.4 New Sources

#### 3.17.8.4.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Nondestructive Inspection Data Collection Worksheet

CLI		A 1	INICO		ON
(	инк	<b>A</b> 1	INFC	JRIVI	UN
					 <b>U</b>

Building Numb	er	Mission/Pu	rpose		
	nction				
Coordinates:	Latitude:		Longitude:		
UTM:	Zone	Eastin	g	Northing 🛛 F	eet 🛛 Meters
	any of your permit				
If yes, does it h	ave an emission uni	t number or othe	r designation? _		
		USAGE INF	ORMATION		
Are the inspect	ion chemicals purch	ased through EES	Soh-Mis? 🗆 Ye	es 🗆 No	
If Yes, specify tl	he shop and process	s designation in El	ESOH-MIS		
Shop Code		Process Co	ode/Name		
If No, collect th	e following informa	tion.			
Materia	al Name				
	it Used				🗆 Lbs 🗆 Ga
Freque	ncy				
Do the	y have Safety Data S	heets for the mat	terials used? 🗖 `	Yes 🗆 No	
	, If yes, collect copie				
	If no, collect the na	ame and manufac	turer of the pro	duct. This can be u	sed to contact
	the manufacturer	to obtain a Safety	Data Sheet.		
What n	nethod is used for ir	nspection? 🛛 Ir	nmersion 🛛	Spray/Pour	
	If immersion, colle	ct the following:	Total Amou	int Added	gal
		-	Total Waste	e Collected	gal
	If spray/pour, do y	ou have usage red	cords? 🗆 Yes 🗖	l No	
	If yes, colle	ect the usage reco	ords.		
	If no, ask t	he shop personne	el to estimate ho	ow often they condu	uct inspections
	and how m	nuch is used each	time?		
	Frequency				
	Amount us	sed			

## 3.17.8.4.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be at least one Unique Process record. If the EESOH-MIS processes are configured correctly to have nondestructive inspection chemicals separated from other chemicals, a next higher process needs to be configured. If the data is not configured that way, then a nondestructive inspection process needs to be configured for each shop that conducts nondestructive inspection applications or a single process that tracks all nondestructive inspection applications basewide for manual APIMS tracking.

## 3.17.8.4.2.1 Shop Specific Process Configuration

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:*	INDUSTRIAL T
Process Type:*	NON-DESTRUCTIVE INSPECTION/TESTING
Process Name:*	MAGNETIC PARTICLE TEST
Base Specific:	
ocal Process Name:*	BLDG 245 - MAGNETIC PARTICLE INSPECTION
Start Date:* /yyy/mm/dd	1901/01/01
acility:*	AFB (Verifi
Mobile Source?*	O Yes  No
Source Category:Σ	NDI (Verified)

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	NON-DESTRUCTIVE INSPECTION/TESTING	LIQUID PENETRANT TEST	IND1620
INDUSTRIAL	NON-DESTRUCTIVE INSPECTION/TESTING	MAGNETIC PARTICLE TEST	IND1633
INDUSTRIAL	NON-DESTRUCTIVE INSPECTION/TESTING	MULTIPLE OPERATIONS	IND1710
INDUSTRIAL	NON-DESTRUCTIVE INSPECTION/TESTING	RADIOGRAPHY	IND1846
INDUSTRIAL	NON-DESTRUCTIVE INSPECTION/TESTING	ULTRASONIC TEST	IND2069
INDUSTRIAL	NON-DESTRUCTIVE INSPECTION/TESTING	VISUAL INSPECTION	IND2093

Use the values provided in the table above to enter the **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, BLDG 336 –LIQUID PENETRANT INSPECTION.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All nondestructive inspection activities are assigned to the NDI Source Category.

#### 3.17.8.4.2.2 Next Higher Process Configuration

Navigate to the Unique Process module in APIMS and click the <u>Create New Process</u> hyperlink.

Process Category:*	INDUSTRIAL V
Process Type:*	NON-DESTRUCTIVE INSPECTION/TESTING
Process Name:*	MULTIPLE OPERATIONS
Base Specific:	
Local Process Name:*	BASEWIDE NONDESTRUCTIVE INSPECTION OPERATIONS
Start Date:* yyyy/mm/dd	1901/01/01
Facility:*	
Mobile Source?*	◎ Yes ● No
Source Category:Σ	NDI (Verified)

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	NON-DESTRUCTIVE INSPECTION/TESTING	MULTIPLE OPERATIONS	IPC1710

Use the values provided in the table above to enter the **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify what the process is for example, BASEWIDE NONDESTRUCTIVE INSPECTION OPERATIONS.

The **Start Date** should be the date the unit became operational, if this date is not known, enter 1901/01/01 as a default start date.

The Facility Name should be the facility that is responsible for the source or sources.

The **Mobile Source?** flag should be "NO" as this is considered as stationary source.

All pesticide activities are assigned to the NDI **Source Category**.

## 3.17.8.5 Year-to-Year Maintenance

## 3.17.8.5.1 Usage

## 3.17.8.5.1.1 Shop Specific Process Configuration

The consumption for NDI emissions usually needs to be tracked annually or as required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the Create Consumption hyperlink.

Process ID:"	IND163312451-	Verified)	
Start Date/Time:" /yy//mm/dd-hhrnm	2016/01/01 0000	1	
End Date/Time:" yyyy/mm/dd hhmm	2016/12/31 2359		
NSN:*	6850011965472	Venfied)	
	CAGE Code: 4N760 PNI: A EESOH Product Detail ID: 99	Preparation Date: 2014/08/04 9000309797	
Amount"	Б	GAL-GALLONS	
Validate Consumption?	🖲 Yes 🔘 No		
Part.		(Unverified)	
ssue #.			
Comments:			
comments.			

The consumption record should span the entire reporting period as shown above. The **Amount** should be recorded according to the algorithms selected. Make sure to select "Yes" to **Validate Consumption**. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different materials used during the reporting period.

## 3.17.8.5.1.2 Next Higher Process Configuration

The consumption for NDI emissions usually needs to be tracked annually or as required by a regulatory agency. For the Next Higher Process configuration, the consumption is imported from the EESOH-MIS interface with each interface run, however it is not validated. The consumption must be validated in the Consumption log.

At least one search criterion in addition	on to View and Data Source is required to perform a search.
Search Consumption	
Process ID:	
Usage Timeframe: yyyy/mm/dd hhmm	From: To:
Year. yyyy	2016
Building:	
Source Category:	NDI
NSN:	
APIMS Facility:	
Shop:	
Issue #:	
View:	Validated Records Unvalidated Records Both
Data Source:	EESOH-MIS Interface Records
	Search Clear Search

Use the search criteria to narrow the search results. It is suggested to use the Source Category, Data Source and Year or Usage Timeframe to filter the results.

Consu	mption Log								1
· Searc	h-Consumption								
Global Pill			Clouil Piller						
C Direct	e Consorration								
Chattaying	96 of 96 recents hours								2 day
Actions	Local Process Name	Start Date Time	End Date/Time	Material Name	Amount	Amount UOM	Issuell	Voltane z	
-	LIQUID PENETRANTINSPE	2010/12/13 2152	2016/12/13 2152	FLAW-FINDER AG-2-RS CLEANER	0.75	1315	2163483	8	
20	LIGHT PENETRANT INSPE	2016/12/13 2152	2016/12/13 2162	FLAW-FINDER AG-2-RS CLEANER	0.75	LBŚ	2183485		- 1
itie .	LICALD FENETRANT INSPE	2010/12/13 2152	2019/12/13 2152	FLAWLFINDER AG 2 RS CLEANER	0,75	LBS	2163494		
2.2	LIGUID PENETRANT INSPE	2010/09/09 1822	2016/08/08 1632	FLAW FINDER AG 2 RS CLEANER	9.75	LRS	2163478		- 1
1	LIGUID PENETRANT INSPE	2016/08/08 1632	2016/06/08 1612	FLAW-FINDER AG-2-RS CLEANER	0.75	1.85	2163477	*	
10.00	LIQUE PENETRANT INSPE	2010/08/08 1022	2016/06/08 1632	FLAW FINDER AG-2 RS CLEANER	0.75	LBS	2163475		
10.00	LIQUO PENETBANT INSPE	2016/08/08 1632	2010/08/08 1832	FLAW-FINDER AGO RS CLEANER	0.75	LBS	2103478		
10.00	LIQUE PENETRANT INSPE	2016/07/01 1982	2016/07/01 1932	FLAW-FINDER AG-ON DEVELOPER (AEROS	0.75	1.85	2166339	*	
-	LIQUID PENETRANT INSPE	2016/07/01 1952	2016/0/01 1902	FLAW FINDER AGION DEVELOPER (AEROS	0.75	2.BS	2166340		
	LIQUID PENETRANT INSPE-	2016/07/01 1932	2016/07/01 1902	FLAM-FINDER AGION DEVELOPER (AERIOS	0.75	LBS	2166338	8	
11.00	UQUID PENETRANT INSPE	2010/06/29 5418	2016/06/29 1418	FLAW, FINDER AG-2-RS CLEANER	0.75	LBS	2103474		
100	LIGUID PENETRANT INSPE	2010/06/23 2048	2010/05/23 2048	FLAW-FINDER AG-2-RS CLEANER	0.75	LBS	2103470		
10	LICKED PENETRANT INSPE	2016/06/23 2048	2010/06/23 2048	FLAW-FINDER AG-2-R8 CLEANER	0.75	189	2163473		
10.00	LIQUID PENETRANT INSPE	2016/05/23 2048	2016/06/23 2048	FLAW-FINDER AG 2 RS CLEANER	9.75	1.95	2163472	8	

Check the checkbox next to each material then click **Save** to validate the consumption. Only consumption that is validated will be included in emissions calculations. The simplest use case for validating rows is to start by checking the top box in the grid to validate all rows present. After all boxes are checked, click **Save**.

## 3.17.8.6 Emissions Calculation

If the process utilizes EESOH-MIS data then it should be included in the **EESOH-MIS Calculation**, otherwise this emission source should be included in a **Stationary Source Calculation** that calculates controlled emissions. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.17.9 Ozone Depleting Chemicals (ODC)

## 3.17.9.1 Source Types

Ozone Depleting Chemicals (ODCs) are reactive substances that cause depletion of the stratospheric ozone layer within the atmosphere. ODCs are categorized as being either Class I or Class II based on their ozone depleting potential (ODP) value. The ODP is the ratio of the impact on ozone of a chemical compared to the impact of a similar mass of CFC-11. Class I substances are those ODCs that have an ODP of 0.2 or higher and include chlorofluorocarbons (CFCs), halons, carbon tetrachloride, methyl chloroform, methyl bromide, and hydrobromofluorocarbons (HBFCs). All hydrochlorofluorocarbons (HCFCs) are Class II substances and have an ODP of less than 0.2. These chemicals have dangerous health and environmental effects, making the estimation of emissions significant for not only AEIs but also for Toxic Release Inventory (TRI) reporting.

One very important quality of the ozone layer is its ability to reduce solar UV radiation that is considered harmful to life on Earth above certain thresholds. In the stratosphere, ODCs catalyze ozone-degrading reactions in the presence of UV radiation, thus reducing the concentration of beneficial ozone.

At Air Force installations, refrigerants represent a significant source of ODCs. The use of refrigerants is regulated by Section 608 of the Clean Air Act (CAA). Section 608 regulates the production, purchase, use and disposal of ODCs. Recent changes to the regulations have expanded the tracking to also include chemicals with a high potential to contribute to the effects of Global Warming as measured by the Global Warming Potential (GWP). This will mostly impact the Refrigerant Management Programs on an Air Force Installation. However, it will benefit the Air Quality Program with increased visibility and tracking of chemicals that should be accounted for in a Greenhouse Gas Emissions Inventory.

Gases in this category are widely used in refrigerators, air conditioners, and fire extinguishers. The most common uses on Air Force installations are for the comfort cooling of buildings. Often these refrigeration units are located externally on the roof or side of the building.





The emission of ODCs and greenhouse gases used for cooling and refrigeration are estimated using a mass balance approach. When a unit is worked on, often gas is removed from the unit prior to repairs. This gas is either reinjected into the unit after the repair is complete, reclaimed or disposed of. After the repair is complete, gas is added back to the system until the system has a full charge. The amount of refrigerant emitted is the net loss and equal to the total amount of material used minus the amount recovered for disposal, recycling, or reclamation.

## 3.17.9.2 Potential Data Sources

The HVAC shop manages all the refrigerants on an Air Force installation. The HVAC shop may be utilizing APIMS to track the maintenance and repair of all refrigeration equipment with a capacity of greater than 50 lbs. If APIMS is being utilized no additional data collection is required. If APIMS is not being utilized for refrigerant management tracking, contact the HVAC shop and request the following information.

- Refrigerant Name
- Total Net Loss

## 3.17.9.3 Standard Source Identification/Characterization

## 3.17.9.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source and equipment inventory.

Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	ODC X
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value V
Permitted Source?	◎ Yes ◎ No ● Both
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 💿 All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	EESOH-MIS Interface Records APIMS Entered Records Interface Both
	Search

In the **Source Category** search field, type "ODC" then select the row for Ozone Depleting Chemicals from the dropdown results. Click the **Search** button.

Search Re	sults						
Greate Pro	CE95						
1 records found							
el	rds 1 - 1						
Displaying reco							
Actions	Unique ID Date Specific	Local Process-Name	Source Cat Code	Bhin No.	StartDate	End Date	Status

The search results grid will now display all the ozone depleting chemical processes currently in APIMS.

#### 3.17.9.3.1.1 Status

If the status of a process needs to be changed, click the edit  $\square$  icon next to the process.

Process	Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status	
Chang	ge Current Sta	dus									
1 records f	found										
Displaying	records 1 - 1										
Actions Sta	atus		Start D	ate			End Date			3	Comment
AC	TIVE		1901/0	1/01							
Page 1											

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Enter **Comments** that provide insight into why the status changed. These can be very useful for equipment inventories, permit renewals and regulatory reporting. Most regulatory agencies require reporting on unit operation status which includes any potential time spent offline and reasons for the outage.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

#### 3.17.9.3.1.2 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Building No. 1	BASEWIDE
Location 2	(Unvertied)
Complete Location Name	
Office Symbol 2	C3-(x) (Unventied)
Unit-Organization:	
Shop:	1127-517A (Verified)
Shop Name:	1127 - HVAC MAINTENANCE
Source Type I	POINT •
Permitted Source71	© Yes ⊕ No
Emission Point	ATMOSPHERE .
Usage Intervat	MONTHLY .
Next Higher Process.	Next Higher Process cannot be assigned. This Process is designated as the Parent Refrigerant Process for the Fa
Next Higher Process Name:	
EPA Source Class Code.	
EPA Industry Group	
GHG Scope:	Seinct Value •
Assessment Barcode	
Exclude Consumption records from EESOH-MIS Interface?	© Yes ★ No
	His/Day, Day(s/Wk, Wks/Yr
Operating Schedule	

The **Building No**. should indicate this process covers all source of this type on a BASEWIDE basis.

The **Shop** is important as it establishes the personnel that are conducting the training and will be the best source of information regarding the activity.

ODC emissions are categorized as a FUGITIVE release in the **Source Type**.

The **Emission Point** would be ATMOSPHERE.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Usage Interval** only needs to be designated if APIMS is not being used as the refrigerant management system. If the data is entered manually this source is usually documented on an ANNUAL basis. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

### 3.17.9.3.1.3 Sub-Processes

This source does not utilize this functionality.

### 3.17.9.3.1.4 Equipment

This tab is configured automatically when the Refrigerant Module of APIMS is configured. The equipment that will be associated will match the equipment entered in the Equipment Inventory screens of the Refrigerants Home.

4.4		t Inventory							HULP O
Advan	cent file	er 9. Reset Ø					9-34M2 a	r Isa Configuration	Expert to Earth B
Action		dei#	Serial #	Location	Refrigerant	Equipment Type(s)	Equipment Ca	Total System Charge	Status
۰		Ter.	70.00	10m	filter	10ter	filter.	film	10m
18	*	0153A6A12512	АМБІЗЕНТ	PETERSON APR 1 BUILDING 2017 BASE EXCHANGE	8-410A - PENTAFLOORDETHANEID		COMFORT COOLING	20 lbs	ACTIVE.
12		1308B3H0DC	K26100433D	PETERSON AFB 1 BUILDING 1256	(HCFC-22) CHLORODIFLUOROMETH		COMFORT	34 fbs:	ACTIVE
(K	*	IFC6040N57C79080	J#7K73411	PETERSON AFE ) BUILDING (350 MILITARY PERSONNEL FUGHT	(HCFC-22) CHLORODIFLUOROMETH		COMMERCIAL	129 lbs	ACTIVE
12		A0804YT01A3LSGA	009604657	PETERSON AFE 1 BUILDING 1038	IHCFC-221 CHLORODIFLUDROWETH		COMFORT COOLING	122 lbs	ACTIVE .

The equipment in the Refrigerant Module is automatically associated to the process that is designated as the Parent Refrigerant Process in the Preferences tab of the Air Facility as shown below.

Facility Pr	references				00) 274-4406 ns-support.com	
Facility EPA ID	D: CO9571924191				Air Facility: PETERSON	AFB
Identification	Compliance Information	Industrial	Attainment	NESHAP	Emission Reduction Credits	Preferences
	erant Process:*	645056			(Verified)	
Local Process   Adjust Cylinde Log?*	Name: er Amount via Service	● Yes ○1	HVAC PROC	ESS		
Leak Rate Calo	culation Method:	METHOD 1	~			
		Save	ncel			

## 3.17.9.3.1.5 Calculations

The next tab is the *Calculations* tab.

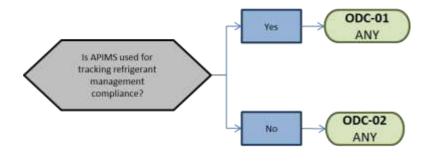
Process Equipment Calculati	ann Regulators Authors	ed Materials Induktrian Contact	i Zonet Recordi	Adversements Statut	
Process Algorithm Assign					
Create Process Algorithm Ass					
records found.					
ctions A Voltim	Formula	Emission Factor Cittaria	on hund	Start Date	End Oute

To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

Igorithm Code:"	ODC-01 (Verified)
omula:	CONSUMPTION*CONSTITUENT
Igorithm Start Date:	1901/01/01
Igorithm End Date	
mission Factor Characteristic:"	TYPE OF ODC
mission Factor Criteria.	ANY
mission Factor Set ID:	2489
mission Factor Set Start Date:	1901/01/01
mission Factor Set End Date	
tart Date:" /yy/mm/dd	1901/01/01
nd Diate: ////mm/dd	

For refrigerant units there is only one standard calculation methodology recommended by the Air Force. Select the **Algorithm Code** ODC-01 for installations that utilize APIMS for refrigerant management compliance and ODC-02 for installations that manually enter the net loss of refrigerant. Next select the **Emission Factor Characteristic** and enter the **Start Date** to match the start date of the process. Click the **Save & Finish** button to return to the Calculations tab.

Use the flowchart below to find the correct Algorithm Code and Emission Factor Set.



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

#### 3.17.9.3.1.6 Materials

This tab is only needed for installations that **do not** use APIMS for refrigerant compliance. The last step in setting up the Unique Process record is to add the refrigerants used as the authorized materials on the *Authorized Materials* tab.

