

Examples

Company "A" manufactures metal products and operates the following equipment:

- Two natural gas-fired boilers rated 7.5 MMBTU/HR (application # 512345) and 15 MMBTU/HR (application # 512346), respectively,
- One natural gas-fired thermal oxidizer (application # 512347) rated at 28.5 MMBTU/HR with 96.7% overall efficiency controlling VOC emissions from the spray booths,
- Two stationary gasoline-fired non-permitted generators (Internal Combustion Engines, ICE): a 25 HP 2 stroke-lean burn ICE without catalyst, and a 48 HP 4 stroke-lean burn ICE with catalyst,
- One permitted spray booth (application # 512348) where products are coated with primers and enamels. The spray booth is equipped with conventional PM filters at 90% overall control efficiency,
- MEK solvent for surface preparation,
- One hard-chrome plating process (application # 512400),
- One 2,000-gallon above-ground storage tank for MEK (application # 512401),
- One permitted solvent degreaser (application # 512402) using perchloroethylene (PERC).

The following procedure can be used to facilitate the emissions calculation and reporting:

1. Report each equipment/process type on the appropriate forms as follows:
 - Natural gas combustion in the two boilers and the thermal oxidizer (afterburner) - Form B1 ([Example A](#)),
 - Gasoline combustion in the two ICEs - Form B2U ([Example B](#)) - Refer to SCAQMD Rule 219 for a list of equipment not requiring an AQMD written permit,
 - Coating use in the spray booth - Form B3 for reporting the use of solvents and coating materials ([Example C](#)),
 - PERC use in the degreaser - Form B3 ([Example C](#)),
 - PM emissions from coating and plating operations - Form B4 ([Example D](#)),
 - VOC emissions (MEK) from above-ground small storage tank - Form B4 ([Example D](#)),
2. Report TAC/ODC emissions on Form TAC ([Example E](#)).
3. Toxic emissions from form TAC will be automatically transferred to Form TACS and emission fees calculated ([Example F](#)).
4. Emissions in tons from Forms B1, B3, and B4 will be automatically transferred to Form C ([Example G](#)).
5. Emissions in tons from Form B2U will be automatically transferred to Form CU ([Example H](#)).
6. Emissions from Forms C and CU will be automatically transferred to Form S ([Example I](#)).
7. Facility total emissions and applicable fees will be automatically calculated on Form S ([Example I](#)).
8. Submit any facility updates, or refund or amendment requests using Form A ([Example J](#)).
9. Print and submit the signed Forms X ([Example K](#)).

Example A - Form B1

Form B1 - Permitted Annual Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters

During the calendar year subject to reporting, company "A" burned a total of 718,382 therms of natural gas (derived from company gas bills) in two different size boilers and a thermal oxidizer. In addition to the gas company meter (total gas consumption), Company "A" has a separate meter for thermal oxidizer that recorded a usage of 12,566,400 standard cubic feet.

STEPS TO FOLLOW:

1. **Form B1** can be opened by selecting (single click) the Form B1 icon in the left navigation bar. The form opens to the data entry screen.

2. **Device Description:** From the drop down list, select "Add new AER device". A new data field for detail description will appear below. In this example, enter "East building - Boiler #1".
3. **Equipment Code:** From the drop down list, select "1a. Boiler <10 MMBTU/hr" for boiler rated 7.5 MMBTU/HR boiler.
4. **Fuel Code:** From the drop down list, select "1. Natural gas (mmscf)"
5. **Annual Fuel Usage:**

Fuel usage for equipment sharing a meter/gas record can be determined as follows:

- a. First, convert the total natural gas usage at the facility from therms to million standard cubic feet (mmscf) by multiplying the number of therms by 0.0000952:

$$718,382 \text{ therms} \times 0.0000952 = 68.39 \text{ mmscf}$$

- b. Convert natural gas usage for the thermal oxidizer from scf to mmscf:

12,566,400 scf x 1/1,000,000 = 12.57 mmscf.

c. Calculate total gas usage for both boilers:

68.39 mmscf - 12.57 mmscf = 55.82 mmscf,

d. Estimate the fuel usage for each boiler using the boiler's rating (MMBTU/HR):

Boiler #1: 55.82 mmscf * [(7.5 / (7.5 + 15))] = 18.61 mmscf

Boiler #2: 55.82 mmscf * [(15 / (7.5 + 15))] = 37.21 mmscf

e. Enter "18.61" as Annual Fuel Usage for boiler-1.

6. **Application Numbers:** The application number assigned to a permitted source by the AQMD should be used to identify the permitted device. In this example, enter "512345" here.

7. **Emission Factors and Emissions:** To use the default emission factors in this example, click on the checkbox below the emission factor fields. The emission factor fields will be populated with the default emission factors and emissions for each pollutant will be automatically calculated using the annual fuel usage. Operators should use equipment specific emission factors if available.

The screenshot shows the AER Form B1 web application interface. The main content area is titled "B1 - Permitted Annual Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters". The form contains the following fields and values:

Field	Value
Device Description	add new AER device... East building - Boiler #1
Equipment Code	1a. Boiler <10 MMBTU/HR
Fuel Code	1. Natural Gas (mmcf)
Annual Fuel Usage	18.61
Application Numbers	512345

Pollutant	Emission Factor	Emissions
Organic Gases	5.5	102.36
Nitrogen Oxides	100	1,861.00
Sulfur Oxides	0.6	11.17
Carbon Monoxide	84	1,563.24
Particulate Matter	7.6	141.44

There is a checkbox labeled "Use Default Emissions Factors" which is checked. At the bottom of the form, there are two buttons: "ADD RECORDS" and "CANCEL".

8. Click the "Add Records" button to save the data. The device and its data will appear in the Form B1 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Total emission values in tons are automatically transferred to Form C, line 1 (Example G)

Repeat Step 2 - 8 to add the second boiler rated 15 MMBTU/hr to the report (a single click on the "Add Records" button opens a blank data entry form if it is not visible). Steps are as follows:

- From the Device Description drop down list, select "Add New AER Device" and describe as "East Building - Boiler #2"
- **Equipment code:** Select "1b. Boiler 10 - 100 MMBTU/hr"

- **Fuel Code:** Select "1. Natural gas (mmscf) "
- **Annual Fuel Usage:** Enter "37.21"
- **Application Numbers:** Enter "512346" here.
- **Emission Factors:** Selecting the "Use Default Emission Factors" checkbox to fill in the default emission factors
- Click the "Add Records" button to save the data

Again, repeat Steps 2 - 8 to add the thermal oxidizer to the report as follows (a single click on the "Add Records" button opens a blank data entry form):

- Select "Add New AER Device" from the Device Description drop-down list and enter "Thermal Oxidizer controlling spray booth emissions" as the description.
- **Equipment code:** Select "7b. Afterburner 10 - 100 MMBTU/hr"
- **Fuel Code:** Select "1. Natural gas (mmscf)"
- **Annual Fuel Usage:** Enter "12.57"
- **Application Numbers:** Enter application number "512347" here.
- **Emission Factors:** Select the "Use Default Emission Factors" checkbox to fill in the default emission factors
- Click the "Add Records" button to save the data.

All devices entered are summarized in the data grid below the data entry form:

The screenshot shows the AER FormB1 web application interface. The main content area displays a table titled "B1 - Permitted Annual Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters". The table has columns for device description, application number, equipment code, fuel code, and various emission factors and totals. There are three records listed, with a summary row at the bottom.

#	Device Description	Application No.	Equipment Code	Fuel Code Description	Annual Fuel Usage*	Organic Gases Emission Factor	Organic Gases Emissions Total	Nitrogen Oxides Emission Factor	Nitrogen Oxides Emissions Total	Sulfur Oxides Emission Factor	Sulfur Oxides Emissions Total	Carbon Monoxide Emission Factor	Carbon Monoxide Emissions Total	Partic. Matter Emission Factor	Partic. Matter Emissions Total
1	East building - Boiler #1	512345	1a. Boiler <10 MMBTU/HR	1. Natural Gas (mmscf)	18.61	5.5000	102.35	100.0000	1,861.00	0.6000	11.17	84.0000	1,563.24	7.6000	141.44
2	East Building - Boiler #2	512346	1b. Boiler 10-100 MMBTU/HR	1. Natural Gas (mmscf)	37.21	5.5000	204.66	100.0000	3,721.00	0.6000	22.33	84.0000	3,125.64	7.6000	282.80
3	Thermal Oxidizer controlling spray booth emissions	512347	7b. Afterburner 10-100 MMBTU/HR	1. Natural Gas (mmscf)	12.57	7.0000	87.99	130.0000	1,634.10	0.6000	7.54	35.0000	439.95	7.5000	94.28
Total Emissions in Pounds:							395.00		7,216.10		41.03		5,128.83		518.51
Total Emissions in Tons:							0.2		3.61		0.02		2.56		0.26

Navigation controls at the bottom of the table include: First, Prev, Page 1 of 1 (3 records), Next, Last, Page 1, and Export To Excel.

Example B - Form B2

Form B2U - Non-Permitted Annual Emissions from Fuel Combustion in Internal Combustion Engines and Turbines

During the calendar year subject to reporting, company "A" burned 8,510 gallons of gasoline in its two small stationary engines (generators): a 25 HP 2 stroke-lean burn ICE without catalyst, and a 48 HP 4 stroke-lean burn ICE, with catalyst. The engines are not required to be permitted but the emissions must still be reported on the non-permitted form (Form B2U).