Create Authorized Material			
0 mcords found			Save
Actions Interna	CAGE CHM	Ehil Material Name	Authoriz Plag

To authorize a material for the process, click on the Create Authorized Material hyperlink.

NSN:"	R-404A (Verified)
CAGE Code:	EMC
PNI	A
Material Name:	(HFC-404A) R-143A/R-125/R-134A (52%/44%/4% BY WT)
Authorize?	* Yes 🔍 No
	Save & Create Another Save & Finish Cancel

Select the refrigerant material record from the list of values. If the refrigerant record is not available, the material record will need to be created. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

#### 3.17.9.3.2 New Sources

#### 3.17.9.3.2.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

USAGE	INFORM	IATION
OUAGE		

Is APIMS utilized for tracking refrigerant compliance? 

Yes No

If yes, no more data is required.

If no, the following information is required. This should include all refrigerant losses from cylinders and equipment.

Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs
Type of Refrigerant:	Total Net Loss:	lbs

#### 3.17.9.3.2.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a single Unique Process record.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

INDUSTRIAL V	
HVAC	<ul> <li>X (Verified</li> </ul>
AIR CONDITIONING/REFRIGERATION CHARGING	Verified
BASEWIDE REFRIGERANT MODULE NET LOSS	
1901/01/01	
AIR FORCE BASE	<ul> <li>× (Verified</li> </ul>
O Yes  No	
	HVAC AIR CONDITIONING/REFRIGERATION CHARGING BASEWIDE REFRIGERANT MODULE NET LOSS 1901/01/01 AIR FORCE BASE

Process	Process Type	Process Name	Process ID
Category			
INDUSTRIAL	STRIAL EQUIPMENT CHARGING/RECHARGING, NOC		IEQ1126
	REPAIR/PREV.		
	MAINTENANCE		
INDUSTRIAL	EQUIPMENT	CHARGING/RECHARGING, R22 LEAK	IEQ1127
	REPAIR/PREV.	СНЕСК	
	MAINTENANCE		
INDUSTRIAL	HVAC	AIR CONDITIONING/REFRIGERATION	IHV1030
		CHARGING	
INDUSTRIAL	PROTECTIVE SERVICES-	FILLING FIRE EXTINGUISHERS	IPF1457
	FIRE		

Use the table above to determine the appropriate Process Category, Process Type and Process Name.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. If using APIMS for refrigerant compliance the name should be BASEWIDE REFRIGERANT MODULE NET LOSS. If manually tracking refrigerant net loss, use as standard format such as, OZONE DEPLETING CHEMICALS – BASEWIDE, CE HVAC REFRIGEANT LOSSES or AIRCRAFT FIRE SUPPRESSION.

The **Start Date** should be the date the source became operational, if this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" for all refrigerant losses.

All refrigerant losses are assigned to the ODC Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

If this is a new process that will utilize the refrigerant module from APIMS for net loss data and additional step is required.

Navigate to the APIMS Facility screen.

Manage APIMS Facility			
<ul> <li>Search APIMS Facility</li> </ul>			
Greate APTMS Facility			
records found.			
inglaying records 1 - 1			
Alberta Destroyantes and	Easthin Marin	NHATONN	Red Date
AF8071024101	ARYONCE BASE	Magination and	20
lage 1			e Prevezan 1 Ne

Click the edit icon next to the facility. This will open the Edit APIMS Facility screen. Next navigate to the *Preferences* tab.

Facility Preferences			
Facility EPA ID: BG0075S			
Identification Compliance Information Industrial	Attainment NESHAP Emission Reduction Credits Preferences		
Parent Refrigerant Process:*	711274 (Verified) BASEWIDE REFRIGERANTS		
Adjust Cylinder Amount via Service Log?*			
Leak Rate Calculation Method:	METHOD 1 V		
	Save Cancel		

Select the **Parent Refrigerant Process** from the list of values. Next select Yes or No according to the following guidance:

Yes – The service record for a refrigerant unit will require the specific cylinders from the cylinder inventory to be specified that were used during the repair to bring the unit up to full pressure. This will then automatically decrement that amount of refrigerant from the cylinder.

No – There will be no link between the service record and the cylinder inventory.

If you are not sure about the answer to this question it is recommended you work with the HVAC shop to best understand their business practices. This will affect the way they enter date in the Refrigerant Compliance module of APIMS.

Select the **Leak Rate Calculation Method** for the installation. This will either be Method 1 or Method 2 as detailed below.

#### Method 1

#### Method 2

 $\begin{array}{c} \label{eq:constraint} \text{Leak rate} \\ (\% \text{ per year}) = & \underbrace{\begin{array}{c} \text{pounds of refrigerant added over past 365 days} \\ \text{(or since leaks were last repaired,} \\ \text{if that period is less than one year)} \\ \text{pounds of refrigerant in full charge} \\ \end{array} \times 100\%$ 

Once the calculation method is selected it must be used for all equipment on the installation for the entire life of the equipment. Per regulations an installation cannot change the calculation method for a piece of equipment and all equipment at a single installation must use the same calculation method. Therefore, if this field is configured for any individual piece of equipment in the Refrigerant Module, this field should be selected to match.

Click **Save**. This will now automatically pull all the net loss data from the Refrigerant Compliance module for use in emission calculations.

## 3.17.9.4 Year-to-Year Maintenance

### 3.17.9.4.1 Usage

If the installation is using the Refrigerant Compliance module of APIMS, this step is not required. This step is only for installations manually tracking the net loss of refrigerants.

The net loss of ODC should be tracked annually or more frequently if required by a regulatory agency. To correctly document the annual usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	HV1030645056	(Verified)	
Start Date/Time:" yyyy/mm/dd hhmm	2016/01/01 0000		
End Date/Time:" yyyy/mm/dd hhmm	2016/12/31 2359		
NSN:	R-404A	Verified)	
	CAGE Code: EMC PNI: EESOH Product Detail ID	A Preparation Date: 1901/01/01	
Amount:"	131	LBS - POUNDS	
Validate Consumption?	🖲 Yes 💿 No		
Part	[	Unverified)	
issue #:			
Comments:			

The consumption record should span the entire reporting period as shown above. The material should be the type of refrigerant used and the amount should be the net loss in pounds. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation.

Click the **Save** button to finish or the **Save & Create Another** button to enter the loss for another type of refrigerant. Repeat this step until all refrigerant losses are recorded.

### 3.17.9.4.2 Emissions Calculations

To correctly calculate emissions, this emission source should be included in a **Stationary Source Calculation** and be included in the Greenhouse Gas reporting. Reference Section 2.7 Emissions Calculations for additional instructions and details.

## 3.17.10 Rocket Motor Testing (RTST)

## 3.17.10.1 Source Types

Rocket motor testing is performed at certain Air Force installations on a routine basis. A typical solid-fuel rocket motor consists of a motor body, a nozzle, igniter assembly, and a propelling charge. Most rocket motor testing by the Air Force is conducted at outdoor test range facilities. However, there are a few sites that conduct enclosed rocket motor tests. Emissions from static rocket engine testing are regarded as a stationary source since the rocket is affixed to a test stand. Emissions of concern from rocket engine testing include criteria pollutants, HAPs and GHGs.



Some typical rocket emission factors are provided by AP-42; however, this is not all the rockets that are tested at Air Force installations. Most commonly, if rocket motor testing is conducted there are specific emission factors and test data that provide a more accurate emission profile. It is suggested to use the more accurate data than the factors provided in AP-42.

## 3.17.10.2 Potential Data Sources

This type of testing is usually a function of the Air Force Research Laboratory on an installation. The data required to calculate emissions is as follows:

- Amount of fuel consumed
- Type of fuel used
- Emission profile (usually based on test data)

## 3.17.10.3 Standard Source Identification/Characterization

### 3.17.10.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum. Most regulatory agencies require an up to date source inventory. Navigate to the Unique Process module of APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

Search Process		
Unique ID:		
Base Specific:		
Process ID:		
Local Process Name:		
Source Category:	RTST C	
Building No.:		
Facility:		×
Location:		×
Shop:		
Zone:		
NAICS Code:		
SIC Code:		
Status	Select Value	
Permitted Source?	○ Yes ○ No ● Both	
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 💿 All	
Start Date: yyyy/mm/dd	From: To:	
End Date: yyyy/mm/dd	From: To:	
Data Source:	EESOH-MIS Interface Records APIMS Entered Records	Bo

In the **Source Category** search field, type "RTST" then select the row for ROCKET MOTOR TESTING from the dropdown results. Click the **Search** button.

se	arch	Res	sults						
	Crea	le Proc	C35						
	1.1.1.2	found	s 1 - 5						
	Action		Unique ID Base Specific	Local Process Name	Source Cat Code	Didg No.	Start Date	End Date	Status
10	-	91	669625 18	SOLID ROCKET ETF	RIST	ETF	1956/01/01		ACTIVE.
10	-	3	<u>669628</u> 17	LIQUID ROCKET ETF	RTST		1950/01/01		ACTIVE
1	-	31	100027 14	APTU - LIQUID PROPELIJANT	RTHT	579	1950/01/01		ACTIVE
100	-	- 45	669628 14	APTU - SOLID PROPELCANT	RTST	670	1950/01/01		ACTIVE
18		131	080639 52	TEST MODEL COMBUSTOR	RTST	795	1950(01)01	2085/12/31	INACTIVE

The search results grid will now display all the rocket motor testing processes currently in APIMS.

#### 3.17.10.3.2 Status

If the status of a process needs to be changed, click the edit 🚧 icon next to the process.

Process	s Equipment	Calculations	Regulatory	Authorized Materials	Industrial	Contacts	Zones	Records	Assessments	Status
	ange Current Str	atus								
1 record	is found									
Displayi	ng records 1 - 1									
Actions	Status		Start D	late			End Date			Comment
1	ACTIVE		1901/0	101						
and the second s										

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

itatus:"	INACT - INACTIVE	•
Hart Date:" yyyy/mm/dd	2016/06/12	
Comments.		

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Click the **Save** button.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

If rocket motor testing activities are conducted occasionally it is recommended to leave the process(es) active as long as there is the possibility of this activity. This will ensure it is still considered when determining overall base air emissions.

#### 3.17.10.3.3 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

kuilding No. Σ	579	
ocation X	BUILDING 579	(Ventied)
Complete Location Name	AIR FORCE BASE \ BUILDING 579	
Mice Symbol 2	CC	Venfied)
Init/Organization	0704 TEST GP 0000	_
hop.	A140579-APTU (Venfied)	
hop Name:	AEROSPACE PROPULSION TEST UNIT APTU	
iource Type:Σ	POINT	
emitted Source?Σ	🕷 Yes 💿 No	
mission Point:	ATMOSPHERE .	
Isage Interval:	MONTHLY .	
lext Higher Process:	(Unverified)	
lext Higher Process Name		
PA Source Class Code:		
PA Industry Group		
GHG Scope:	Select Value *	
ssessment Barcode		
xclude Consumption records from EESOH4AIS Iterface?	S Yes 🖲 No	
perating Schedule:	Hrs/Day, Day(s)/Wk, Wks/Yr	
omments		

The **Building No**. field can be used to specify a general location or area of the emission source, for example, EAST SIDE.

The **Location** field is very important to effectively manage the location and mission of the emission source. This documents where the source is located, in case it needs to be inspected or if the source owner needs to be contacted for pertinent information. For the instructions on how to create a location reference Section 2.2 Location.

The **Shop** is important as it establishes the personnel that are responsible for the activity and will be the best source of information regarding the activity.

For rocket motor testing activities conducted in enclosed areas, a POINT source should be selected in the **Source Type** field. For outdoor rocket motor tests, select the FUG source type for fugitive.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

The **Emission Point** should be ATMOSPHERE for all activities.

# APIMS AEI Procedure

The **Usage Interval** should be designated. This source is usually documented on an ANNUAL basis unless specified differently by a regulatory requirement. It is important to populate this field correctly as it will affect how it is documented in the AEI Throughputs module.

#### 3.17.10.3.4 Sub-Processes

This source does not utilize this functionality.

#### 3.17.10.3.5 Equipment

This source does not utilize this functionality.

### 3.17.10.3.6 Calculations

The next tab is the *Calculations* tab.



To associate an algorithm to the process, click on the Create Process Algorithm Assignment hyperlink.

Algorithm Code:"	RTST-50 (Verified)				
Formula:	EMISSION FACTOR*PROPELLANT CONSUMED				
Algorithm Start Date:	1901/01/01				
Algorithm End Date:					
Emission Factor Characteristic:"	SPILL/FUEL TYPE				
Emission Factor Criteria	SOLID ROCKET FUEL				
Emission Factor Set ID:	6155				
Emission Factor Set Start Date:	1901/01/01				
Emission Factor Set End Date					
Start Date:* yyyy/mm/dd	1901/01/01				
End Date: yyy/mm/dd					

Select the **Algorithm Code** and **Emission Factor Characteristic** from the list of values that matches the correct scenario. For rocket motor testing this should be a base specific algorithm used to calculate emissions based upon fuel usage or the number of tests using the emission profile based on emission testing conducted. Contact the AFCEC Air Quality SME to configure this in APIMS. Enter the **Start Date** to match the start date of the process. Click **Save & Finish** button to save and return to the Calculations tab.

### 3.17.10.3.7 Materials

The last step in setting up the Unique Process record is to the authorized materials on the *Authorized Materials* tab.

Create Authorized Male	artal		
0 records found			
			Sav
Actions	CAGE CHOR	Phil Material Name	Authoriz Flag
		No records found	

To authorize a material for the process, click on the <u>Create Authorized Material</u> hyperlink.

NSN:"	SOLIDPROPELLANT
CAGE Code:	EMC
PNL	A
Material Name:	SOLID PROPELLANT
Authorize?	Yes   No

Select the material record from the list of values, using the **NSN** or Material Name. If the material is not available the material record will need to be created. It is suggested to use a material name that describes the material that is burned or a generic material record such as SOLID PROPELLENT or PROPELLANT O2/FUEL. Next select "Yes" to **Authorize** the material, then **Save & Finish**.

### 3.17.10.4 New Sources

### 3.17.10.4.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

# Rocket Motor Testing Data Collection Worksheet

GENERAL INFORMATION
Building Number Mission/Purpose
Shop Name/Function Management Organization
Coordinates: Latitude: Longitude:
UTM:ZoneEastingNorthing D Feet D Meters
Is this source in any of your permits?  Yes No
If yes, does it have an emission unit number or other designation?
USAGE INFORMATION
How is usage tracked?       □ Number of Tests       □ Fuel used         How many tests were conducted?
If No, collect the emission profile and submit to the AFCEC Air Quality SME for inclusion in APIMS
If No, how are emissions estimated?

### 3.17.10.4.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of rocket motor tested.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL 🔻	
Process Type:*	ENGINE TESTING	Verified
Process Name:*	ENGINE TESTING, NOC	Verified
Base Specific:	APTU	
Local Process Name:*	ROCKET MOTOR TESTING - SOLID FUEL - APTU	
Start Date:* /yyy/mm/dd	1901/01/01	
Facility:*	AIR FORCE	Verified
Mobile Source?*	Ves  No	
Source Category:Σ	RTST (Verified)	

Process Category	Process Type	Process Name	Process ID
INDUSTRIAL	ENGINE TESTING	ENGINE TESTING, NOC	IET1426
INDUSTRIAL	FUELS	FUELS, NOC	IFU1501

Use the values in the table above to appropriately populate the **Process Category**, **Process Type** and **Process Name**.

The **Base Specific** field can be used to enter a standard convention identifier that will best help identify the source. If the source is permitted, enter the emission unit ID as designated in the permit.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, MINUTEMAN MISSILE TESTING or ROCKET MOTOR TESTING AREA 1-32 PAD 1.

The **Start Date** should be the date the first time the activity occurred. If this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The Mobile Source? flag should be "NO" as this is considered as stationary source.

All rocket motor testing activities are assigned to the RTST Source Category.

For the population of all other tabs, refer to the Existing Sources sections.

### 3.17.10.5 Year-to-Year Maintenance

### 3.17.10.5.1 Usage

The consumption rocket motor testing will need to be tracked annually, each time the activity occurs or more frequently if required by a regulatory agency. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the <u>Create Consumption</u> hyperlink.

Process ID:"	ER1819706090	Verified)	
Start Date/Time:* yyyy/mm/dd hhmm	2016/01/01 0000		
End Date/Time:"	2016/12/31 2359		
NSN:"	WEEDS	Verified)	
	CAGE Code: EMC PNI: A P EESOH Product Detail ID:	reparation Date: 1901/01/01	
Amount."	1250	ACRE - ACRES	
Validate Consumption?	🖲 Yes 💿 No		
Part	(	Unverified)	
Issue #			
	1		
Comments:			

The consumption record should span the entire reporting period or the duration of the activity as shown above. The material should be the fuel or the number of tests depending upon the calculation methodology.

The **Amount** should be the total fuel used or the total number of tests. Make sure to select "Yes" to validate the consumption. If the consumption is not validated it will not be included in the emissions calculation. Repeat this step for all the different media used.

### 3.17.10.5.2 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Stationary Source Calculation**. Reference Section 2.7 Emissions Calculations for additional instructions and details.

### 3.17.11 Wildfires (WILD)

### 3.17.11.1 Source Types

A wildfire is an uncontrolled fire that burns a variety of vegetation types ranging in age, size, and density. Wildfires are potential sources of large amounts of fugitive emissions of criteria pollutants and Greenhouse Gases (GHG).



Wildfires are affected by meteorological conditions, species of vegetation, moisture content and amount of consumable fuel per acre (fuel loading). In addition, the ambient temperature, wind velocity, relative humidity, and topographic features can all interact to modify the burning behavior causing different degrees of combustion efficiency. Each region of the country will have a varying fuel load due to the landscape and vegetation type. The U.S. Forest Service (USFS) has developed a map of regions associated with wildfires, shown below.



National Region	States
Rocky Mountain	AZ, CO, ID, KS, MT, ND, NE, NM, NV, SD, UT, WA, WY
Region 1: Northern	Northern ID, MT, ND, Northwestern SD, Northeast WA
Region 2: Rocky Mountain	CO, KS, NE, parts of SD, parts of WY
Region 3: Southwestern	AZ, NM
Region 4: Intermountain	Southern ID, NV, UT, Western WY
Pacific	AK, CA, III, OR, WA
Region 5: Pacific Southwest	CA, HI
Region 6: Pacific Northwest	OR, WA
Region 10: Alaska	AK
Coastal	AK
Interior	AK
Southern	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA
Region 8: Southern	AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA
North Central	CT, DE, IA, IN, IL, MA, MD, ME, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WI, WV
Region 9: Conifers	CT, DE, IA, IN, IL, MA, MD, ME, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WI, WV
Hardwoods	CT, DE, IA, IN, IL, MA, MD, ME, MI, MN, MO, NH, NJ, NY, OH, PA, RI, VT, WI, WV

## 3.17.11.2 Potential Data Sources

On Air Force installations where wildfires could occur, there is usually forestry or natural resources offices that will track the number of fires and the total acres burned.