STEPS TO FOLLOW:

1. **Form B2U:** This form can be opened by selecting (single click) the **Form B2U** icon in the left navigation bar. The form opens to the data entry screen.

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2. **Device Description:** From the drop down list, select "**Add new AER device**". A new data field for detail description will appear below. In this example, enter "**25 HP Generator**".
3. **Equipment Code:** From the drop down list, select "**11a. Stationary I.C. Engines, 2 Stroke - Lean Burn**".
4. **Fuel Code:** From the drop down list, select "**4. Gasoline (1000 Gals)**".
5. **Annual Fuel Usage:**

Fuel usage for equipment sharing a fuel with a single use record can be determined as follows:

- a. Convert gasoline usage to thousand gallons:

$$8,510 \text{ gallons} / 1,000 \text{ gallons} = 8.51 \text{ Mgals}$$

- b. Estimate the fuel usage for each ICE using the engine size or rating (HP):

For 25 HP engine: $8.51 \text{ Mgals} \times [(25 / (25 + 48))] = 2.91 \text{ Mgals}$

For 48 HP engine: $8.51 \text{ Mgals} \times [(48 / (25 + 48))] = 5.60 \text{ Mgals}$

c. Enter "2.91" as Annual Fuel Usage for 25 HP Generator.

This is an un-permitted emission source; therefore the "Application Number" field is not available.

6. **Emission Factors and Emissions:** To use the default emission factors in this example, click on the checkbox below the emission factor fields. The emission factor fields will be populated with the default emission factors and emissions for each pollutant will be automatically calculated using the annual fuel usage. Operators should use equipment specific emission factors if available.

The screenshot shows the AER FormB2U web application interface. The main content area is titled "B2U - Non-Permitted Annual Emissions from Fuel Combustion - Internal Combustion Engines and Turbines". The form includes the following fields and data:

Field	Value
Device Description	25 HP Generator
Equipment Code	11a. Stationary I.C. Engines, 2 S
Fuel Code	4. Gasoline (1000 gals)
Annual Fuel Usage	2.91

Pollutant	Emission Factor	Emissions
Organic Gases	206	599.46
Nitrogen Oxides	102	296.82
Sulfur Oxides	5.3	15.42
Carbon Monoxide	3940	11,465.40
Particulate Matter	6.5	18.92

The "Use Default Emissions Factors" checkbox is checked. The "ADD RECORDS" button is highlighted in blue. The footer of the page contains contact information for AER-Web and the address: 21865 Copley Dr, Diamond Bar, CA 91765.

7. Click on the "Add Records" button to save the data. The device and its data will appear in the Form B2U grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid.

AER FormB2U - Windows Internet Explorer provided by South Coast A.Q.M.D

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http://www2dev/webappl/aer/FormB1.aspx?FormID=B2U

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B2U - Non-Permitted Annual Emissions from Fuel Combustion - Internal Combustion Engines and Turbines

ADD RECORDS

#	Device Description	Equipment Code	Fuel Code Description	Annual Fuel Usage	Organic Gases Emission Factor	Organic Gases Emissions Total	Nitrogen Oxides Emission Factor	Nitrogen Oxides Emissions Total	Sulfur Oxides Emission Factor	Sulfur Oxides Emissions Total	Carbon Monoxide Emission Factor	Carbon Monoxide Emissions Total	Partic. Matter Emission Factor	Partic. Matter Emissions Total
1	25 HP Generator	11a. Stationary I.C. Engines, 2 Stroke-Lean Burn	4. Gasoline (1000 gals)	2.91	206.0000	599.46	102.0000	296.82	5.3000	15.42	3,940.0000	11,465.40	6.5000	18.92
Total Emissions in Pounds:						599.46		296.82		15.42		11,465.40		18.92
Total Emissions in Tons:						0.3		0.15		0.01		5.73		0.01

First Prev Page 1 of 1 (1 records) Next Last Page 1 Export To Excel

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To add the 48 HP engine to the report, repeat Steps 2 - 7 as follows (a single click on the "Add Records" button opens a blank data entry form):

- From the **Device Description** drop down list, select "Add New AER Device" and describe as "48 HP Generator"
- **Equipment code:** Select "11d. Stationary I.C. Engines, 4 Stroke - Lean Burn, with Catalyst"
- **Fuel Code:** Select "4. Gasoline (1000 gallons) "
- **Annual Fuel Usage:** Enter "5.60"
- **Emission Factors:** Selecting the "Use Default Emission Factors" checkbox to fill in the default emission factors
- Click on the "Add Records" button to save the data. The device and its data will appear in the Form B2U grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to Form CU, line 2 ([Example H](#)).