The data elements required to accurately calculate emissions are as follows:

• Acres or tons of material burned

### 3.17.11.3 Standard Source Identification/Characterization

### 3.17.11.3.1 Existing Sources

It is important to review the existing sources in each source category on an annual basis at a minimum to prevent outdated invalid data from accumulating. Navigate to the Unique Process module of APIMS.

Manage Unique Process	
Search Process	
Unique ID:	
Base Specific:	
Process ID:	
Local Process Name:	
Source Category:	WILD C V
Building No.:	
Facility:	
Location:	
Shop:	
Zone:	
NAICS Code:	
SIC Code:	
Status:	Select Value
Permitted Source?	Yes ◎ No ● Both     Solution     So
Mobile Source?	🔍 Yes 🔍 No 🔍 Unsure 🖲 All
Start Date: yyyy/mm/dd	From: To:
End Date: yyyy/mm/dd	From: To:
Data Source:	○ EESOH-MIS Interface Records ○ APIMS Entered Records ● Bo
	Search

In the **Source Category** search field, type "WILD" then select the row for WILDFIRES from the dropdown results. Click the **Search** button.

Search Results								
Conste Process								
1 records foand								
Displaying recents 4 - 4								
Actions Distance Results	Local Piccase Name	BURGE Car Code	Dista Mo.	Bertlein	Constitute -	that an	LACTE:	218
tel 14 12 Acres	(MLDA BEE	WED		tap/spissi		ACTIVE	AR FORCE	
Page 1								e Prevaus   Next

The search results grid will now display all the wildfire processes currently in APIMS by clicking on **Unique Process** under the **Emission Unit** tab.

#### 3.17.11.3.2 Status

If the status of a process needs to be changed, click the edit  $\mathbb{P}$  icon next to the process.

Process Equipment Calcul	ations Regulatory Authorized Materia	is Industrial Contacts Zones	Records Assessments	Status
Change Current Status				
1 records found				
Displaying records 1 - 1				
Actions Status	Start Date	End Dat	te	Comments
ACTIVE	1901/01/01			
Page 1				

Navigate to the *Status* tab. Click the <u>Change Current Status</u> hyperlink.

Status:"	INACT - INACTIVE	•
start Date:" yyy/mmidd	2016/06/12	
Comments		
comments.		

Select the appropriate status from the **Status** dropdown (i.e., ACTIVE, REMOVED or INACTIVE).

For the **Start Date** enter the date at which the status changed.

Click Save.

The emissions for a process will only be calculated for the dates the process was in an ACTIVE status. If a source is removed in the middle of a year, the emissions will only be calculated for the part of the year the source was active.

If wildfires occur occasionally it is recommended to leave the process active as long as there is the possibility of this activity. This will ensure it is still considered when determining overall base air emissions.

### 3.17.11.3.3 Information

There are basic data elements that are important to track and maintain for new and existing sources, such as location and source type. This data can be maintained in the Unique Process record on the *Information* sub tab.

Unvertied)
) T + X (Unverified)
UG •
UG •
UG •
UG •
Mar What
res to No
TMOSPHERE •
Select Value •
Cover x (Unverified)
Select Value •
Yes 🖲 No
Hrs/Day, Day(s)/Wk, Wks/Yr

Wildfires should be designated as AREA in the **Source Type** field.

The **Emission Point** should be ATMOSPHERE for all activities.

The **Permitted Source** flag should also be populated to accurately reflect the current regulatory status of the emission source. This flag can be an invaluable tool in roll-up reporting.

### 3.17.11.3.4 Sub-Processes

This source does not utilize this functionality.

### 3.17.11.3.5 Equipment

This source does not utilize this functionality.

### 3.17.11.3.6 Calculations

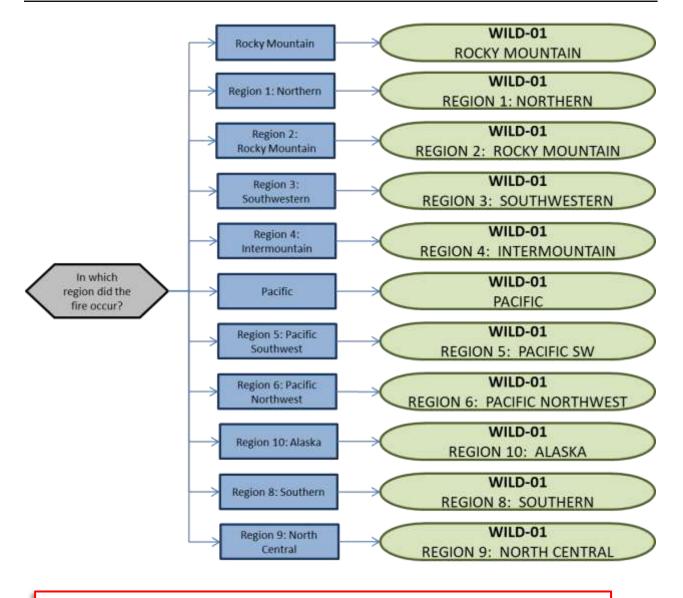
The next tab is the *Calculations* tab.

Process Equipment Calculations	Regulatory Authory	ed Materialis - Induktion	Contacts Zones	Records A	teeranteenta Statuta	
rocess Algorithm Assignme						
Create Process Algorithm Assign						
Frecords found.						
Actions Augurithm + -	Formula	Emission Eactor	Sittella No records found		Start, Date	End Oute

To associate an algorithm to the process, click on the <u>Create Process Algorithm Assignment</u> hyperlink.

Algorithm Code:"	WILD-01 (Venfied)
Formula	CONSUMPTION*EMISSION FACTOR
Algorithm Start Date:	1901/01/01
Algorithm End Date:	
Emission Factor Characteristic:"	GEOGRAPHIC AREA
Emission Factor Onteria:	REGION 8: SOUTHERN
Emission Factor Set ID:	10140
Emission Factor Set Start Date:	1901/01/01
Emission Factor Set End Date:	
Start Date:" yyyyimmidd	1901/01/01
End Date: yyyy/mm/dd	
	Save & Create Another Save & Finish Cancel

Select the **Algorithm Code** and **Emission Factor Characteristic** from the list of values that matches the correct scenario. Enter the **Start Date** to match the start date of the process. Click **Save & Finish** to save and return to the Calculations tab. Use the flowchart below to find the correct Algorithm Code.



If your permit requires a different type of calculation, contact the Air Force Air Quality Subject Matter Expert for approval of the alternative method.

### 3.17.11.3.7 Materials

The last step in setting up the Unique Process record is to the authorized materials on the *Authorized Materials* tab.

Challenger School and School			
Create Authorized Mate	mat		
mecoids found			
			Sa
Actions	CAGE Code	Phi Material Name	Author Plag
		No records found	

To authorize a material for the process, click on the Create Authorized Material hyperlink.

NSN:"	ACRES WILDFIRE	Verified)
CAGE Code:	EMC	
PNI	A	
Material Name:	ACRES WILDFIRE	
Authorize?	Yes O No	

Select the material record from the list of values, using the **NSN** or Material Name. If the material is not available, the material record will need to be created.

It is suggested to use a material name that describes the material that is burned or a generic material record such as ACRES WILDFIRE or ACRES.

Next select "Yes" to **Authorize** the material, then **Save & Finish**. Since the emission factors utilized for burning activities are dependent upon the material burned, there should only be one material per process.

### 3.17.11.4 *New Sources*

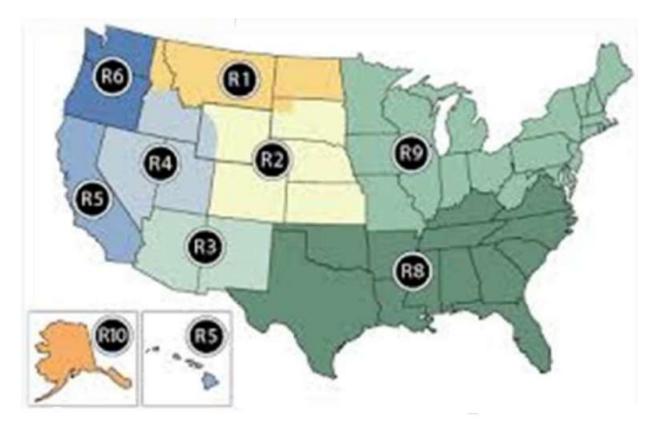
### 3.17.11.4.1 Data Collection Sheet

The form on the next page is a printable guide that can be taken out to the location of the source and used to gather all the necessary information from the shop personnel. It can then be used as a guide to help configure the data in APIMS when you return to your office.

**USAGE INFORMATION** 

How many acres burned? \_\_\_\_\_

According to the map below, in which region did the fire occur?



- □ R1 Northern
- □ R2 Rocky Mountain
- □ R3 Southwestern
- □ R4 Intermountain
- □ R5 Pacific Southwest

- □ R6 Pacific Northwest
- □ R8 Southern
- □ R9 Conifers
- 🛛 R10 Alaska

### 3.17.11.4.2 New Source Configuration

In order to properly document this emission source in APIMS, there will need to be a Unique Process record for each type of material burned and each phase of burning if applicable.

Navigate to the Unique Process module in APIMS and click the Create New Process hyperlink.

Process Category:*	INDUSTRIAL V	
Process Type:*	ENVIRONMENTAL & REMEDIATION	(Verified
Process Name:*	PRESCRIBED/CONTROLLED BURNS	(Verified
Base Specific:		
ocal Process Name:*	WILDFIRES	
Start Date:* /yyy/mm/dd	1901/01/01	
Facility:*	AIR FORCE	(Verified
Mobile Source?"	○ Yes ● No	
Source Category: Σ	WILD (Verified)	

Process Category	Process Type		Process Name	Process ID
INDUSTRIAL	ENVIRONMENTAL	&	PRESCRIBED/CONTROLLED BURNS	IER1819
	REMEDIATION			

Use the values in the table above to appropriately populate the **Process Category**, **Process Type** and **Process Name**.

The **Local Process Name** should be in a standard naming convention for all sources that helps to quickly identify, what the process is, where it is and any other unique attribute. For example, WILDFIRES.

The **Start Date** should be the date the first time the activity occurred. If this date is not known, enter 1901/01/01 as a default start date.

The **Facility** should be the facility name that is responsible for the source.

The **Mobile Source?** flag should be "NO" as this is considered as fugitive stationary source.

All wildfires are assigned to the WILD **Source Category**.

For the population of all other tabs, refer to the Existing Sources sections.

### 3.17.11.5 Year-to-Year Maintenance

#### 3.17.11.5.1 Usage

The consumption for wildfires should only be tracked on an as needed basis. To correctly document the usage for this emission source the consumption should be entered in the Consumption log.

Navigate to the Consumption module and click the Create Consumption hyperlink.

Process ID:"	ER1819707132 (Verified)	
Start Date/Time:" /yy/mm/dd-bbmm	2016/07/08 0000	
End Date/Time:* yyy/mm/dd bhmm	2016/07/10 2359	
SN:*	ACRES WILDFIRE (Verified)	
	CAGE Code: EMC PNI: A Preparation Date: 1901/01 EESOH Product Detail ID:	/01
Amount:"	20 ACRE - ACRES	
alidate Consumption?	* Yes 🔍 No	
Part	(Unverified)	
ssue #.		
Comments		

The consumption record should span the entire reporting period or the duration of the activity as shown above. The material should be the acres material record.

### 3.17.11.5.2 Emissions Calculation

To correctly calculate emissions this emission source should be included in a **Transitory Source Calculation**. Reference Section 2.7 Emissions Calculations for additional instructions and details.

# 4. Quality Assurance of AEIs

Installations can use this section of the guide to ensure the AEI being submitted is complete and accurate. There are several data issues that can cause an incorrect or incomplete AEI, such as:

- o Discrepancies between operating data units and calculation methodologies
- Use of EESOH-MIS data
- Gross fluctuation of emission from year to year
- Non-routine source categories submitted as stationary sources
- Duplication of sources/calculations

This section will utilize standard Business Objects reports to help identify potential data issues and areas of concern. Additionally, this section will show how to correct some of the most commonly occurring errors.

# 4.1 Incorrectly Documented Usage

### 4.1.1 Incorrect Units of Measure

Usage that is entered in the wrong units of measure according to what the algorithm is expecting, is a very common mistake. Often times the operators will provide the usage data in the terms or units that best match their tracking and business practices. This data is then entered into APIMS, calculations are run, and results are generated with no error messages. There is nothing in screens of APIMS that will let a user know their usage was entered in the wrong units of measure for the algorithm assigned to the process. For this reason, a Business Objects report has been created to identify any usage records that fall into this category. The report is located in the following folder, PMO Reports >> Air Quality >> AEI Quality Assurance folder, Usage Summary – Stationary. For guidance on using Business Objects to utilize reports, refer to Section 5 Custom Reporting.

In this report workbook there is a report called UOM Check. This report will display all the usage records entered into APIMS in the Consumption log for a specified time period.

		UOM Check									
	AH	R FORCE BASE									
Source Category Code	UNIC PON IO	Local Process Name	Algorithm Code	Espected UOM	Report Your	Start Start Date	End bose Date	Country Used	Generality Unod UOM	Velidated	Consumption Mosmatch
FIRE	1429	FIRE TRAZEND - PALLETE - BLD 4007	FRE-42	189	2019	2010/01/01	2819/12/01	399.8	EADH	YHE	Eng/
FIRE	670243	FIRE TRAJIONG - BALES - BLD 0907	FIRE-02	LBS	2019	2019/01/01	2019/12/31	0.0	EACH	Vee	Enor
MUN	685748	MUNITIONS - ARTS - 12GA SHOTGUN	MU8-81	RND	2019	2019/01/01	2819/12/01	816.0	EACH	700	Ste
MUN	669753	MUNITIONS - ABSR - \$ 50000	NUN-II1	RND	2019	2019/01/01	2019/12/21	2,400.1	EACH	786	EHQC.
AR(PA	660797	MUNITIONE - ARE - 1.594M	WUN-01	RND	2019	2010/01/01	2019/12/31	258,000.0	EACH	Yes	Ene
MON	660750	MUNITIONS - A143 - 7 K2 WILL	WUN-01	RND	2010	2010/01/01	2019/12/31	16,501.0	EACH	Vec.	Ene
MUN	860700	MUNITIONE - A363 - INM	WUN-01	RND	2019	3019/01/01	2018/12/31	61,030.8	BACH	Yes	Evu
MUN	699761	MUNITIONS - AAH - 7.62 NATO	WU94-011	RND	2019	2010/01/01	2019/12/31	14,501.1	EACH	Yee	EPor
MUN	668792	MUNITIONS - 8519 - 40MM	MUNHT	RND	2019	2019/01/01	105146105	1.115.8	EACH	Ven	Enw
woop	1577	WOODWORKING - TRAFFIC MMNAGEMENT - BLD 7010	10000-01	180	2010	2010/01/01	2010/12/31	220.6	GAL.	Vec	Enar
WOOD	1579	WOODWORKNO - CARPENTRY BHOP - BLD 6210	W000-01	188	2019	2010/01/01	2019/12/01	225.0	1141	1988	Eng

This report is not a definitive list of errors but can help identify potential errors. The first Source Category shown is FIRE.

FIRE	1429	FIRE TRAINING - PALLETS - BLD 6907	FIRE-02	LBS	2019	2019/01/01	2016/12/91	303.0	EACH	Yes	Enter
ERE	670243	FIRE TRAINING - BALES - BLD 6907	FIRE-02	185	2010	2010/01/01	2010/12/31	0.0	EACH	Yes	Entr

As shown above, the algorithm assigned to the two processes is FIRE-02, the report shows that the expected unit of measure for the algorithm is LBS but the consumption was entered as EACH. The next step is to find the usage record in the Consumption Log; use the Process ID and date range to find the matching record(s).

Cunsu	mption Log					
• Searc	h Consumption					
Gieboi Filt	M.		Clear F	iter (		
Court	e-Consumption					
No. 1 Com	4 of 4 records found					
ondenting		Start Data/Time	End Date/Time	Material Name	Amount UOM	Validate
	Local Process Name					

The Consumption Log shows that the usage was recorded as 300 pallets. Since each pallet weighs approximately 40 pounds, the usage for this process is significantly under reported and the emission will be significantly lower than they should be. The usage should be 12,000 LBS which as shown by the emission calculation example below will result in significantly higher emissions.

Consumption	*	EF	=	LBS of Emissions
300	*	0.002 LBS/LB (NOx)	=	0.6
12000	*	0.002 LBS/LB (NOx)	=	24

The next Source Category shown is MUN for munitions. In this scenario, the report shows that the unit of measure expected does not match the unit of measure recorded in the Consumption Log.

MUN	999748	MUNITIONS - ARTL: 120A SHOTOLIN	AM.99-01	RND	2010	2019/01/01	2010/12/31	818.0	EACH	794	En9
WL91	001753	MARKED AND - ROSE - 5.50MM	A0,81-01	RND:	2018	2010/01/01	2010/12/31	2,400.0	EACH	788	E19
NR/IN	888757	MUNITIONS - A002 - 5.59MM	AM.84-01	RND	2019	2018/01/01	2019/12/31	255.000.0	EACH	785	Ett
NK/H	009750	MUNITIONS - A143 - 7 A2 MILL	M9.84-01	RhD	2910	2010/01/01	2019/12/21	14,001.0	EACH	Ves	611
NUN	899780	MUNITIONE - KNR - MMM	MUP-01	ReaD	2019	2019301301	2019/12/31	81.000.0	EACH	195	Em
MUN	009781	MONITONS - AATT - 7.62 NATO	34.8-01	RMD	2019	2016/01/01	2010/12/21	14,005,0	BADH	Yes	Ein
NUN	009782	MUNICIPAL - BRID - 40MM	\$0.84.01	HND.	2018	2010/01/01	2010/12/31	1,115.0	EACH	191	200

The expected unit of measure is RND for round and the usage is recorded as EACH. For this, the emission calculation will remain the same as they are both recording a single unit of the munition. No further action is required.

The last Source Category shown is WOOD for woodworking operations. In this scenario, the expected unit of measure is LBS but the usage was recorded in GAL.

W255-5	Wasser				10.11						
woon	1927	WOODWORKING - TRAFFIC MAMAGEMENT - BLD 7010	WDOD-01	185	2919	2019/01/01	2018/12/31	229.0	GAL.	- Yest	Entr
WOOD	1570	WOCOWCRIONO CARPENTITY BHOP BLD 5218	WOOD-BT	1.88	2019	2010/01/01	2018/12/01	220.0	OAL ·	Yes	Enst

Most likely the shop reported in gallons because they use a 55-gallon drum to collect the waste and the barrel was emptied 4 times during the year for a total of 220 gallons. However, this number then should be converted to LBS using an approximate density of the sawdust. The AFCEC Stationary Source Guide specifies the following:

Wood (Air dried)	Sawdust Density (lb/ft <sup>3</sup> )
Elm	14.0
Fir, Balsam	10.0
Fir, Douglas	12.8
Hemlock	11.6
Hickory	19.2
Maple, Sugar	17.2
Maple, White	13.2
Oak, Red	16.8
Oak, White	19.2
Pine, Southern	16.0
Average	15.0

Table 26-2. Typical Sawdust Densities

If the 220 gallons of sawdust was multiplied by the average density of sawdust specified in the guide, 15 lbs/ft<sup>3</sup>.