FACILITY : 999999 Year 2010 +

B2U - Non-Permitted Annual Emissions from Fuel Combustion - Internal Combustion Engines and Turbines

ADD RECORDS

#	Device Description	Equipment Code	Fuel Code Description	Annual Fuel Usage	Organic Gases Emission Factor	Organic Gases Emissions Total	Nitrogen Oxides Emission Factor	Nitrogen Oxides Emissions Total	Sulfur Oxides Emission Factor	Sulfur Oxides Emissions Total	Carbon Monoxide Emission Factor	Carbon Monoxide Emissions Total	Partic. Matter Emission Factor	Partic. Matter Emissions Total
1	25 HP Generator	11a. Stationary I.C. Engines, 2 Stroke-Lean Burn	4. Gasoline (1000 gals)	2.91	206.0000	599.46	102.0000	296.82	5.3000	15.42	3,940.0000	11,465.40	6.5000	18.92
2	48 HP Generator	11d. Stationary I.C. Engines, 4 Stroke-Lean Burn, with Catalyst	4. Gasoline (1000 gals)	5.60	206.0000	1153.6	102.0000	571.20	5.3000	29.68	3,940.0000	22,064.00	6.5000	36.40
Total Emissions in Pounds:						1,753.06		868.02		45.10		33,529.40		55.32
Total Emissions in Tons:						0.88		0.43		0.02		16.76		0.03

First Prev Page 1 of 1 (2 records) Next Last Page 1 Export To Excel

- B Forms
 - B1
 - B1U
 - B2
 - B2U
 - B3
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 - S
 - WT
 - X
 - Waste
 - W
 - WU
- Not Started
 - Started

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Example C - Form B3

Form B3 - Permitted Annual Emissions from the Use of Organics

During the calendar year subject to reporting, company "A"

- Sprayed 2,250 gallons of primer (Base 8868) inside the spray booth (Coater 100B),
- Sprayed 1,080 gallons of enamel (Hi-Gloss 1005) inside the spray booth (Coater 100B),
- Used 3,217 gallons of MEK for surface preparation (density = 6.7 lbs/gal).

Material Safety Data Sheets (MSDS) indicate the following:

- a) Primer (VOC content = 3.67 lbs/gal, material density = 8.6 lbs/gal, and solids content = 45% by weight) contains 2.7% by weight hexavalent chromium (Cr+6),
- b) Enamel (VOC content = 2.20 lbs/gal, material specific gravity = 0.895, and solids content = 33% by weight) contains 25% by weight 1,1,1-TCA.

STEPS TO FOLLOW:

1. **Form B3:** This form can be opened by selecting (single click) the **Form B3** icon in the left navigation bar. The form opens to the data entry screen.

The screenshot shows the AER FormB3 web application interface. The browser window title is "AER FormB3 - Windows Internet Explorer provided by South Coast A.Q.M.D". The address bar shows "http://www2dev/webappl/aer/FormB3.aspx?FormID=B3&GridPage=". The page header includes "South Coast Air Quality Management District" and "avillena@aqmd.gov ARMANDO A VILLENNA". The main content area is titled "B3 - Permitted Annual Emissions from the Use of Organics". It features a left navigation pane with "B Forms" (B1, B2, B2U, B3, B4, B6, B7, B7U) and "TAC Forms" (TAC, TACS). The main form has several input fields: "Material and Device description" (dropdown), "Material Code" (dropdown), "Activity Code" (dropdown), "Annual Material Usage" (text input), "Units" (dropdown), "Rule Number" (text input), and "Application Numbers" (text input). On the right, there are "Overall Control Efficiency" (0.00), "Emission Factor" (dropdown set to "Organic Gases Emission factor"), "Emission Factor Value" (text input), and "Gases Total" (text input). There is a checkbox for "Use Default Emissions Factor". At the bottom, there are "ADD RECORDS" and "CANCEL" buttons. A footer contains contact information: "21865 Copley Dr, Diamond Bar, CA 91765 - (909) 396-2000 - (800) CUT-SMOG (288-7664)" and the time "1:51 PM".

2. **Device Description:** Select "Add new AER device" from the drop-down list. A new data field for detail description will appear below. In this example, enter "Spray Booth 100B".
3. **Material Code:** Select "120. Primer" from the drop-down list for primer Base 8868.
4. **Activity Code:** Select "5. Metal Coating" from the drop-down list.
5. **Annual Material Usage:** Enter "2250" gallons for primer.
6. **Units Code:** Select "2" for gallons from the drop-down list.

7. **Rule Number:** Enter "1107" for coating of metal parts and products.
8. **Application Numbers:** Enter application number "512348" for spray booth 100B.
9. **TAC/ODC:** This primer contains Cr+6, which is a toxic particulate matter (PM), not a toxic organic. The TAC/ODC checkbox on this form is left blank (See [Example G](#) for toxic PM)
10. **Emission Factors:** Select "**Organic Gases Emission Factor**" from the dropdown list.
11. **Emission Factor Value:** Enter "3.67" in this field for Base 8868.
12. **Overall Control Efficiency:** VOC emissions from this source are controlled by a thermal oxidizer. Enter the control system overall efficiency as a decimal number. In this example, enter "0.967" for 96.7%. The amount of Organic Gases emitted are automatically calculated (the annual material usage multiplied by the emission factor and reduced by the overall control efficiency of the control equipment).

The screenshot shows the AER Form B3 web application interface. The main content area is titled "B3 - Permitted Annual Emissions from the Use of Organics". The form contains the following fields and values:

- Material and Device description: **Spray Booth 100B**
- Material Code: **120. Primer**
- Activity Code: **5. Metal Coating**
- Annual Material Usage: **2250.00**
- Units: **2. gallon**
- Rule Number: **1107**
- Application Numbers: **512348**
- TAC/ODC:
- Overall Control Efficiency: **0.9670**
- Emission Factor: **Organic Gases Emission Factor**
- Emission Factor Value: **3.6700**
- Gases Total: **272.50**

Buttons for "ADD RECORDS" and "CANCEL" are located at the bottom of the form. A legend on the left side of the page indicates that green boxes represent "Not Started" and black boxes represent "Started".

13. Click on the "**Add Records**" button to save the data. The device and its data will appear in the Form B3 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 3 ([Example G](#)).

Repeat Step 2 - 13 for reporting emissions from the use of enamel in the same spray booth as follows (a single click on the "**Add Records**" button opens a blank data entry form):

- **Device Description:** From the drop down list, select the device "**Spray Booth 100B**". The Device Description, Activity Code, and Application Number fields are automatically filled in.
- **Material Code:** Select "**112. Enamel**" from the drop-down list for enamel Hi-Gloss 1005
- **Annual Material Usage:** Enter "**1080**"
- **Units:** Select "**2. gallon**" from the drop-down list
- **Rule Number:** Enter "**1107**" for the use of coating materials in a spray booth

- **TAC/ODC:** mark this checkbox since the enamel contains 25% organic toxics, such as 111-TCA.
- **Overall Control Efficiency:** enter "**0.967**"
- **Emission Factor:** Enter "**2.20**" as the organic gases emission factor for enamel Hi-Gloss 1005

B3 - Permitted Annual Emissions from the Use of Organics

Material and Device description: Spray Booth 100B
 Material Code: 112. Enamel
 Activity Code: 5. Metal Coating
 Annual Material Usage: 1080.00
 Units: 2. gallon
 Rule Number: 1107
 Application Numbers: 512348
 TAC/ODC:

Overall Control Efficiency: 0.9670
 Emission Factor: Organic Gases Emission Factor
 Emission Factor Value: 2.2000
 Gases Total: 78.41

Use Default Emissions Factor

ADD RECORDS **CANCEL**

#	Device Description	Material Description	Activity Code	TAC/ODC	Rule Number	Annual Usage	Unit Code	Overall Control Efficiency	Organic Gases Emission Factor	Organic Gases Emissions Total	Specific Organics Emission Factor	Specific Organics Emissions Total
1	Spray Booth 100B	Primer	5. Metal Coating	<input checked="" type="checkbox"/>	1107	2,250.00	2. gallon	0.9670	3.6700	272.50	0.0000	0.00
SUBTOTAL EMISSION(lbs):										272.50		0.00
Waste Credit (lbs) from Form W:										0.00		
Net Emissions in Pounds:										272.50		
Net Emissions in Tons:										0.14		

- Click on the "**Add Records**" button to save the data. The device and its data will appear in the Form B3 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 3 ([Example G](#)).

Repeat Step 2 - 13 for reporting emissions from the use of MEK for surface preparation outside the spray booth (a single click on the "**Add Records**" button opens a blank data entry form):

- **Device Description:** Select "**Add new AER device**" from the drop-down list. A new data field for detail description will appear below. In this example, enter "**Product Surface Preparation using the best available solvent**".
- **Material Code:** Select "**336. MEK**" from the drop-down list.
- **Activity Code:** Select "**0. Surface Preparation / Process Cleaning**" from the drop-down list.
- **Annual Material Usage:** Enter "**3217**" gallons for primer.
- **Units Code:** Select "**2**" for gallons from the drop-down list.
- **Rule Number:** Enter "**1171**" for solvent cleaning.
- **Application Numbers:** Since the products are from the same spray booth, enter application number "**512348**".
- **TAC/ODC:** Do not mark this checkbox since MEK solvent does not contain toxic air contaminants.
- **Overall Control Efficiency:** Enter "**0.00**" since the MEK is used outside the spray booths and is not controlled by the thermal oxidizer.