110 gallons \* 1 ft<sup>3</sup>/7.48 gal = 14.7 ft<sup>3</sup>

14.7 ft<sup>3</sup> \* 15 lbs/ft<sup>3</sup> = 220 lbs of sawdust

(Waste Collected	/	Control Efficiency)	-	Waste Collected	*	EF	=	LBS of Emissions
110	/	0.95	-	110	*	1 LBS/LB (PM)	=	5.79
220	/	0.95	-	220	*	1 LBS/LB (PM)	=	11.58

As shown above, the emissions are actually double the amount originally calculated. These are examples of sources with a small amount of emissions, however errors like this can be compounded to cause significant changes to an overall AEI.

### 4.1.2 Incorrect Usage Dates

In APIMS, emission calculations utilize the usage that is entered for the specific time period. For example, if usage is entered spanning from January 1 to December 31 as a single usage record and emission calculations are run monthly, APIMS will prorate the usage for each month. For example, if 120 is the annual usage 10 will be used for each monthly calculation. For this reason, it is important to make sure the dates entered in the consumption log are entered correctly. Several reports have been generated to help diagnose these types of errors. Navigate to the PMO Reports >> Air Quality >> AEI Quality Assurance folder, Usage Summary – Stationary report in Business Objects.

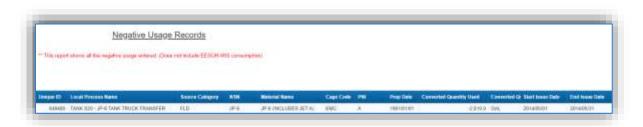
The Usage with End Date Before Start Date report, will display any usage records that have an end date that occurs before the start date. This is usually caused by records that have been input into APIMS utilizing the API interface as manually entered records cannot have this problem due to controls on the input screens.

Compare 10	Local Process Name	Source Cate	NSN	Material Name	Cage Code	PNI	Prep Date	Converted Q	Converted Q	Start Issue O	End Issue Date
705052	1814 <1 NMBTU NG BOILERS	ECOM	NATURAL GAE	NATURAL GAR	EMC	A	1001/01/01	2.65	MNOUFT	2019/08/01	2018/01/31
705092	1014- <1 MMBTU NO BOILERS	ECOM /	NATURAL DAS	NATURAL DAS	EMC	A	1001/01/08	0.04	MMCUFT	2018/09/01	2018/01/31
705352	1914 - MMETU NO BOILERS	EDOM	NATURAL GAS	NATURAL GAS	EMC	.A.	1001/01/01	1.14	MMCUFT	2018/10/01	2018/01/31
705062	1814- +1 MMRTU NO BOILERS	ECOM .	NATURAL GAS	NATURAL GAS	EMC	A	1001/01/01	4.35	MMCUFT	2018/11/01	2018/01/31
705082	(E14- «1 WMÉTU NG BORLERS	ECOM	NATURAL BAB	NUTURAL GAS	EMC	A .	1991/01/01	5.4	MMCUFT.	2019/12/01	2010/01/31
705093	IS15-<1 MMBTU NG HEATERS	ECOM	NATURAL GAS	NATURAL GAS	EMC	A	1001/01/01	2.65	MMCLET	2013/08/01	2018/01/01
705880	1815- +1 MMITU NG HEATERS	ECOM	NATURAL DAS	NATURAL DAS	EMC	A.:	1007/03/01	2.41	MMCOFT	2012/02/01	2010/01/31
71850578	1818- «1 NMBTU NG HEATERS	ECOM	NATURAL GAS	NATURAL GAS	EMC		1901/01/01	4.25	MNCLET	2019/10/01	2019/01/31
705060	1015- <1 MMUTU NO HEATERS	ECOM.	NATURAL CAS	NAZURAL GAS	EMC	Α.	1001/01/01	16.31	MMCUFT	2013/11/01	2019/01/01
705093	1915- <1 MMBTU NG HEATERS	ECOM	NATURAL GAS	NATURAL GAS	EMC		1601/01/01	20.24	MMCUFT	2019/12/01	2018/01/31

As shown in the example above the End Issue Date is several months before the Start Issue Date. To correct the error, navigate to the Consumption Log module and edit the record. It is best to use the Process ID and NSN in the Search Criteria to find the records. Once the records have been corrected the calculations will need to be re-run for the changes to the emission results to take effect.

### 4.1.3 Negative Usage Records

Another issue with usage records that can affect the emission results is negative usage. This can be the result of the EESOH-MIS interface or incorrectly entered API data.



If records with negative usage are included in an emission calculation, they will give a negative emission result, which when combined into an AEI will cause a falsely low emission number. To correct the error, navigate to the Consumption Log module and edit the record. It is best to use the Process ID and NSN in the Search Criteria to find the records. If several results are return, enter the usage timeframe for the

selected record. Once the records have been corrected the calculations will need to be re-run for the changes to the emission results to take effect.

### 4.1.4 Usage Spanning More Than a Year

Usage that spans more than a year will greatly affect emission results as only the usage prorated to that year will be included in the emission calculation for that year. This can cause annual AEI data to be incorrect and falsely low for one year and falsely high for the next. The Usage Spanning Over 365 Days and the Usage in Multiple Years report will identify these records. The example report below shows most likely there was a typo in the End Issue Date year. This usage is probably supposed to account for the emissions during March of 2017, however only a fraction of the usage will be included in the emission calculations for March of 2017 as the usage is entered currently.

Unique 81	Local Process Name	Season Collegery	HSH	Material Name:	Cage Code	1981	Programmer:	Converted Generally Havel	Convertent Guaranty Used UCM	Shert Inner Date	Evel base links	Usage Over 201 days
649721	REDUI 1838 - DIE SEL BO	ECOM .	UESEI	DESELFUELING	ENC	(A)	1821(81/01	-10	GNE	2015/06/01	2010/08/20	¥.
649733	BLOG 3828 - WATURAL	RCOM.	NATUR.	NATURAL GAS	ENGE.	A	190101-01	6.144947	MNOUFT	2017/03/04	2010/03/31	8
949724	BLDG 3628-NATURAL	BCOM.	NOT	NATURAL GAD	ENC:		1001/01/01	E 144947	MACOULT	2012/03/01	2010/03/01	W.
649725	BLDD 2202 - NATURAL	BCOM .	NUM	HATURAL DAD	ENC	<u>.</u>	10010101	0.00285	WADART	2017/03/01	2010/03/01	9.1
849738	8108-2202 - N#1URAL	ECOM	NON	NATURAL GAS	ENC	4	1941081/91	10228	MMCUPT	2012/03/01	2018/0331	¥.
849727	8LD0 2253 - NATURAL	ECOM	NUTUR	NATURAL GAR	EMD-		1801/01/01	8.79766	MMOUPT	2017/03/01	291003331	Ψ.
549728	8LD0 2253 - NATURAL	ECOM .	NOUR	HATLINH, GAS	ENO	A	1001010101	8.19765	MACUET	2017/03/01	29100301	W.

To correct the error, navigate to the Consumption Log module and edit the record. It is best to use the Process ID and NSN in the Search Criteria to find the records. Once the records have been corrected the calculations will need to be re-run for the changes to the emission results to take effect.

### 4.1.5 Missing Usage Records

Usage that is missing can lead to under reporting emissions for specific source categories and total facility emissions. There may be several reasons why no usage was recorded for the report year, however installation permits may require the documentation to prove usage did not occur. The Missing Usage report will identify these records. The example report below shows several processes with the expected usage interval which are missing usage records.

Source Category Lines	Uniq Pci D	Local Process Name	Billing No.	Process Location Complete Name	Usage Interval	Process Status	Process Status Case
687	838776	WFII-2000 GALLONS			INVINUEL	ACT	190101-01
AST	625779	HPH-375 GALLONS			ANEXIAL	ALT	1905/03/03
A57	800709	HPR-1000 GALLONS			ANNUAL	ACT	1010-01/01
ABT .	4205608	HER-2000 GALLONS			ANNUAL	ACT	10/06/88
A87.	100804	HPN-750 GALLONS			ANNUAL	ACT	1001-0101
10,974	671406	PRESCRIBED BURNING ACTIVITIES			ANNEAL.	ACT	10010101
CELL.	641005	C-130 FLBS, OSLI, MANTESAVIOR			MONTHLY	ACT	10//07/08
CELL.	641006	A 10 FIEL CELL WANTENANCE			MONTHEX	ACT	10100101
CELL.	641007	HH-60 - FLEL CELL MAINTENANCE			ANNUAL	ALT	1001-01111
CNST	(174535	CONSTRUCTION - CROSS COUNTRY VALIAND TRAIL			ANNUAL	ACT	20102030101
CNST	674800	CONSTRUCTION - JOGGING TIVAL			ANNUAL	ACT	1012-0101
belles	041796	MUNITIONS ACITIVITIES - 7 MINIM DODIC ATTR			ANNALAL.	ACT	1905/01
MUN	841797	MUNITIONS ACTIVITIES - 5 SIMM MISS - DODIC ASS			ANNUA.	ACT	1005/2101
10,75	641798	MUNITIONS ACTIVITIES - 9994 - DODIC AND			ANNUAL.	ACT	1905/0101
MUN	641798	MUNETIONS ACITIV/1825-1253-00 BUICK - AG11			ANNUAL	ACT	101010101
16.2N	841922	MUNITIONS ACTIVITIES - 404 TP M/IR1 - DODD BINK			Abgelon.	ACT	19010101
WOOD	1900	WOODWORKING - WOOD HOBY SHOP	840		ANNOAL	ACT	1001/01/01
(COON)	1000	WOODWORKING - CIVE, ENGINEERING WOOD SHOP	915		ANNUAL	ACT	1904/05/04

Additionally, the Messages tab associated to the calculation will identify the number of instances in which no usage records found.

Action	15 Methood -	Instances
	NO ALGORITHMS ASSIGNED.	1
	NO DATA FOUND FOR: PCT SOLIDS (MAT_CON CONT_AMO) ZERO USED	24
	NO DATA FOUND FOR: VOC CONTENT (MAT_CON.CONT_AMO) ZERO USED	3
(2)	NO USAGE RECORDS FOUND	17
<u>(0)</u>	NO VALUE FOUND, ZERO USED FOR: (PRODCHEM.PCT_AVG).	2
<u>(2)</u>	USAGE RECORD WITH START DATE OF: 2016/09/01 0000 WAS NOT USED	
0	USAGE RECORD WITH START DATE OF: 2016/09/01 0500 WAS NOT USED	2
192	ZERO VALUE FOUND FOR: (PRODCHEM.PCT_AVG).	5
(P)	ZERO VALUE FOUND FOR: PCT SOLIDS (MAT_CON.CONT_AMO).	6

While the report shows all the active processes that did not have a usage record during the specified time frame not all will require a usage record to be entered. For example, storage tanks that are small organizational tanks cannot calculate emission because they are below the size threshold. Also these tanks are often difficult to track usage for and have deminimus emissions. These tanks are in APIMS with processes configured but will not usually have usage associated, therefore no action is required for these missing usage records.

Source Category Close	Uniq Pes D	Local Process Name	Hills No.	Process Location Complete Name	Usige Interval	Process Status	Process Status Cale
ABT	830776	14F16-2000-GALLES48			ANNUAL	ACT	99010101
457	635179	HPR-275 DALLONS			ANNUAL	ACT	2801-071011
46T	605799	HERE 1000 GAULDINS			ANNUAL	ACT	10.0008
457	100500	H#14-2000 GALLONS			ANNUAL	ACT	10010101
AET	522034	HFIL-750 GALLONS			ADDUAL.	ACT	101010101

KTYARE PRESCRIPTED IN PRAVILACTIVITIES Anna AUT ETable CONSTRUCTION - CROSS COUNTRY WALKING TRAIL ANNUAL ACT states construction Jooging Haa ACT

ANDIGAL

The next set of processes that are missing usage records are in the BURN and CNST source categories.

These sources are usually considered transitory sources, meaning they are non-routine and/or seasonal sources that are short term in nature. Before determining if a source is transitory, consult all applicable regulations as in some areas these sources may be regulated. For this example, if at this installation these sources are considered transitory, these processes may not have usage every year but will remain active as they may occur in the future. In this case, a usage record with "0" usage may be entered or these records may be left as is.

The munitions processes listed below may not have usage entered because that particular round of munitions was not used during this reporting period. In that case it is a best practice to enter a record with "0" usage. By documenting a 0 usage record it confirms that the process was reviewed and confirmed to not have any usage. If no usage record at all is entered it leaves the question of whether the process usage was missed or if it was found to have no usage.

424	641796 MUNETICHERACITIVETEE - T 62844 OCCNC A130	APPEIAL	ACT	9901/01/01
KJN .	641797 MUNITIONS ADDIVISIES - 5.56MM M885 - DODIC ADDI	ANNUAL.	ACT	1905/0101
MAN .	1941798 MUNITIONS ACITIVITIES - SMM - DODIC ADES	APPENA.	ACT	10010101
0.01	64Y7W MUNITICIES ACTIVITIES - KESA 00 BUCK - A01Y	AND DAY	ACT	1901/01/01
with 1	MANUEL MUNITIONS ADDIVITIES - 484 TP MIEL - DODID 1919	ADDAUM	TOAL	1905/0401

If the process usage was accidently missed, then the correct usage should be entered into APIMS. Additionally, if the process is no longer active, navigate to the Status tab of the process record and enter a start date for the inactive status.

### 4.1.6 Inactive Process Usage

Another issue with usage records that can affect the emission results is inactive process usage. This can be the result of incorrectly entered API data.

Facility Name Science Collegery Costs	INGPOLTO	Land Process Name	Process into	E Process the	That becard	a Give mane In		WATER IN THE OWNER	Generally the	Country 11	as metalate
DVEDE AIR F ICON	(NIM)	INTERIOR COMBUSTION - DEEDL -400 MF - BLOE S18T	186467	2015/03/01	2010/01/01	2899101		MANTENANEE/TEST	.02	185	784
meterne e scom	110.0	WITHOUT COMBUTTOR DUBING HOLSE BLOD STRT	194427	Distance)	214/07/1	011640-01		MUNITERIO CENTRE	1.0	+81	794
DYRUD.W.R.F. DEDK.	18	UNION COLUMN FRAMEWORK AND INCOMENDATION	UNIAL T	1000000	2016/0101	JANNING.	-	SAFETY KLEIN SOLART 18	. 13	GAL.	144
01006-010000	738	DOW COLD BY TAVE IN DRAVE GRAVE SHOP \$1.00 \$198	186427	2940-0201	2018/01/01	28158101	\$2000/filler.ed	SAVETY HEADN DOLIDAT HE	40	044	788
DIVENUE A DESK	18	DESIR COLUMN TWO OVERALL REAR SHOP FLOW THE	194421	2010/12181	101004155	10100328	80000F110	WARTY SLEEN BOLNERY 100	1.0	SHL:	164
OVEDEARX DEDR	1.00	USING COLD DP TANK AVERAGE GROWERS SHOP 40.00 2198	SMALT	interest	2018/03/01	Up to make the	800000F0140	GATETY NEEDS SQUEET HE	13	OAL.	784
ITYESSAMP CEUM		DOOR COLD DIF TAME PODPAULIC BRASE SHOP BLOD STREET	INALT.	2010/1220	2010/04/01	10100030	appropriation	INFERVICES POLIERT NE	10	044	786
DIVERSENT F SALES	110	DEDK COLD DE TWO HYDRAULERARE DOTHERED THE	194421	101111111	intellect	10100031	*******	www.rristantencommir.san	1.0	GAL .	144
DVESE A # F DEDR	28	BESK COLD DP TASK INDRAUD BRAKE SHOP BLOD INE	MART	(ittprefet	2110401	prismula	80000073140	SAVET/HEESI SQUERT HE	- 10	044	185
ITHER ARE F DEDR	78	INVESTIGATION OF TAXA PROPERTY AND A DOT AND A	UNIALLY.	1015/1201	30160591	annarra.	*******	WHET WARN DOLDED THE		1046	790
DVESKARF GEOR	.10	INCOR-COLD DIF YANK HYDRIALIC BRAKE MADP-85.00 1100	Malght	2010-0201	200000	19150031	\$20000F2146	SAFETY NUESD DOLMERT IN		044	144

To correct the error, navigate to the Unique Process module and edit the record. It is best to use the Process ID in the Search Criteria to find the record. Update the process status record to Active. Additionally, if the consumption record was entered erroneously, navigate to the Consumption Log, and delete the record. It is best to use the Process ID and NSN in the Search Criteria to find the record. Once the records have been updated/deleted the calculations will need to be re-run for the changes to the emission results to take effect.

### 4.1.7 Usage Missing Emissions

A final example that may cause lower than expected emissions is related to processes not calculating emissions based on usage during the selected time span. The most common mistake is that the process is missing algorithm associations. Additionally, this anomaly will occur when an inactive process has usage and emissions are calculated for a selected time span which is after the inactive date of the process. Refer to the section above to correct this error.

Access Cally	iteger 81	Local Process Maker	Process Makes	Report Your	Mart Inne Dere	Out in one Date	ALM I	Million Ranne -	Geartity Used	GANNEY UNIT DOB
SUSF .	29422	TANTING PREF	DADT	2018	2018/02/06	2018/03/06	6852011178487	PASA-JELL 189 DUART	3245	189
ster	29422	PARTNO PREP	DANCT	2018	2018/92/02	2016/03/08	6553PH000323558	BONDERITE CHC 13 AERO KNOWN AS TURCO ALUMPREP 33	8 6687	185
ALLES .	29422	PARTING PREF	MACT	2018	2019/07/10	2018/07/18	1013714000341670	HUMBERL THRAFF \$23	11.0367	688
1045	20487	DANTING	MANCY	2018	2018/91/15	2010/01/18	7110004109554	0394-370, DO BURE STENES, MARKING INK	10	180

The Messages tab related to the calculation can also be utilized to identify the number of instances where a process does not have an active algorithm association for the specified time period.

Action	18 Meinage	Instances
1	NO ALGORITHMS ASSIGNED	1
	NO DATA FOUND FOR: PCT SOLIDS (MAT_CON.CONT_AMO) ZERO USED	24
0	NO DATA FOUND FOR: VOC CONTENT (MAT_CON.CONT_AMO) ZERO USED	3
0	NO USAGE RECORDS FOUND.	17
0	NO VALUE FOUND, ZERO USED FOR: (PRODCHEM PCT_AVG).	
	USAGE RECORD WITH START DATE OF: 2016/09/01 0000 WAS NOT USED	
	USAGE RECORD WITH START DATE OF: 2016/09/01 0500 WAS NOT USED	2
100	ZERO VALUE FOUND FOR: (PRODCHEM PCT_AVG).	5
(ID)	ZERO VALUE FOUND FOR: PCT SOLIDS (MAT_CON.CONT_AMO).	(

To update the Unique Process algorithm association, navigate to the Unique Process module and edit the record. It is best to use the Process ID in the Search Criteria to find the record. Associate the correct process algorithm assignment, based on the source category code and usage unit of measure. Once the records have been updated the calculations will need to be re-run for the changes to the emission results to take effect.