- **Emission Factor:** Enter "6.70" here. MEK is pure solvent with 100% VOC, so the emission factor equals the density of 6.7 lbs/gal. This value can also be found as default factor by checking the "Use Default Emission Factor" checkbox.

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B3 - Permitted Annual Emissions from the Use of Organics

Material and Device description: add new AER device...
Product Surface Preparation using t

Material Code: 336. MEK
Activity Code: 0. Surface Preparation / Process
Annual Material Usage: 3217.00
Units: 2. gallon
Rule Number: 1171
Application Numbers: 512348

Overall Control Efficiency: 0.00
Emission Factor: Organic Gases Emission Factor
Emission Factor Value: 6.7000
Gases Total: 21,553.90

Use Default Emissions Factor

ADD RECORDS CANCEL

#	Device Description	Material Description	Activity Code	TAC/ODC	Rule Number	Annual Usage	Unit Code	Overall Control Efficiency	Organic Gases Emission Factor	Organic Gases Emissions Total	Specific Organics Emission Factor	Specific Organics Emissions Total
X 1	Spray Booth 100B	Primer	S. Metal Coating	N	1107	2,250.00	2. gallon	0.9670	3.6700	272.50	0.0000	0.00
X 2	Spray Booth 100B	Enamel	S. Metal Coating	Y	1107	1,060.00	2. gallon	0.9670	2.2000	78.41	0.0000	0.00
SUBTOTAL EMISSIONS(lbs):										350.91		0.00
Waste Credit (lbs) from Form W:										0.00		
Net Emissions in Pounds:										350.91		
Net Emissions in Tons:										0.18		

- Click on the "Add Records" button to save the data. The device and its data will appear in the Form B3 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 3 ([Example G](#)).

Repeat Step 2 - 13 for reporting emissions from the operation of a solvent degreaser (a single click on the "Add Records" button opens a blank data entry form):

- **Device Description:** Select "Add new AER device" from the drop-down list. A new data field for detail description will appear below. In this example, enter "Degreaser 99A using Percholoethylene".
- **Material Code:** Select "993. Other Solvent" from the drop-down list.
- **Activity Code:** Select "2. Degreasing" from the drop-down list.
- **Annual Material Usage:** Enter "425" for solvent.
- **Units Code:** Select "2" for gallons from the drop-down list.
- **Rule Number:** Enter "1171" for solvent cleaning.
- **Application Numbers:** Enter application number "512402".
- **TAC/ODC:** Mark this checkbox since this solvent contains a toxic air contaminant (PERC).
- **Overall Control Efficiency:** Enter "0.00".
- **Emission Factor:** Enter "0.00" here. PERC is pure solvent with 100% TAC, which will be reported on Form TAC ([Example E](#))

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http://www2dev/webappl/aer/FormB3.aspx?FormID=B3&GridPage=1

South Coast Air Quality Management District
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Form Data Entry Form Selection Submission Review Forms & Reports Manage Users Device Management Flag Report Help & Support Home

FACILITY : 999999 Year 2010 +

B3 - Permitted Annual Emissions from the Use of Organics

Material and Device description: **add new AER device...**
Degreaser 99A using Perchloroethyl

Material Code: **993. Other Solvent Material - Use**

Activity Code: **2. Degreasing**

Annual Material Usage: **425.00**

Units: **2. gallon**

Rule Number: **1171**

Application Numbers: **512402**

Overall Control Efficiency: **0.00**

Emission Factor: **Organic Gases Emission Factor**

Emission Factor Value: **0.0000**

Gases Total: **0.00**

Use Default Emissions Factor

ADD RECORDS **CANCEL**

Required Fields
Do not include comma in numeric fields.

#	Device Description	Material Description	Activity Code	TAC/ODC	Rule Number	Annual Usage	UnitCode	Overall Control Efficiency	Organic Gases Emission Factor	Organic Gases Emissions Total	Specific Organics Emission Factor	Specific Organics Emissions Total
X	1 Spray Booth 100B	Primer	5. Metal Coating	N	1107	2,250.00	2. gallon	0.9670	3.6700	272.50	0.0000	0.00
X	2 Spray Booth 100B	Enamel	5. Metal Coating	Y	1107	1,080.00	2. gallon	0.9670	2.2000	78.41	0.0000	0.00
X	3 Product Surface Preparation using the best available solvent	MEK	0. Surface Preparation / Process Cleaning	N	1171	3,217.00	2. gallon	0.0000	6.7000	21,553.90	0.0000	0.00

- Click on the "Add Records" button to save the data. The device and its data will appear in the Form B3 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 3 ([Example G](#)).

AER FormB3 - Windows Internet Explorer provided by South Coast A.Q.M.D

http://www2dev/webappl/aer/FormB3.aspx?FormID=B3&GridPage=1

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B3 - Permitted Annual Emissions from the Use of Organics

ADD RECORDS

#	Device Description	Material Description	Activity Code	TAC/ODC	Rule Number	Annual Usage	UnitCode	Overall Control Efficiency	Organic Gases Emission Factor	Organic Gases Emissions Total	Specific Organics Emission Factor	Specific Organics Emissions Total
X	1 Spray Booth 100B	Primer	5. Metal Coating	N	1107	2,250.00	2. gallon	0.9670	3.6700	272.50	0.0000	0.00
X	2 Spray Booth 100B	Enamel	5. Metal Coating	Y	1107	1,080.00	2. gallon	0.9670	2.2000	78.41	0.0000	0.00
X	3 Product Surface Preparation using the best available solvent	MEK	0. Surface Preparation / Process Cleaning	N	1171	3,217.00	2. gallon	0.0000	6.7000	21,553.90	0.0000	0.00
X	4 Degreaser 99A using Perchloroethylene	Other Solvent Material - Use ONLY MSDS	2. Degreasing	Y	1171	425.00	2. gallon	0.0000	0.0000	0.00	0.0000	0.00
SUBTOTAL EMISSION(lbs):										21,904.81		0.00
Waste Credit (lbs) from Form W:										0.00		0.00
Net Emissions in Pounds:										21,904.81		10.95

First Prev Page 1 of 1 (4 records) Next Last Page 1 **Export To Excel**

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Note that the presence of any organic TAC/ODC (in this case, PERC and 1,1,1-TCA in the enamel) must be identified on this form, B3; the TAC/ODC emissions associated with PERC and 1,1,1-TCA must be reported on Form TAC using the B3 reference. The PM emissions associated

with the primer spray coating operation must be reported on Form B4, and the toxic portion of the PM emissions (hexavalent chromium) must be reported on Form TAC using the B4 reference.

Example D - Form B4

Form B4 - Permitted Annual Emissions from Miscellaneous Sources

This example illustrates how PM emissions from coating and plating operations, and VOC emissions from a small above-ground storage tank are calculated and reported on this form. During this reporting period, Company "A":

- Pumped 3,750 gallons of MEK through its storage tank (tank capacity = 2000 gallons, tank height = 8 ft).
- Recorded 1,336,750 ampere-hours for a hard-chrome plating process using chemical fume suppressant solution Fumetrol 140.

Operators should use specific material properties and equipment design parameters, if available, to determine emission factors; otherwise, use default factors provided in the instructions.

STEPS TO FOLLOW:

1. **Form B4:** This form can be opened by selecting (single click) the **Form B4** icon in the left navigation bar. The form opens to the data entry screen.

2. **Process Description:** Enter "**Spray primer in 100B booth**"
3. **Activity Code:** Select "**36. Spray Booth - Particulate Emissions**" from the drop-down list
4. **Annual Throughput:** Enter "**2250**"
5. **Unit Code:** Select "**2. gallon**" from the drop-down list
6. **Rule Number:** Enter "**1107**" for the use of primer in metal products coating operations
7. **TAC/ODC:** Mark the checkbox since the primer contains a particulate toxic (i.e., hexavalent chromium) as calculated in [Example E](#).
8. **Application Numbers:** Enter "**512348**" for the same permitted spray booth

9. **Emission Factors:** Please refer to technical guidance documents for default PM emission factors for coating operations, plating operations, and the emissions calculation methodology and loss factors for small storage tanks.

In this example, the primer is sprayed in an enclosed spray booth with conventional filters at 90% control efficiency. The PM emission factor is determined as follows:

$$8.6 \text{ lbs coating/gallon coating} * 0.45 \text{ lb solid/lb coating} * (1 - 0.90) = 0.39 \text{ lb solid/gallon coating}$$

Enter "**0.39**" in the Particulate Matter emission factor field and "**0**" in the emission factor field for all the other pollutants.

The screenshot shows the AER FormB4 web application interface. The main form is titled "B4 - Permitted Annual Equipment Emissions from Miscellaneous Sources". The form contains the following fields and values:

- Process Description: Spray primer in 100B booth
- Activity Code: 36. Spraybooth - Particulate emi
- Annual Throughput: 2250
- Unit Code: 2. gallon
- Rule Number: 1107
- TAC/ODC:
- Application Numbers: 512348

The Emission Factors table is as follows:

Emission Factor	Emissions
Organic Gases: 0.0000	0.00
Specific Organics: 0.0000	0.00
Nitrogen Oxides: 0.0000	0.00
Sulfur Oxides: 0.0000	0.00
Carbon Monoxide: 0.0000	0.00
Particulate Matter: 0.3900	877.50

Buttons for "ADD RECORDS" and "CANCEL" are visible at the bottom of the form. A legend on the left indicates that green boxes represent "Not Started" and grey boxes represent "Started".