## 4.2 Incorrectly Documented EESOH-MIS Data

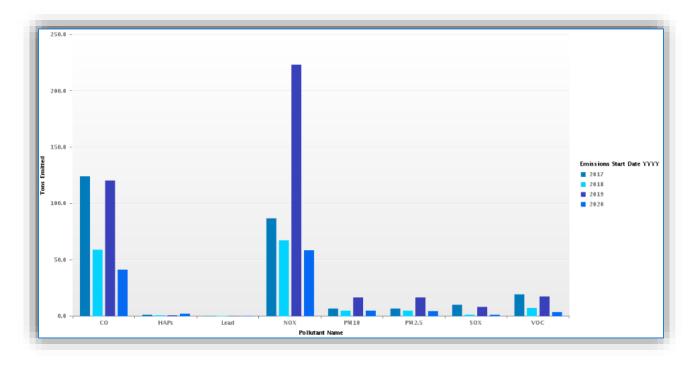
Depending on the size and mission of your installation, EESOH-MIS data may contribute to 30-50% of your total data in APIMS. With such a large set of data it may be cumbersome to identify and resolve issues with the data that result in lower/higher emissions for the installation. Therefore, it is recommended that all messages associated to the calculation be reviewed and updated (if applicable). Additionally, there is nothing in the front end of APIMS that will let a user know of additional data anomalies. For this reason, a Business Objects report has been created to identify any usage records that fall into this category, PMO Reports >> Air Quality >> AEI Quality Assurance folder, EESOH Data QA. Refer to Section 2.6 on how to configure EESOH-MIS data.

## 4.3 Inconsistent Year-to-Year Emissions

### 4.3.1 Source Specific Inconsistencies

While emissions from EESOH-MIS sources may have frequent highs and lows, year-to-year emissions from other stationary sources should remain consistent. If the installation's mission changes or there is a change in manpower, then a new baseline will be utilized. To analyze the emissions for an installation on a year to year basis, a Business Objects report has been created. The report is located in the

following folder, PMO Reports >> Air Quality >> AEI Quality Control >> Emissions Year to Year with HAPs.



In the example above, the emissions are represented by stationary sources with usage for calendar years 2017-2020. Based on the data provided, emissions in 2019 are exponentially higher than in 2020.

Specifically focusing on NOx emissions, the 2019 value is more than triple any other year. A further breakdown of the data provides the following details of the source(s) which accounted for the higher NOx emissions in 2019.

Serree Cetepory Process ID Process Name	2017 Tons Emitted	Percent Change	2016 Tons Emitted	Percent	2019 Tons Emilled	Precent Change	2020 Tom Emitted	Percen
Total time of NOX for ECOM	17.680941		66.051112	240%	113.235632	89%	45,05171	-59%
Tatal tree of NOX for HEAT	0.525507		0.803776	003%	2.914401	222%	4.964755	70%
Tatal tons of NOX for ICOM	4.759034		3.392853	20%	105.206279	350.3%	6.32047	
Total bons of NEIX for JET	63.893724		2.561836	-96%	1.640351	305	1.064767	-35%
Total town of NOX for GBOD			6.000015	-Enu -	- All West	erese	11222001	
Total (tons) of NOX	84.577706		88,709597	37%	223.879843	in.		7.8%

In this example, NOx emissions were 3003% higher and 222% higher for ICOM and HEAT, respectively. Reviewing the IC Usage Log, identified numerous issues with the data. Refer to Section 4.1 Incorrectly Documented Usage on steps to update these records. Additionally, the usage for HEAT was entered in the wrong unit of measure.

When there are large fluctuations in the emission profile it is most likely due to a calculation or data entry error. However sometimes there are large fluctuations but there are no errors in the data. In this

situation it is important to understand what caused the significant increase or decrease. For example, did a new workload come onto the installation, or was there a significant event. One such significant event could be a flood that caused a prolonged power outage, resulting in significant use of the emergency generators.

### 4.3.2 Process Specific Inconsistencies

In addition to source specific inconsistencies, process data should also be reviewed. Refer to Section 4.1 Incorrectly Documented Usage if the inconsistencies are related to usage.

	719875	500-DIESEL GENERATOR - 1341 HP ENGINE 500-DIESEL GENERATOR - 1341 HP ENGINE		0.034816			-100.00
	714680	200 - DIESEL GENERATOR - 280 HP ENGINE	0.009888	0.005415	-45.24%	0.003907	-27.85
	714669	492-DIESEL FIRE PUMP-270 HP ENGINE - UNIT 2	0.00518	0.0	-100.00%	0.003315	#DIV
	714668	492-DIESEL FIRE PUMP-270 HP ENGINE - UNIT 1	0.00518	0.000103	-98.01%	0.004144	3,923.30
	714667	457 - FIRE PUMP - 450 HP ENGINE - UNIT 3	0.007095	0.0	-100.00%		#DIV
	714666	457 - FIRE PUMP - 450 HP ENGINE - UNIT 2	0.002838	0.000103	-96.37%		-100.0
	714665	457 - FIRE PUMP - 400 HP ENGINE - UNIT 1	0.004608	0.0	-100.00%		#DI
	714658	598-DIESEL GENERATOR-970 HP ENGINE - UNIT 3					
	714656	524-DIESEL GENERATOR-762 HP ENGINE	0.0	0.487934	#DIV/0		-100.0
	714655	598-DIESEL GENERATOR-970 HP ENGINE - UNIT 1	0.023188	0.005042	-78.26%		-100.0
	714654	598-DIE SEL GENERATOR-970 HP ENGINE - UNIT 2	0.0	0.006744	#DIV/0		-100.0
	714633	523-DIESEL GENERATOR-676 HP ENGINE - UNIT 2	0.013837	0.000495	-96.42%		-100.0
	714547	304 - DIESEL FIRE PUMP - 270 HP ENGINE - UNIT 2	0.006735	0.000622	-90.76%	0,016067	2,483.1
	713746	1022 - DIE SEL GENERATOR - 3641 HP ENGINE - HEMP #1	0.011112	0.088773	698.89%		-100.0
	713745	1022 - DIE SEL GENERATOR - 3641 HP ENGINE - HEMP #2	0.011112	0.184491	1,580.29%		-100.0
	713744	1022 - DIESEL GENERATOR - 3641 HP ENGINE - HEMP #3	0.011112	0.113473	921.18%		-100.0
	713743	1004 - DIE SEL GENERATOR - 3641 HP ENGINE - UNIT 2	0.011112	0.146666	1,219.89%		-100.0
	713742	1004 - DIESEL GENERATOR - 3641 HP ENGINE - UNIT 1	0.011112	0.155157	1,296.30%		-100.0
	713741	1004 - DIE SEL GENERATOR - 3641 HP ENGINE - UNIT 3	0.011112	0.174454	1,469.96%		-100.0
	713740	1004 - DIESEL GENERATOR - 3641 HP ENGINE - UNIT 5	0.011112	0.163648	1,372.71%		-100.0
		1004 - DIE SEL GENERATOR - 3641 HP ENGINE - UNIT 4	0.011112	0.162105	1.358.83%	0.152089	-6.1
		301 - DIESEL GENERATOR - 145 HP ENGINE	0.004681	0.002509	-46.40%	0.002745	9.4
	713734		0.00116	0.006107	428.47%	0.000259	-95.7
		75 - DIESEL GENERATOR - 38 HP ENGINE	0.000866	0.000258	-70.44%	0.000197	-23.0
	683980	492-DIESEL FIRE FUMP-270 HP ENGINE - UNIT 3 706 (SCRIBNER) - DIESEL GENERATOR - 151 HP ENGINE	0.00518	0.000047	-0.02%	0.022352	457.9
	665082	304 - DIESEL FIRE PUMP - 270 HP ENGINE - UNIT 1 492-DIESEL FIRE PUMP-270 HP ENGINE - UNIT 3	0.006216	0.000622	-89.99%	0.00632	916.0 5.531.9
		518-DIE SEL GENERATOR - 4023 HP ENGINE - UNIT 7	0.499871	0.831176	66.28%	002002	-100.0
ICOM		518-DIE SEL GENERATOR - 4023 HP ENGINE - UNIT 6	0.472882	0.925769	95.77%		-100.0

In the example above, the emissions related to the runtimes of IC engines were significantly higher in 2019. However, after reviewing the log, it was determined that these emissions were a result of a loss of power and are therefore a correct representation of this installation's emissions profile.

### 4.3.3 Incorrectly Documented Emission Calculations

Another common mistake is to associate to a process to more than one calculation associated to an AEI submittal. There are a few methods to identify and correct this issue. First, Section 2.7 Emission Calculations, outline the correct process calculation assignment. However, if there are inconsistencies with emissions, then the Duplicate Calculations report located in the PMO Reports >> Air Quality >> AEI Quality Assurance >> Duplicate Calculations can be utilized to identify the number of occurrences a process is associated to a calculation, for the specified time period.

AIRES Facility	Source Calegory	Usig Pera ID - Process Rame -	Mobile Flag	CASManter	Chanical Rene	Number of Calculations.
				100414	ETHYLDENZENE	
				102101	METVINE ISOBATIVE KETONE	
				108823	TOLINE	
				124174	DETHYLENE BLYCOL MONOBUTYL ETHER ACETATE	
				1309644	AVMWORY TROODE	
				1338257	XVI,ENE	
				1440020	NICKEL	
RANDOCPHEAFE	TURF	751 M - SURFACE COATING BLDD 230 PAINT BOOTH #		7789052	STRONTUM CHROMMTE	
				800710	C I PROMENT VELLOW BY	
				822993	HERMETHYLENE-16-DISOCON///E	
				10528	CUMENE	
				PM.	PARTICULATE MATTER	
				278518	PARTICLEATE MATTER + IILIM (PMIC)	
				PM2.0	PARTICULATE MATTER (2 IUM (PM2 II)	
				VDC	VOLATEE ORGANIC COMPOUNDS	

In the example above, on the Calculation Duplication report lists the pollutants that have been calculated for in more than one calculation for the specific time frame. The number in the last column shows how many different calculations have calculated emissions for this pollutant for this time frame. This means there is a chance the emissions for these pollutants have been reported to be 2, 3 and even 4 times causing falsely high emissions.

To determine which calculations need to be examined, the Calculation Runs report should be used. The Uniq Pcs ID from the Duplicate Calculations report can be used to filter the results of this report by using the drop-down box at the top of the page.

754	4	Chemical Name	(el takar) v					
326 322 323 326 326 326 326 326 326 326	- 1	<u>Caiculati</u>	20. Rutis to extraological and pandles for the specified new period					
348 349 353		Des tes : D	-	Notice -	-	( married	Citosens Der Peter	particular and particular of
356		79	IR - MARTINGE COATING BLDG 200 FMRIT BOOTH # 1	. 14	100414	ETWILBENDENT	ANN 2018 DEC 2018	AMARIAL
350 300	- 10	70	IN - SURFACE CONTINU BLOG 230 RMAIT BOOTH # 1		100410	ETWYLEDNITHE	AM12018 0002019	NUMBER STUDIES ANNAL BURNESS
a 242 345	- 11	711	18 AUNTICE COUTIES BUTS DIS PUBLIT BOOTH # 1	- 14	there is	811111-845-2016	ANUMERAL AND STREET	HUP BARBARDE
712		792	IN . SUMPLICE CONTRACT BLOC THE PLANT BOOTH # 1		THEFT	ETHYLRENDINE	MAG 2010-107-2010	ODDINE SEASON
AND DOLLARS AND	SUPP.	- 194	IN - BURNICE CONTINUE BLDG 230 PHINT BOOTH #1	- 14	182181	METWIC INDEL/TIC KETTORS	JUR. 2018 - DEC 2018	4898346
Green of the set of the set	SURF	768	IN SURPLICE CONTING BLDG 230 INVALT BOOTH # 1	н	100101	WETWILISOBATH, KETONE	JAN 2010 DEC 2010	SURFACE CONTINU ARRYAN, PARENDA
BARDON HAPS	THEF .	70	IN - MARINE CONTINU BLOG 230 MUNIT BOOTH # 1	. 11	February.	METHYL HODE/17/6, KETONE	AM13918 SEP 3648	HAP BARDOORD
841 H2000 101 101	0.07	798	IN . NUMPLOE COLTNES BUILD DIS PUBLIC BOOTH 4 1		101101	METHOLISDBUTCL KEYONE	Mart 1010-007-2010	COORE REARING
Bandooute late	SLAP	198	IN - SUMPLICE CONTINUE BLOG 250 PM/RIT BOOTH # 1	h	HARANGE.	TOWER	ANI 2010 - DEC 3110	4888,044
BANDOLPH NTD	31.97	714	IN - SURPLUE CONTINU BLDG 200 FAMT BOOTH # 1		HERE .	TIMATHE	AM9 2010 - DEC 2010	NUMPLOS COLUMNS ANNALS, MARADON
Autorith LPB	SURF	758	IR - SURPLEE CONTINUE BLUGG 200 FWART BOOTH # 1	is .	101985	730,6HE	JAN 2914 - 582 2016	HAP EMISSIONS
Seenio AH any	DLAF .	768	18 SURFACE COATING BLDG 230 FWRIT BOOTH # 1	H	100403	TOWNER	0012018-38F2H1	COURSE BEARING
14000.71.129	1.07	1298	IN - NUMPLER CONTROL BLDG 200 PART BOOTH # 1	- 44	104074	DRIVENUESE OF COLORD DISTURBANCE ETHER ADDRIATE	344 2918 - 000 2918	ARRANG .
BARROOM APR	2188	198	IN - NUMPLER COLTANS BLOD DIS MUNIT BOOTH & I		rpatra:	Distantistic of your monotonial science relativity.	THE 2818 - 1844 1918	HAP EMISSIONS
In addition for some	11.85	.764	IN . MANAGE CONTROL BARD 220 FRANT ROOTH # 1		tgen/m	DETWICERS INFORMATION EVER ADDITION	Mary 1918 1889 2018	opose seleon

Once the process has been selected it will display all the calculations completed with the process and pollutant for the specific time frames. It is important to make sure that if there are multiple calculations, only one is associated to the AEI submittal.

011	¥ [ [	Denial Name	(Minhei) vilia					
Curwit At O	111422							
		Calculati	on Runs					
		101000000000000000000000000000000000000	ADVOIDED.					
or the leased of	test al fre ti	States and	for each process and publication for the specified lines period					
				_				
ATTALLUE	- Annes Fallegerg		(Instantioned	The second	CAS Bartler	Consul Reve	Citation Des Print	Calculation Design
RUDOLPH #1	81.FT	794	10 BURPACE CONTING ELDIG 210 PART BOOTH # 1		100414	ETWILDENZENE.	-6444-20148 - 0856-20148	1898246
INCOURT N'E	1044	254	IN - BURFACE CONTINUE BLDG 210 FAMILY BOOTH # 1		100414	CTWODD234E	AMIL3818-0600.3818	ADDRESS CONTRACTOR ADDRESS PARTICULA
RUIDOLPH ME	84.87	198	(IN . NUMPAGE CONTINUE ALONG 2011 PARTY RECORD # 1		1004h4	errorumoutese	ANUTH AFF 2010	HAP EMILECOLD
MAINDOLPH APP	2147	198	IN - BURPACE CONTRID BLOG 230 MANT BOOTH & I		105414	ETHNUSSIEEME.	MAY 2019 - 587 2018	GOUNE SEADON
HARDOLPH SPE	3188	791	IN - RUNNER CONTINUE AND IS THE MART MICHTING THE			BE THIS PROBATING AND THE PROPERTY OF	2012010-100-2010	7898346
AMOOLPH MT	0147	758	IN - INFRACE CONTINUE INDO 200 PART BOOTH # 1		100101	METHYL NORVI'VL NETONE	AM13818 - DEC 3818	SARFICE COATES ARREST. EMILS OF
BARDOLTH APE	state	194	10 - BURPACE CONTINUE BLOG 210 RAWLT BOOTH # 1		100301	HETHIL HOBITYL RETONE	ANN 2018 - SEP 2018	HAP EMILTERS
Maripol, Millare	0188	181	IN. NURPACE COLUMNS RUDO 233 MART ROOMS I		101101	METHOD INCOMPTING ARTICLE	Marc 2910, 189 2018	00016 184004
BARDOLINI APE	1147	794	IN - EURPICE CO-ITING BLDG 219 PART BOOCH # 1		100081	TOLUENE	44412010-0002010	ANNELSE
	2149	19	IN- DURFACE CONTINUE BLDG 201 FAMILY ECOTINE 1		evented.	TOLUENE	JAN 3919 - DEC 2018	NUMBER CONTRACTORYOUS PRODUCTS
RANDOLPH APE					addening	TOLIESE	ANI 2010 - SEP 2010	HAP ENDING
RANDOLPH APE	61.07	791	HE - BURFACE CONTINO BLDG 25H RAWT BOOTH # 1					

In the scenario shown above, Ethylbenzene emissions from Process ID 751 has been calculated for up to 4 times depending upon the specific month. To make sure this did not affect the overall Air Emission Inventory submitted, navigate to the Manage Emissions Inventory Submittals screen, Calculations to Include tab.

Calculations to Include		Help Des Email: help@	k: (800) 274-6406 (apims-support.com			0 =
Report Year: 2018	Ar Facility RANDO	LPHAFE				
Report Type: COMPREHENSIVE STATIONARY ALL	Date From 2018/01	201	Date 75' 2016/12/01	5	tatus: PUBLISHED (Read O	niyj
Carculations to Include Tank Carculation	is to moude. Peristama C	otments Vev Samma	9			
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6 records Round	_	_	_	Emission Type	Satal #	A Selected
6 records found	THE ENGLISH	_	_	Emission Tree		A Selector
6 records found Graculation Name Baballat	ne Eurosona	_	_	A.		#.Selucio
6 records found Contracted Barrier 2 Abstude Abstude Unit CELLANE CUID CHEMICAL U	ne Ekonomy		_	2		A Selecter
AMUAL MINCELLANEONII CHEMICAL U     HAR EMISSIONS	ne Ekranoxy	-	-	2		

As shown, only one of the calculations completed was associated to the AEI submittal so this AEI is accurate. However, it is a better practice to only complete one calculation for the time period and utilize reports to filter the results to the desired items. This particular process was associated to 3 other calculations (OZONE SEASON, HAP EMISSIONS, and SURFACE COATING ANNUAL EMISSIONS). The results for these calculations could easily be obtained filtering a sub-set of months, processes or pollutants.

### 4.3.4 Non-Routine Source Categories Associated

There are several source categories which are not required to be included in an Air Force Stationary AEI. However, depending on the processes associated to the emissions calculations, these sources may be included. Some examples of sources which should not be included in a Stationary AEI are Construction, Hot Mix Asphalt Plants, Site Remediation, Aircraft Operations, Aerospace Ground Equipment, Portable Engines, and Spills and Releases. When submitting an AEI in APIMS it is a best practice to consult the Air Force Stationary Source for guidance in exactly which sources should be included.

# 5. Custom Reporting

# 5.1 Custom Reporting – SAP BusinessObjects

SAP Business Objects is an ad-hoc reporting layer that allows users to create or run reports that pull the data currently in APIMS into a report that can then be exported to excel or pdf. These types of reports can be used to help with state or regulatory reporting, AEI quality assurance and monitor the air quality program and data in APIMS.

To open the SAP Business Objects application, click on the Custom hyperlink under the Reports Menu on the top navigation bar.

APIMS Homes Emission Unit Usage Calculations	Reports Compliance	Data	Materials	Tanks	Setup	Admin
Air Home	Custom	1				
Home	System Formatted					
Dashboards 🖽 👻 Customize 🗢	Data Call Response					

This will open a new tab in the web browser.

ane Documents			
	<ul> <li>My Recently Viewed Documents</li> </ul>	<ul> <li>0 unircud messages in Hy Inbox</li> </ul>	* My Applications
	No recently waved documents	No unmed mostages	<b>*</b>
	<ul> <li>My Recently Run Documents</li> </ul>	See Nom.	
	No recently nun documents	No unread derts	
		See more	

This Home page will display any reports that have been recently viewed and any reports that have been run recently (this is for scheduled reports). From this page the application can be accessed by clicking the

🏓 icon.

### 5.1.1 Initial Configuration

The first time Business Objects is opened, the settings need to be edited to ensure the application is configured correctly going forward. This is a one-time only activity and does not need to be repeated.

On the Home page, click the <u>Preferences</u> hyperlink on the upper right corner.

Preferences	2.5
Preferences General Change Enterprise Password Locales and Time Zone Analysis edition for OLAP	Web Intelligence         View
Web Soft Reports BI workspaces Crystal Reports	Modify (creating, editing and analyzing documents): This is also the interface launched from the Go To list or My Applications shortcut. # HTML (no download required) Applet (download required) Desktop (Rich Client, Windows only, installation required) (installation required) Select a default universe: No default universe: No default universe: Browse: Use the document locale to format the data Use the document locale to format the data
	Drill options: Prompt when drill requires additional data Synchronize drill on report blocks Hide Drill toolbar on startup Start drill session: On duplicate report To existing report
	Save Save & Close Cancel

Once in the Preferences pop-up window, select Web Intelligence on the left side menu. Once in the menu, make sure the HTML option is selected for the Modify section. Once the correct radio button is selected, click the **Save & Close** button.

The application will now default to these settings from this point forward.

### 5.1.2 Viewing Existing Reports

The Home page will display any reports that have been recently viewed and any reports that have been run recently (this is for scheduled reports).

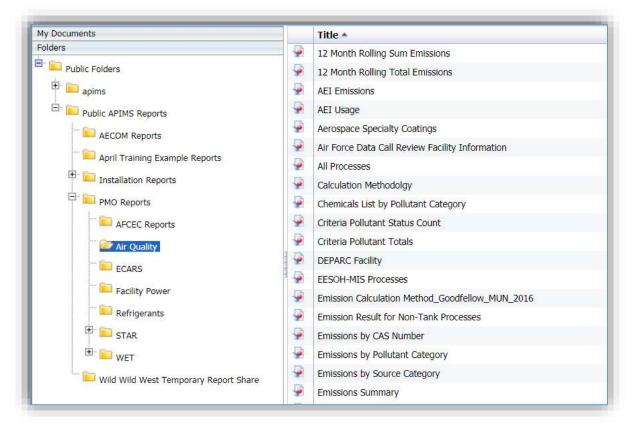
uments			
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To view existing reports, click the *Documents* tab.

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and My Permittee	-WebbiteRigence	Folder	
-Webtrialligenes	Thereing Class Examples	Polder	
Training Case Reamples	ALL Emission Comparison	Web Intelligence	
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	🖌 Barnes MAP	Web Intelligence	
📽 My Alerte	emissions for pollutant categories	Web Intelligence	
Satacribed Alerta	🐨 engine fuel use	Web Inteligence	
R Personal Categories	Exercise 2	Web tradigence	
	Process Emissions Summery	Web Intelligence	
	🖗 rating gen hours	Web Intelligence	
	Rolling Total Envisions	Web Intelligence	
	🐨 Shaw Are JET Log	Web Inteligence	
	🖗 tark repettors	Web tritelligencie	
	🖗 TAUAS	Web traeligence	
	TRI Report	Web Intelligence	
	THE REPORT 2	Web Intelligence	
	Year to year usage compension.	Web Intelligence	

Under the *Documents* tab is a file explorer where user specific reports, base specific reports, PMO reports and shared reports can be viewed. When in the My Documents >> My Favorites folder the user can see all the reports they have created and/or saved to their user account. If there is a report that was

automatically saved in case the application timed out, it would be accessible in the WebIntelligence folder. To view the shared reports, click the **Folder** bar at the bottom of the window.



Once the Folders bar has been clicked, the Public Folders will be displayed. To view the sub-folders, click

the 1 icon to expand the selection. As shown above there are already several reports available for use by all installations. To run a report, simply select the Title as displayed on the right side and double click. This will then run the report in a new tab.

ant transport - 12 📦 🖬 25 -		a 🔍 / Daw Nerve (Al Indust) *								
All Colores Paladant Tpole     All Mepolet 1	Criteria Pollu	Criteria Pollutant Totals							-	
54		Emissions Rollup Year	2018	2010	2010	-2910	- 8889	2011	2010	2255
	APRIS Pavility	Rollage Pollution	60	1000	1105	89.	PHILO	PH21	SOX.	VOC
	JELA-LACKLAND	AD	25-849008	1.330304	16 (000000	0.010000	22 107177	14 0000002	0.201878	12,462711

### 5.1.3 Create a New Report

From the SAP Business Objects Home page, click the 💜 icon to access the application.

ome Documents We	b Intelligence 🔑 😐 🖸		
Web Intelligence +	□ == 1.5 × 8   秒 点 · □ ·	0 0 0 0	🕼 Track 🗧 🕌 Drill 🗧 🎀 Filter Bar 🕎 Freeze 👘 Outfin

From this page, user can navigate from the Home page and the Documents page by clicking on the tabs. The cicon can be used to open an existing report, and the cicon can be used to create a new report. Click the cicon to create a new report. This will prompt the Select a data source pop-up window.

Select	a data source	
	No data source	
had	Create an empty document	
24	Universe	
称	Select a universe as a data source	
	OK.	Cancel

Select Universe and click OK. This will bring up a selection of Available Universes:

elect a universe for the query.	<ul> <li>Refresh universe list</li> <li>Folder</li> <li>@utinhpagn.oob.disa.mil_6400/App_Reports</li> <li>@utinhpagn.oob.disa.mil_6400/Change Requests</li> <li>@utinhpagn.oob.disa.mil_6400/Compliance Assessment</li> <li>@utinhpagn.oob.disa.mil_6400/Refrigerants</li> <li>@utinhpagn.oob.disa.mil_6400/ECARS</li> <li>@utinhpagn.oob.disa.mil_6400/Emission Unit Details</li> </ul>
vailable Universes:          Name       Revisi         Calc_Methodology.unx       26         Change Requests.unx       8         Compliance Assessment.unx       50         Cylinders.unx       33         ECARS.unx       58         Emission Unit Details.unx       119         Emissions.unx       194	on Folder @utinhpagn.oob.disa.mil_6400/App_Reports @utinhpagn.oob.disa.mil_6400/Change Requests @utinhpagn.oob.disa.mil_6400/Compliance Assessment @utinhpagn.oob.disa.mil_6400/Refrigerants @utinhpagn.oob.disa.mil_6400/ECARS
Name     Revisi       Calc_Methodology.unx     26       Change Requests.unx     8       Compliance Assessment.unx     50       Cylinders.unx     33       ECARS.unx     58       Emission Unit Details.unx     119       Emissions.unx     194	on Folder @utinhpagn.oob.disa.mil_6400/App_Reports @utinhpagn.oob.disa.mil_6400/Change Requests @utinhpagn.oob.disa.mil_6400/Compliance Assessment @utinhpagn.oob.disa.mil_6400/Refrigerants @utinhpagn.oob.disa.mil_6400/ECARS
Calc_Methodology.unx26Change Requests.unx8Compliance Assessment.unx50Cylinders.unx33ECARS.unx58Emission Unit Details.unx119Emissions.unx194	@utinhpagn.oob.disa.mil_6400/App_Reports           @utinhpagn.oob.disa.mil_6400/Change Requests           @utinhpagn.oob.disa.mil_6400/Compliance Assessment           @utinhpagn.oob.disa.mil_6400/Refrigerants           @utinhpagn.oob.disa.mil_6400/ECARS
Change Requests.unx8Compliance Assessment.unx50Cylinders.unx33ECARS.unx58Emission Unit Details.unx119Emissions.unx194	@utinhpagn.oob.disa.mil_6400/Change Requests @utinhpagn.oob.disa.mil_6400/Compliance Assessment @utinhpagn.oob.disa.mil_6400/Refrigerants @utinhpagn.oob.disa.mil_6400/ECARS
Compliance Assessment.unx50Cylinders.unx33ECARS.unx58Emission Unit Details.unx119Emissions.unx194	@utinhpagn.oob.disa.mil_6400/Compliance Assessment @utinhpagn.oob.disa.mil_6400/Refrigerants @utinhpagn.oob.disa.mil_6400/ECARS
Cylinders.unx 33 ECARS.unx 58 Emission Unit Details.unx 119 Emissions.unx 194	@utinhpagn.oob.disa.mil_6400/Refrigerants @utinhpagn.oob.disa.mil_6400/ECARS
ECARS.unx 58 Emission Unit Details.unx 119 Emissions.unx 194	@utinhpagn.oob.disa.mil_6400/ECARS
Emission Unit Details.unx 119 Emissions.unx 194	
Emissions.unx 194	Qutinhanan och dies mil 6400/Emission Unit Dataile
	@utinhpagn.oob.disa.mil_6400/Emissions
quipment.unx 20	@utinhpagn.oob.disa.mil_6400/Equipment
xisting 487.unx 43	@utinhpagn.oob.disa.mil_6400/
acility Power.unx 93	@utinhpagn.oob.disa.mil_6400/Facility Power
Materials.unx 6	@utinhpagn.oob.disa.mil_6400/Materials
ew 487.unx 18	@utinhpagn.oob.disa.mil_6400/
ew 719.unx 20	@utinhpagn.oob.disa.mil_6400/
TE.unx 67	@utinhpagn.oob.disa.mil_6400/PTE
tefrigerants.unx 47	@utinhpagn.oob.disa.mil_6400/Refrigerants
tegulatory Document.unx 33	@utinhpagn.oob.disa.mil_6400/Regulatory Document
ervices.unx 3	@utinhpagn.oob.disa.mil_6400/Services
pills.unx 4	@utinhpagn.oob.disa.mil_6400/Spills
torage Tank Accounting and Reporting.unx 60	@utinhpagn.oob.disa.mil_6400/STAR
Jsage 12 MRT.unx 26	@utinhpagn.oob.disa.mil_6400/Usage
Isage.unx 102	@utinhpagn.oob.disa.mil_6400/Usage
Varehouse.unx 1	@utinhpagn.oob.disa.mil_6400/App_Reports
Vater Enterprise Tracking.unx 75	@utinhpagn.oob.disa.mil_6400/Water Enterprise Tracking
Vater Sampling.unx 22	@utinhpagn.oob.disa.mil_6400/Water Sampling
Help on selected universe:	

Select the appropriate Universe for the report to be created and click OK. A brief description of each Universe provided below:

<u>Calc Methodology</u> – This Universe contains all the emission calculation data including basic process information, algorithms, emission factors, and references.

<u>Change Requests</u> – This Universe contains the change requests and related information entered in the Suggestions area of APIMS.

<u>Compliance Assessment</u> – This Universe contains the data from the Regulatory Document and Compliance Assessment areas of APIMS.

<u>Cylinders</u> – This Universe provides data based on the cylinders tracked in the Refrigerant Module. This universe contains equipment and service log data as centered around the cylinder transactions.

ECARS – This Universe contains the data from the ECARS module of APIMS.

<u>Emission Unit Details</u> – This Universe contains the data from the Unique Process and Equipment areas of APIMS.

<u>Emissions</u> – This Universe contains all the data from the Emissions Calculations areas, including some process information, calculation methodology and emissions.

<u>Equipment</u> – This Universe contains all the Equipment data along with associated processes. This Universe has data centered around the Equipment record.

Existing 487 – This Universe contains all the date on the Form 487 contained in the Facility Power module.

Facility Power – This Universe contains all the data from the Facility Power module in APIMS.

<u>Materials</u> – This Universe contains all the material and chemical data. Users will need to specify if they want all chemical data and only the associated material data or if they want all material data and only associated chemical data.

<u>new 487</u> – This Universe contains all the date on the Form 487 contained in the Facility Power module.

<u>new 719</u> – This Universe contains all the date on the Form 719 contained in the Facility Power module. This form is the maintenance record for the engine.

<u>PTE</u> – This Universe contains all the data associate to the PTE module, including usage and emission results.

<u>Refrigerants</u> - This Universe provides data based on the equipment tracked in the Refrigerant Module. This universe contains equipment and service log data as centered around the equipment.

<u>Regulatory Document</u> – This Universe contains the data from the Regulatory Document area of APIMS.

<u>Storage Tank Accounting and Reporting</u> – This Universe contains all the storage tank information from the STAR module of APIMS.

<u>Usage 12 MRT</u> - This Universe contains all the usage information from the Consumption Log, IC Engine Log, JET Usage Log and Tank Usage Log in APIMS.

<u>Usage</u> – This Universe contains all the usage information configured to report as monthly usage or as 12 month rolling totals.

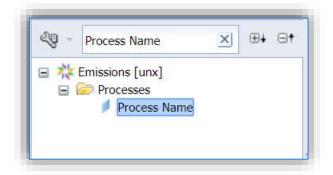
Water Enterprise Tracking – This Universe contains all the data from the WET module of APIMS.

<u>Water Sampling</u> – This Universe contains all the data related to sampling as contained in the WET module of APIMS.

### 5.1.3.1 Selecting Data

🕜 Add Query 🔹 🕅 🧐 🕅	CB   37 1	3 4	]		100	Run Q	uery	- 20	Close	-
🔅 Universe outline			📺 Result Objects			4	X	*	14	
Emissions • 4g < Type here to filter on ti ==+ =+		A V	To include data in reports, select objects on the U using drag-and-drop. Click Run Query to return th		here	by did	ang ti	le an	ow or	
Emissions [unx]      Emi			👎 Query Filters	····	7	e 1	7			100
Emissions Start Date Emissions Start Date Emissions Start Date Emissions Start Date Emissions Start Date Emissions End Date Emissions End Date Emissions End Date Emissions End Date O Emissions End Date O Emissions End Date V	YYYYY Quarter Month YYYYYMM YYYYQ Juarter Aonth	XX	To filter the query; select predefined filters or day arrow or using drag-and-drag. Select filter to spee Prompt to define a message so users can select vi	ofy the values you want ret						four

The Query Panel will now display all the fields available for the report. Use the  $\textcircled{\bullet}$  and  $\blacksquare$  icons to expand and collapse the folders. Some of the folders can be quite large making it hard to find a specific field. In this case, use the search function to easily locate a field.



To add a field to the query, there are three methods.

- 1) Use the button next to the Results Objects box to add a field to the report.
- 2) Click on the field and drag it to the Results Objects box.
- 3) Double click on the field.

Once there are objects added to the Results Objects window, they can be clicked and dragged to put in the desired order.

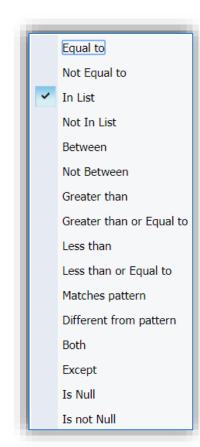
🔽 Result Objects	👎 🗙 🔏   🔹 🕨
Source Category Uniq Pcs ID Process Name	tion
4	
****	,

# 5.1.3.2 Query Filters

To add a Query Filter, use the button next to the Query Filter window, or click and drag the field from the universe or the Results Objects window.

Y Query Filters	🌴 🔯 🔺 🖛 🖽
Source Category In List  Type a constant	
•	Þ

The drop-down list can be used to define the filter, for example if the value is equal to, greater than etc.



Equal to – This is used when you want to specify an exact value.

**Not Equal to** – This is used when you want everything except a certain value.

**In List** – This is used when there are several exact values that you would like included in the results.

**Not In List** – This is used when there are several exact values that you would like to exclude from the results.

**Between** – This is used when there is a set range, this is mostly used for dates and numbers. However, it will work for text based on alphabetic order.

**Not Between** – This is used when there is a set range that you would like excluded from the results, this is mostly used for dates and numbers. However, it will work for text based on alphabetic order.

**Greater than** – This is used when the minimum number is specified and you want the query results to only include values that are larger than the number specified.

Greater than or Equal to – This is used when the minimum number

acceptable is specified and you want the query results to only include values that are equal to or larger than the number specified.

**Less than** - This is used when the maximum number is specified and you want the query results to only include values that are smaller than the number specified.

**Less than or Equal to** - This is used when the maximum number acceptable is specified and you want the query results to only include values that are equal to or smaller than the number specified.

**Matches pattern** – This is used when you know some of the data point you want to include but not all of it, for example I want to find all processes with Booth in the name. This criteria can be used with the wildcard % symbol (Example: %Booth%).

**Different from pattern** – This is used when you know some of the date point you want to exclude but not all of it, for example I want to exclude all processes with Booth in the name. This criteria can be used with the wildcard % symbol (Example: %Booth%).

Both - This is used when you have two distinct values that you would like to include in the query results.

**Except** – This is used when you want the query results to include everything except a specific value.

**Is Null** – This is used when you want to see all the results that do not have data in the specified fields. This is especially useful when there are folders that have outer joins on tables that would include a lot of blanks. For example, processes and equipment.

**Is not Null** – This is used when you want to see all the results that have values in the specified fields. This is especially useful when there are folders that have outer joins on tables that would include a lot of blanks. For example, processes and equipment.

Once the query filter option is selected, the next step is to enter the value for the filter. Click the Define

filter type icon is to choose from the following options:

**Constant** – This should be used when the exact value is known. If you are not sure it is best to use the Value(s) from list option.

	Refresh Values 😘	
Source Category	>	
SURF		
DEGR	+ <	
ICOM		
AST		
MUN		
FLD		
FIRE		
PEST		
ABCL.		
SPRL	*	
flay 3, 2018 1:30:48 PM GMT	+00:00	
	<i>m</i> -	
		OK Cancel

Value(s) from list – This will display a List of Values pop-up window.

This window will show all the available values for this particular field. This is not a good option when filtering on fields with a lot of text, such as process name.

Also, if the query option is not In List, only one value can be selected. The In List will allow for multiple selections.

- Prompt This allow the user to select the value each time the report is ran. This is the most useful as it allows a single report to meet multiple query needs.
- **Object from this query** This option is used the least often and is for more complex queries. This will state that the value of this field must match the value of another field.
- **Result from another query (Any)** This option allows this query to use the results of another query as a filter. This is very useful when multiple queries are

needed to filter the results. This also requires another query in this workbook to be created.

#### 5.1.3.2.1 Prompts

If prompt is selected, a second icon Show prompt properties 🖾 icon will appear.



Click on it to open the Prompt Properties pop-up window.

New prompt     Parameter from universal	
ompt text: Enter value(s) for Source Category	
Prompt Properties	
Prompt with List of Values	Select only from list
Keep last value(s) selected	Optional prompt
Set default value(s)	
Type a value	
	<
	Waitums

The **Prompt text** field can be used to specify the prompt the user will see when running the report. The screen below shows the prompt screen with the Prompt text displayed in the Prompts Summary window.

Available prompt variants	-) 🖾 🖂 🗡	
Prompta Summer	Tritter voluments) for the more distinguing and	
C Entat value(a) for Source Category SURF	Type Values here Refresh Values	Suff
	Source Category SURF DEGR BCCOM AST HUN PLD PSR PEST ABCL SPRL May 1, 2018 1:55:43 TM GMT+00.00	

The Prompt Properties section is used to specify various options for the prompt.

**Prompt with List of Values** – This allows the user to select from a list of values. This option is shown above. The list of values will be displayed.

**Keep last value(s) selected** – This keeps the values specified the last time the report was run.

**Select only from list** – This restricts the user to only select values from a list and not enter their own value. If this option is selected the text box above the values list will not be displayed.

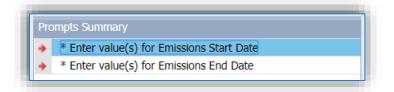
Refresh V	/alues 😨	SURF	
Fo see the content of the list Refresh values button.	, click the		

Set default value(s) - This allow the report writer to select a default value for the filter.

A query can have multiple prompts, for example a separate prompt for start date and end date.

410	Emissions Start Date	Greater than or Equal to •	Enter value(s) for Emissions S
AND	Emissions End Date	Less than or Equal to - En	ter value(s) for Emissions E 🔀 🖳

These will then appear in the order they were set up in the query window. Be careful to make sure the start date is always the prompt before the end date. This is a very common way to confuse the users of the report and have the report not produce any results.



To change the order of the prompts, click the Query Properties icon at the top left of the Query Panel window.

Name			
Query 1			
Universe			
Emissions [unx]			
Limits			Prompt order
Max rows retrieved	5000	:	Enter value(s) for Emissions Start Date
Max retrieval time	600		Enter value(s) for Emissions End Date
Sample			
Sample result set	500		
Sample result set 500			
Data			÷
Retrieve duplicate row	5		Context
Retrieve empty rows			<ul> <li>Reset contexts on refresh</li> </ul>
Security			
Allow other users to equip of the second	dit all querie	s	
			*
			Clear Contexts

To move a prompt, click on it to select it, then use the and buttons to move the prompts to the desired order.

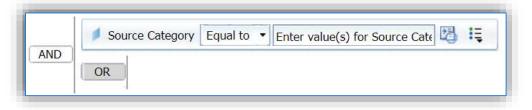
#### 5.1.3.2.2 Multiple Filters and Nested Filters

Additional filters can be added to the report in the same manner.

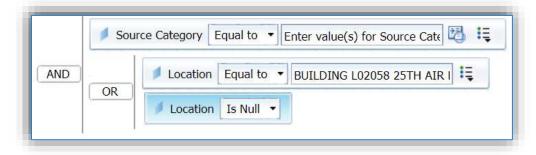
🔆 Universe outline	😰 Result Objects	7 × × + + +
Emissions	> Source Category # Uniq Pcs ID # Process Name # Loca	tion
Kit Emissions (unx)     APIMS Facility     Processes     Dates     Chemical Categories     Publicant Categories     Rolling Emissions Totals	Query Filters     AND     OR     Location Is Null •     Location Equal to • BUILDING L02058 25TH AI	
	Tota Preview	a Refres
	Type a text to filter the values	

As shown above this query has a filter on the Source Category and Location fields, however the Location filter is a Nested filter. To create a nested filter, click the 💷 icon.

This will add an OR statement inside the AND statement. To change the OR to an AND, double click it.



Then select the field you would like to filter and move it to the OR line.



This example of a nested filter will return all the surface coating processes **AND** that are in BUILDING L02058 **OR** do not have a location specified.

To move the filters to a different order or level, click and drag.

The lines in front of the AND/OR criteria show the level at which the filters will be applied. If the query is not yielding any results it may be an error in the level of filters.

#### 5.1.3.3 Query Results

To view the results before running the full query, the Data Preview window can be used.

Source Category	Uniq Pcs ID	Process Name Location	
SURF	714	PAINT BOOTH L02058 CCS BUILDING L0205	8
SURF	714	PAINT BOOTH L02058 CCS BUILDING L0205	8
SURF	714	PAINT BOOTH L02058 CCS BUILDING L0205	8

Click the Refresh 😂 icon to view the results or refresh the results based on changes.

To run the full query and leave the Query Panel, click the Run Query Run Query button.

#### 5.1.4 Report Design

This next section will discuss common functionality utilized in the Design window to format the report.

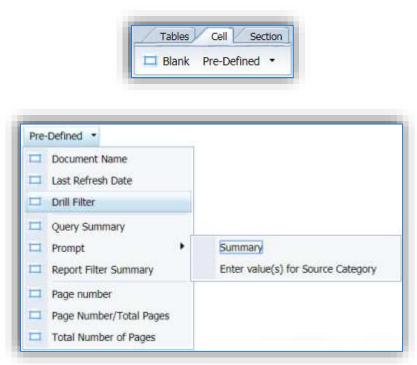
#### 5.1.4.1 Report Elements

The Report Elements tab has several sub tabs, in this section specific but not all formatting functionality will be discussed.

Report Elements Form	atting Data Access	Analysis Page Setup	
Tables Cell Section	Chart Other	Tools Position Linking	Table Layout Behaviors
m • H • m • H • i	11 • 12 • 10 •	🛄 Turn Into 🔹 🚔 Set as section	📲 Break +   Insert +   🎆 Header + 🌉 Pooter

#### 5.1.4.1.1 Display Report Details

To add information about the report, such as the last refresh date, query prompts etc. Click the Cell sub tab.

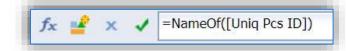


Use the Pre-Defined drop down to add any of the following information to the report page. Once the Pre-Defined field is selected, you will need to move your mouse down to the report window and click where the field should be displayed.

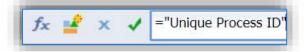
1	Tie Properties	flepo	t Clements Trematting	Datin Acama	Analysis Page Setur	Reading + Design + 3
0	8 H · B · M · S Z · B ·	Tables	Field Section / C	Just Other	Tools Postoon Limiting	
5	C ADDX C	til tierk	Pre-Defined • dl		Turn Inn   All Sel as written	
÷.	Available Objects *		1. 18 - 4		In the second	
101	Type fame to Blar time					
10	Source Category			1.000	CENTRAL MERINA	
	🔮 Unity Pice ID Martiables		Source Category	the relition (Pre	eport 1 estat Size Antered Measurem	Location
	🦸 linig Pcs 33		North Address of the owner of the	the relition (Pre	en CM, Nay to care of Hon article	Location BUILDING L02058 25TH AIR F
	🦸 linig Pcs 33		Source Category	Uniq Pcs ID	extent hav to cancel this action) Process Name	TANK THE

#### 5.1.4.1.2 Edit Column Headers

To edit a column header, click on the field to select it, this will then show the field properties in the formula bar.



This shows that the column header is displayed as the name of the field selected for that column. To create a custom name, click in the field and type the name inside "marks.



Additionally, a specific text in combination with the field name can also be entered by using a + sign. For example,

"APIMS" + NameOf([Uniq Pcs ID])

Once the desired name has been entered, click the green 🗹 check.

Additional functionality is available by clicking the  $\frac{f}{f}$  icon. This will open the Formula Editor pop-up window.

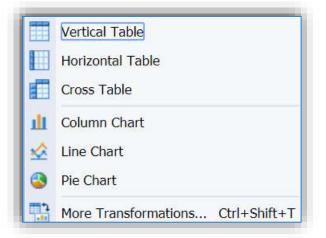
Formula								_
=[Uniq Pcs ID]								×
Available Objects	Available Functions	Avail	able (	Opera	tors		A	
<ul> <li>New Document</li> <li>Location</li> <li>Process Name</li> <li>Shop Code</li> <li>Source Category</li> <li>Uniq Pcs ID</li> <li>Variables</li> <li>Max</li> <li>Median</li> <li>Min</li> </ul>			<	<=	<>	>	>=	
				-	1	*	(	)
	Count First Interpolation Last Max Median Min	Values Prompts : : { } After All						

From this window there are several available functions with instructions and formats listed in the Description field. Use the M button to validate the formula before clicking the OK button.

#### 5.1.4.2 Crosstab Tables

To create a cross tab table it is easiest to create the query and have it displayed in the Design window as

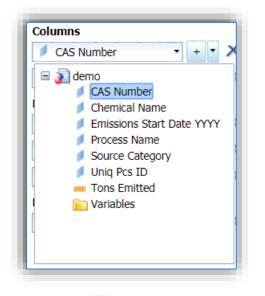
a normal table. The next step is to click the button on the Tools sub tab. This button will not be active unless the current table has been selected.



This drop-down list lets you select the type of table you wish to transform the current table into. However, if you select one of the specific tables here, the application will guess how you want the fields configured. It is a best practice to instead always select the More Transformations option. This will then open the Turn Into pop-up window.

Tables		Columns			
Bar Box		/ CAS Number	• +	ŀ	×
Column Line	Vertical Horizontal Cross Table Form	/ Chemical Name	• +	•	×
Мар	Table Table	Rows			
Pie Point		Source Category	• +	•	×
Radar Tag Cloud		🔰 Uniq Pcs ID	• +		×
Waterfall		Process Name	• •		×
		Body			
		- Tons Emitted	• +		×
	Cross Table Crosstabs are useful for presenting results that correspond to the intersection of two or more dimensions.	OK Cancel			ylqu

This screen can be used to change the display order of the fields for any type of table. To turn the table into a Cross Table, select the cross-table icon. This will then divide the current data elements into Columns, Rows and Body.



To change the fields, click the picklist arrow  $\square$  to select a different field. To add a field, click the  $\square$  button. This will add a blank row, which you can then use the picklist arrow to select a data point. Use

the  $\times$  to delete a data point. To change the order the data points are displayed in, click the  $\square$  button.



This will then open a list of values, where you can move the data element around in the list. Additionally you can elect to have the data element remain in the table but be hidden from view. This can be useful when you want to keep the sort order that field allows but don't want to see the field on the report.

Click OK once the fields are configured as desired.

#### 5.1.4.3 Breaks

Breaks can be used to segregate data in a logical manner without separating into a different query or table. For example, if there is a query that reports emissions by process, this functionality will allow you to group the emissions by source category and even total the emissions. The report below shows an example of a break.

			639990	7402521	NUR	1910	PROLE	BOX:	VOC
			CARBON	LEAD	ONDES OF NETHOGEN	MARTICULATE MATTER COURT (MIL)	MATTER MATTER -2.50M (PMZ2)	ONDES OF SULTUR	VOLATILE ORGANC COMPOUNDS
einen Calligery -	Unique Process ID	Process Name	-	10000	1.000	1000	0000	-	
AHOL	117	04 - ACTT ADRASING BLASTING HANGAR 61 REPELASTS	1			3.135306	3-096735		
ABCL.		Telat (ture)				8.195306	8.006738		
com.	346	Y 38 FUEL BY STERS REPAIR "ARE PROCESS"							100024
- Contraction	140	TA FUEL SYSTEM REPAIR SAID PROCESS							1,000-1
CP11		Total (total							8.8834
CHON	704448	PASEMDE WIC CHEM USAGE							1 2103
Otta		Total (bree)							1,23331
	MATT	COOCING TOWER BLOC 396-84				8210516	0.126309		
	1987	COOLINE TOWER IS DO ANN				8.304545	0.180437		
	1000	COCUME TOWER BLOG 4000				2.304045	0 (10)(27		
	1500	COOLING TOWER BLDG 4910				5.266655	0.150902		
		CDOLING TOWER REDG 500				2.126308	0.075758		
		COOLINS TOWER INDIG 739.81				0.196401	0.117688		
C001		COOLINE TOWER IS DO 7 18 40				11.196-01	0.117989		
COOL	1998	COOLING TOWER IN DG 738.43				3.147301	0.099417		

To insert a break, select the field by clicking in it. Go to the Table Layout sub tab and select the **Break** + button. This will then segregate the data and add some unwanted formatting and rows. The next step is to format the break in the way you would like it displayed, to do this click the arrow next to the Break button. This will show a menu, Select Manage Breaks. This will open a Manage Breaks pop-up menu.

🖃 💼 Block 1	*	Source Category
B Rows	1	Display Properties
Source Category		Break header
		Break footer
		Apply Sort
		Duplicate values
		Merge
		Page Layout Start on a new page Avoid page breaks in block
	Add	Repeat header on every
	Remove	page

This window will allow you to add additional breaks, using the Add... button. If there are additional breaks the order can be adjusted using the up and down arrows. Each item that has a break will need the fields displayed on the left configured. Don't forget to configure each break.

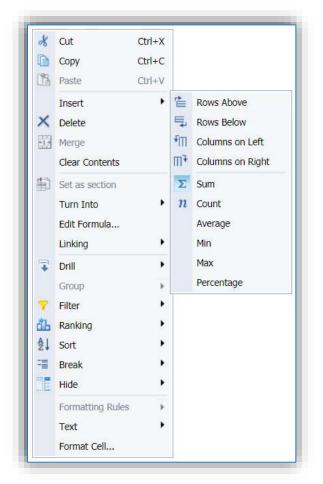
The Display Properties allow a header row, a footer row and a sort. It is recommended to uncheck the header and footer rows, unless a total for each break is desired. In that case a footer row is advised.

The Duplicate values drop down will allow the following options: Display all, Display first, Merge, and Repeat first on new page.

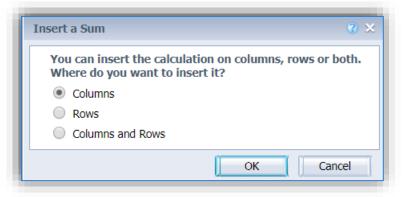
The Page Layout section selections vary from report to report. However, it is recommended to repeat the header on every page.

#### 5.1.4.4 Totals and Counts

To insert a function to total or a count, right click on the data element in the table. This will bring up a large pop-up menu. Click the Insert option, then select Sum.



This will bring up a menu that lets the user specify where to insert the total.

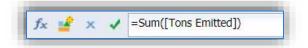


Once the selection has been made the row with the total will be inserted into the report.

If the report has breaks, and you would like a total at the end of each break you will need to add the break with a footer row. Once the footer row is visible; click in the empty cell below the data, as circled in red below.

	-		630080	7439921	NOX	PM10	PM2.5	SOX	VOC
		-	CARBON MC	LEAD	OXIDES OF I	PARTICULIA	PARTICULAT	OXIDES OF 1	VOLATILE C
ABCL	600434	ABRASIVE E							
ARCL									
	501889	C-5M MAIN F							0 018074
	601890	C-5M MAIN 1							0.003604
CELL	601891	C-5M AUX FI							0.0
GELL	601892	C-5M AUX FI							0.02397
	601893	C-5M EXTEN							
	601894	C-5M EXTEN							0.0
CELL.								ſ	

To add a sum, click in the formula bar and use the following function.



The syntax is the function, Sum() with the field name inside the parentheses in brackets. This will add the total to all breaks and all columns.

#### 5.1.4.5 Add fields to a report

To add additional fields to a report it is a two-step process. First, click on the Edit Data Provider icon at the top of the left side window.



This will open up the Query Panel. From there the field you would like to add will have to be selected from the universe and added to the Results Objects window.

🕜 Add Query -	🤣 😭 (	8			10 P	un Query	10	ose ·
🛱 Universe outline	_	C Result Objects				🕈 🗙 🤅	*	6 I
Emission Unit Details	- 2	J Base Name	🔰 Facility Name	Source Category Cod	e 🧳 Mobile S	ource Flag		
Type here to filter on the B+ 1	e)*	🔰 Uniq Pcs ID	Base Specific	J Local Process Name	1			
Alter Emission Unit Details (unx)     Emission Unit Details     Facility Details     Base Name     Facility PA ID     Facility Name     DEPARC Facility     MAJCOM     IST     RST	k	Query Filters     AND	tess Status In List	• ACT	ert Serial Numbe			
Facility Start Date Facility End Date Under EPA Juristitction State/Territory County 1 County 2 County 3	÷	Data Preview	the values	<u>1444</u>			@ R	efter

Once all the changes have been completed, click the **Run Query** button at the top right corner.

File Properties	Report Elements	Formatting Data Acce	ess Analysis Page	Setup	
🗅 🥔 🛄 •   🎝 • 🗛   🌮 🗳 • 💷 •	- Tables Cel	Section Ourt Other	Tools Position	Unking	
00 1 6 5 X (2 2		· 🗄 • 🏦 • 🖉 • 🕲	• Turn loto - 1	Set as section	
Available Objects	5 fx 1 × 1				
Type here to filler thee Exercise 1 - Active Processes and Ec Base Name	pup Pages 1/9				
Equipment ID     Equipment Serial Number	Current As	Contraction and Contraction of the	Processes &	Equipme	ent
Local Process Name	0				
Mobile Source Hag	Facility Name	Source Category Code	Mobile Source Flag	Uniq Pcs ID	Base Specific
Mobile Source Hag Model No Process Location Long Name	Facility Name FORT EUSTIS	Source Category Code	Mobile Source Flag	Uniq Pes ID 625838	Base Specific ABRA-1
Mobile Source Hag	and the second second	and a second		11	In the second
Mobie Source Hag Model No Process Location Long Name Source Category Code	FORTEUSTIS	ABCL		625838	In the second second
Mobile Source Hag Model No Process Location Long Name Source Category Code	FORT EUSTIS FORT EUSTIS	ABCL AGE	N Y	625838 692202	In the second
Mobile Source Hag Model No Process Location Long Name Source Category Code	FORT EUSTIS FORT EUSTIS FORT EUSTIS	ABCL AGE AGE	N Y Y	625838 692202 711762	In the second

As shown in the screen above, the new field(s) do not appear in the report results. However, the field has been added to the Available Objects window. To view all of the fields, select the current table, which will active the Turn Into button. Click the button then select More Transformations. This will open the Turn Into pop-up window.

Fables Bar		Columns			
Box		🔎 Facility Name 🔹	÷	-	X
ine	Vertical Horizontal Cross Table Form	Source Category Code •	+	-	×
1ap 'ie	Table Table	Mobile Source Flag •	+	-	X
oint adar		Uniq Pcs ID •	+	•	×
ag Cloud Vaterfall		Base Specific •	+	•	X
Valenali		Local Process Name	+	•	X
		Process Location Lo •	+	•	X
		Model No	÷	•	X
	Vertical Table	📕 Equipment Serial Nu 🔻	+	•	×
	Vertical tables display header cells at the top of the table and the corresponding data in columns.	Fquipment ID •	+	÷	×

To add the field, click the <sup>+</sup> icon for the field above where you want the field to be displayed. This will add a blank field, which then can be used to select the new data point. Once this is complete, click OK and the field will now appear in the results.

#### 5.1.4.6 Multiple Queries

SAP can be used to write multiple queries in the same report workbook. This can be useful when looking at related data or when trying to merge one universe to another. To create multiple queries, it is advised to create a single query and run the query so there are results. Then go back to the Query Panel to generate the second query.

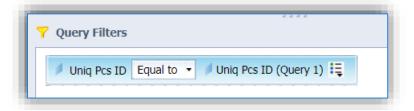
Once in the query panel, click the Add Query button. From here you will be able to select any universe, it does not have to be the same as Query 1.

🖻 Add Query 🔹 🛄 🐺 🕅		1			6	
Universe outline			🔃 Result Objects	₹ × 3	6 4	
mission Unit Details			To include data in reports, select objects on the U Click Run Query to return the results.	inverse pane and add them here by clicking the	arrow.	
Type here to filter on th	@+ @*	~	card run quer an easily in realist.			
The Emission Unit Details (unx)     Facility     Shap     Unique Process     Equipment		× ×	7 Query Filters To filter the query, select predefined filters or obj the arrow, Select Filter to specify the values you v message so users can select values of their choice	vant returned to reports or select Prompt to defi	clicking	
			Data Preview			they

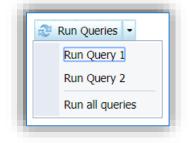
Now Query 2 can be created the same as any other query. There is an additional option available in the Query Filters, Result from another query (Any). When you select this option a list of queries and data points available will be listed in the Available Objects pop-up window.

Available Objects	3 ×
Exercise 6 - Process Emissions Summary wit	h EPA SCC
🗏 🥟 Query 1	
🔰 Algorithm Code	
🥖 Algorithm Formula	
🥖 CAS Number	
🥖 Chemical Name	
🥖 Emissions Start Date YYYY	
🥖 Material Name	
/ NSN	
/ Process Name	
🥖 Quantity Used UOM	
Source Category	
💋 Uniq Pcs ID	
www. Quantity Used	
🚥 Tons Emitted	
(I)	0
OK	Cancel

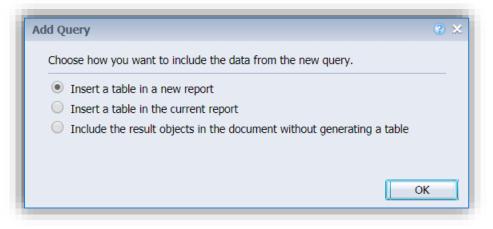
In this case we only want the unique process records that meet the criteria specified in Query 1. So, we will link Unique Process from the Emission Unit universe to the Uniq Pcs ID from the Emissions universe in Query 1.



Once the data points have been selected and the filters configured, it is time to run the queries. There is an option to Run Query 1, Run Query 2 or Run all queries.



Depending upon the size and complexity of the queries it may be best to run large queries separately. Once the selection has been made to run the query, an Add Query window will appear the first time Query 2 is ran.



There are three options available and will vary depending upon the needs of the report. If the first option, Insert a table in a new report, is selected it will be displayed in a new tab. The second option, Insert a table in the current report, will add another table to the current tab. The third option, Include the results object in the document without generating a table, will show any visible results but will make the fields available for other uses, such as merges for variables.

### 5.1.4.7 Merging Universes

Occasionally there are instances when a specific data point is not included in the universe used for a query and needs to come from a different universe; to do this a Merge is required. To create a merge, two queries will need to be created, one with the main structure of data required and an additional query that uses the other universe and a data point shared between the universes, such as Uniq Pcs ID.

An example would be emission results summarized by EPA Source Classification Code. To obtain the emission results the Emissions universe will need to be queried, however the EPA Source Classification Code is not available in the Emissions universe. A second query that pulls the Uniq Pcs ID and the EPA Source Classification Code from the Emission Unit universe will need to be created.

Emissions	gory I Emissions Start Date YYYY I Uniq Pcs ID I Process Name
/ NSN /	the second
	Material Name 🧰 Quantity Used 🥒 Quantity Used UOM
Processes     Dates     Dates     Emissions     Chemical Categories     Poliutant Categories     Rolling Emissions Totals     Emissions 5	
📰 Data Previev	w 🤤 Refres

Universe outline		Result Objects	<b>∜</b> X X ( + )
Emission Unit Details	-		
29 - Type here to filter on ti	04 Gt (c	J Uniq Pos ID J EPA Source Class Code	
Shop     Hope Equipment		Query Filters     To filter the query, select predefined filters or object     the arrow. Select filter to specify the values you was     message so users can select values of their choice.	To in the Universe pane and add them here by clicking to in the Universe pane and add them here by clicking int returned to reports or select Prompt to define a
		11 Data Preview	n Refres

The next step is to run the queries and view the results. Once in the Design window the Available Objects window will viewable, if the window does not default to the Available Objects, select the icon.

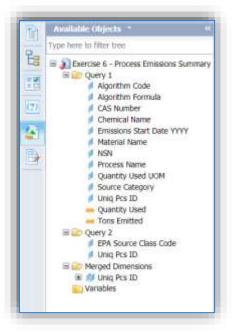


At the bottom of the window, you can select to arrange the objects in Alphabetic order or Arranged by Query. Select Arranged by Query.

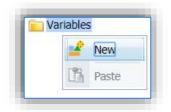
Click on the data element in Query 1, hold down the control key and click on the data element in Query 2 that is the same in both queries, in this instance Uniq Pcs ID. Once both data points are highlighted, right click.



Click to merge the two data points. This will create a Merged Dimension with Uniq Pcs ID.



The next step is to create a variable for the merged EPA Source Class Code. To do this, right click on the variables folder, select New.



This will open the Create Variable pop-up window. Once in the window, create a Name for the data point. This cannot be the same name as it appears in Query 2. The Qualification field must be Detail and the Associated dimension must be the merged dimension as shown below.

Name:		Туре:	
EPA SCC		Undefined	
Qualification:		Associated dimensio	on:
未 Detail	•	Uniq Pcs ID(Merge	d Dimensions)
Formula			
=[EPA Source Class Code]			×
Available Objects	Available Functions	-	Available Operators
Exercise 6 - Process Emissions S Algorithm Code Algorithm Formula CAS Number Chemical Name Emissions Start Date YYYY EPA Source Class Code Material Name NSN  Description	Aggregate Aggregate Average Count First Interpolation Last Max Median Min Mode	•	=       <
EPA Source Class Code			OK Cancel

The last step is to select the data point from the list of available objects by double clicking it. This will create the formula, then click OK.

The last step is to add the new variable to the results table.

### 5.1.4.8 Saving a Report

To save a report, use the Save 🔲 button to either Save or Save As. When using an existing report to modify to meet your needs, remember to use the Save As option. This will allow you to specify the location and name of the file.

Favorites Folder		Title +		Last Run Time		
Public Folders			No Items			
Public Folders     Public April     April     April	and the second					
🛞 🔛 Installati	ion Reports					
PMO Rej	son Reports ports Id West Temporar					
🕀 🔟 PMO Rej	son Reports ports Id West Temporar	or Criteria Poliutants				
PMO Rej	son Reports ports Id West Temporar	or Criteria Poliutants			•	

The left side window can be used to navigate between the Favorites Folder or the Public Folders.

The Favorites Folder is a personal folder that can be used to save reports that will only be viewable by your user profile.

The Public Folders contain PMO (Program Management Office) Reports that are available to all users. The Installation Reports folder contains sub-folders for each installation that contain reports that can be viewed by any user with access to the installation. The Wild Wild West is a temporary folder used to share reports with anyone. This folder is often purged, so be careful when saving reports to this location.

At the top of the right window there are icons that can be used to  $\bowtie$  create folders,  $\bowtie$  delete files or  $\bowtie$  of 2+  $\bowtie$  view additional reports.

### 5.1.4.9 Exporting a Report

To export a report, use the Export button. This button allows you to export the report in multiple formats such as, PDF, Excel (.xlsx), Excel (.xls), CSV Archive and Text.

## 5.1.5 Common Icon Definitions

lcon	Name	Description
1	Edit Data	This will open the Query Panel that allows for the query data points
	Provider	and filters to be edited.
	Refresh	This will refresh the query results by running the query.
~	All	
<b>(</b>	Available	Shows the data points and variables available for inclusion in the
100	Objects	report.
-	Turn Into	This icon can be used to open a window that allows the user to
🔡 Turn Into 🔹		change the order of fields and change the table type. This is most
		commonly used when creating a cross table.
Set as section	Set as	This will create a separate section for each unique data point under
	section	a specified field.
= Break •	Break	This allow the user to set up data groupings.
New Variable •	New	This is used to create a custom field that uses functionality. For
	Variable	example, a Sum, Concatenation for different date format.
📁 Merge	Merge	This is used to merge two data points from different universes.
∑ Sum ▼	Sum	This is used to create a total at the end of a column or row of data.
n Count	Count	This is used to create a count at the end of a column or row of data.
fx	Function	This opens the Formula Builder and allows the user to create a more
JX		complex function.
A2↓ Sort ▼	Sort	This allows the user to apply the desired sort order to a field.
4	Export	This will export the report results to the specified format.
🌾 Filter Bar	Filter Bar	This will insert a page filter on the report for a specified data point.

## APPENDIX

# 1. ACRONYMS

(Word formed from the initial letters of a name or parts of a series of words.)

AAFES	Army & Air Force Exchange Service
AFCEC	Air Force Civil Engineer Complex
AGE	Aerospace Ground Equipment
AOPS	Aircraft Operations
APIMS	Air Program Information Management System
BURN	Prescribed or Open Burning
CAS	Chemical Abstract Service
CEMS	Continuous Emissions Monitoring System
CHEM	Miscellaneous Chemical Use
COOL	Comfort Cooling Towers
DODIC	Department of Defense Identification Codes
ECOM	External Combustion
EAID	Equipment Authorized Inventory Data
eDASH	The Air Force-Wide Environmental Management System
EESOH-MIS	Enterprise Environmental, Safety, Occupational and Health Management
	Information System
FAR	Fly-Ash Reinjection
FERF	Fuel Emission Reduction Factors
FIBR	Fiberglass Repair
FIRE	Fire Training
GSOL	General Solvent Use
HAP	Hazardous Air Pollutant
HAZMART	Hazardous Materials Pharmacy
HEAT	Process Heaters, Dryers and Ovens
HVAC	Heating, Ventilating and Air Conditioning
ICOM	Internal Combustion Engine
JET	Jet Engine Testing
LAB	Laboratory Chemical Use
LAND	Landfills
LandGEM	Landfill Gas Emissions Model
LIMS-EV	Logistics, Installations and Mission Support Enterprise View
LOV	List of Values
MACT	Maximum Achievable Control Technology
MOGAS	Automotive Gasoline
MUN	Munitions
NAAQS	National Ambient Air Quality Standards

NESHAP	National Emission Standards for Hazardous Air Pollutants
NEW	Net Explosive Weight
PEST	Pesticide, Herbicide and Rodenticide Use
RCRA	Resource Conservation and Recovery Act
RICE	Reciprocating Internal Combustion Engine
RPIE	Real Property Installed Equipment
SEAD	Sealant and Adhesive Use
SGUN	Spray Gun Cleaning
SIP	State Implementation Plan
SME	Subject Matter Expert
STAR	Storage Tank Accounting and Reporting
SURF	Surface Coating
VEHE	On Road Vehicles
VFR	Virtual Flight Rule
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WELD	Welding
WILD	Wildfires
WOOD	Woodworking

## 2. BREVITY CODES

(Shortened form of a frequently used group of words, phrases, or sentences consisting of entirely

ABCLAbrasive Blasting and Abrasive CleaningAEIAir Emissions InventoryAFBAir Force BaseAFIAir Force InstructionANGAir National GuardAPUAuxiliary Power UnitASTAboveground Storage TankBGHBaghouseBLDGBuildingBSFCBrake-Specific Fuel ConsumptionCAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	upper-case letters. Ea	ach letter is spoken individually.)
AEIAir Emissions InventoryAFBAir Force BaseAFIAir Force InstructionANGAir National GuardAPUAuxiliary Power UnitASTAboveground Storage TankBGHBaghouseBLDGBuildingBSFCBrake-Specific Fuel ConsumptionCAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	ABCL	Abrasive Blasting and Abrasive Cleaning
AFBAir Force BaseAFIAir Force InstructionANGAir National GuardAPUAuxiliary Power UnitASTAboveground Storage TankBGHBaghouseBLDGBuildingBSFCBrake-Specific Fuel ConsumptionCAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Ovned Vehicle	AEI	
ANGAir National GuardAPUAuxiliary Power UnitASTAboveground Storage TankBGHBaghouseBLDGBuildingBSFCBrake-Specific Fuel ConsumptionCAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	AFB	-
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BGHBaghouseBLDGBuildingBSFCBrake-Specific Fuel ConsumptionCAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGeographic Information SystemGOVGovernment Owned Vehicle	APU	Auxiliary Power Unit
BLDGBuildingBSFCBrake-Specific Fuel ConsumptionCAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	AST	Aboveground Storage Tank
BSFCBrake-Specific Fuel ConsumptionCAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	BGH	Baghouse
CAAClean Air ActCECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGeographic Information SystemGOVGovernment Ovned Vehicle	BLDG	Building
CECivil EngineeringCFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	BSFC	Brake-Specific Fuel Consumption
CFCChlorofluorocarbonCFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	CAA	Clean Air Act
CFRCode of Federal RegulationsCICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGOVGovernment Owned Vehicle	CE	Civil Engineering
CICompression IgnitionCLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGOVGovernment Owned Vehicle	CFC	Chlorofluorocarbon
CLNCleaningCNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGOVGovernment Owned Vehicle	CFR	Code of Federal Regulations
CNGCompressed Natural GasCPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	CI	Compression Ignition
CPMSContinuous Parameter Monitoring SystemDEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	CLN	Cleaning
DEGRDegreasingDLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGOVGovernment Owned Vehicle	CNG	Compressed Natural Gas
DLADefense Logistics AgencyDoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGeographic Information SystemGOVGovernment Owned Vehicle	CPMS	Continuous Parameter Monitoring System
DoDDepartment of DefenseDSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	DEGR	Degreasing
DSIDry Sorbent InjectionEFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	DLA	Defense Logistics Agency
EFEmission FactorEODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	DoD	Department of Defense
EODExplosive Ordnance DisposalEPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	DSI	Dry Sorbent Injection
EPAEnvironmental Protection AgencyESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	EF	Emission Factor
ESPElectrostatic PrecipitatorFAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGovernment Owned Vehicle	EOD	Explosive Ordnance Disposal
FAAFederal Aviation AdministrationFCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	EPA	Environmental Protection Agency
FCLNFlush CleaningFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	ESP	Electrostatic Precipitator
FDSPGasoline Fuel DispensingFDSPGasoline Fuel DispensingFFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	FAA	Federal Aviation Administration
FFFabric FilterFGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	FCLN	Flush Cleaning
FGRFlue Gas RecirculationFLDFuel LoadingGHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	FDSP	Gasoline Fuel Dispensing
FLDFuel LoadingGHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	FF	Fabric Filter
GHGGreenhouse GasesGISGeographic Information SystemGOVGovernment Owned Vehicle	FGR	Flue Gas Recirculation
GISGeographic Information SystemGOVGovernment Owned Vehicle	FLD	Fuel Loading
GOV Government Owned Vehicle	GHG	Greenhouse Gases
	GIS	Geographic Information System
CSE Ground Support Equipment	GOV	
OSE Oround support Equipment	GSE	Ground Support Equipment

GSU	Geographically Separated Unit
GVWR	Gross Vehicle Weight Rating
GWP	Global Warming Potential
HBFC	Hydrobromofluorocarbons
HCFC	Hydrochlorofluorocarbons
HCLN	Hand Wipe Cleaning
HDDV	Heavy Duty Diesel Vehicle
HDGV	Heavy Duty Gasoline Vehicle
HEI	Highly Explosive Incendiary
HEV	Hybrid Electric Vehicles
HFC	Hydrofluorocarbons
VLP	High Volume Low Pressure
INCN	Incinerator
LDDT	Light Duty Diesel Truck
LDDV	Light Duty Diesel Vehicle
LDGT	Light Duty Gasoline Truck
LDGV	Light Duty Gasoline Vehicle
LFB	Low Fly By Cycles
LIMS-EV	Logistics, Installations and Mission Support Enterprise View
LNB	Low NO <sub>x</sub> Burner
LOV	List of Values
LPG	Liquified Petroleum Gas
LTO	Landings and Takeoffs
MC	Motorcycle
MCL	Multi-Cyclone
MRR	Mandatory Reporting Rule
MSW	Municipal Solid Waste
NDI	Non-Destructive Inspection
NMOC	Non-Methane Organic Compounds
NRDE	Non-Road Equipment
NSN `	National Stock Number
NSPS	New Source Performance Standards
OBOD	Open Burning/Open Detonation
ODC	Ozone Depleting Chemicals
ODP	Ozone Depleting Potential
PFC	Perfluorocarbons
PM	Particulate Matter – Aerodynamic diameter unspecified
$PM_{10}$	Particulate Matter – Aerodynamic diameter < 10 micrometers
PM <sub>2.5</sub>	Particulate Matter – Aerodynamic diameter < 2.5 micrometers
POL	Petroleum, Oil and Lubricant

Appendi	Х
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POV	Privately Owned Vehicle
PTE	Potential-To-Emit
PWCT	Process Wet Cooling Towers
RPM	<b>Revolutions Per Minute</b>
RTST	Rocket Engine Testing
SCB	Scrubber
SCC	Source Classification Code
SDS	Safety Data Sheets
SI	Spark Ignition
TDS	Total Dissolved Solids
TGO	Touch and Go
TIM	Time In Mode
TLD	Total Liquid Drift
TRI	Toxic Release Inventory
TSE	Tactical Support Equipment
UOM	Unit of Measure
USAF	United States Air Force
UST	Underground Storage Tank
UV	Ultraviolet
VFR	Virtual Flight Rule
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

## **3. ABBREVIATIONS**

(Shortened form of a word or phrase.)		
Btu	British Thermal Unit	
°C	Degrees Celsius	
CH <sub>4</sub>	Methane	
СО	Carbon Monoxide	
CO <sub>2</sub>	Carbon Dioxide	
CO <sub>2e</sub>	Carbon Dioxide Equivalent	
°F	Degrees Fahrenheit	
ft	Foot (Feet)	
g/L	Grams per Liter	
gal	Gallon(s)	
gal/hp	Gallons per Horsepower	
HCl	Hydrogen Chloride	
hp	Horsepower	
hr	Hours	
kg	Kilogram	
KW	Kilowatt	
L	Liter	
lb	Pound(s)	
lbs/gal	Pounds per Gallon	
lbs/hr	Pounds per Hour	
lb/lbmol	Pound per Pound Mole	
Mg	Megagram(s) [i.e., metric ton]	
MMBtu	Million British Thermal Units	
MMBtu/ft <sup>3</sup>	Million British Thermal Unit per Cubic Foot	
MMBtu/gal	Million British Thermal Unit per Gallon	
MMBtu/hr	Million British Thermal Units per Hour	
MMcuft	Million Cubic Foot	
mmHg	millimeters of Mercury	
NO <sub>x</sub>	Nitrogen Oxides	
O <sub>3</sub>	Ozone	
Pb	Lead	
PCT	Percent	
ppm	Parts per Million	
SO <sub>x</sub>	Sulfur Oxides	
tpy	Tons per Year	
wt%	Weight Percent	