10. Click on the "**Add Records**" button to save the data. The device and its data will appear in the Form B4 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 4 ([Example G](#)).

Repeat steps 2 - 9 to add PM emissions from the use of enamel primer in the spray booth (a single click on the "**Add Records**" button opens a blank data entry form).

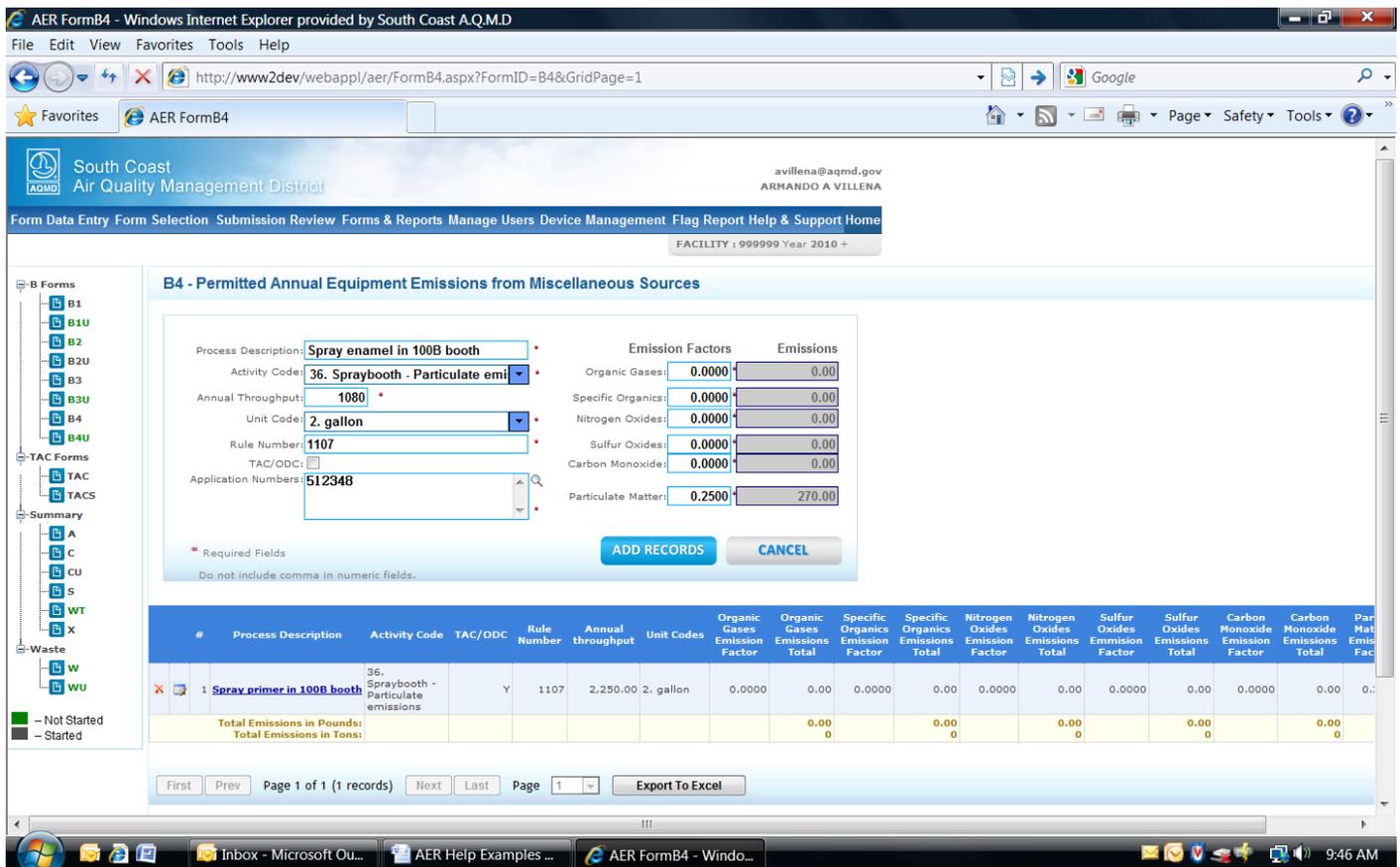
- **Process Description:** Enter "**Spray enamel in 100B booth**"
- **Activity Code:** Select "**36. Spray Booth - Particulate Emissions**" from the drop-down list
- **Annual Throughput:** Enter "**1080**"
- **Unit Code:** Select "**2. gallon**" from the drop-down list
- **Rule Number:** Enter "**1107**" for the use of enamel in metal products coating operations
- **TAC/ODC:** Do not mark the TAC/ODC checkbox for enamel since the 1,1,1-TCA contained in the enamel is already identified on Form B3 ([Example C](#)) and calculated on Form TAC ([Example E](#)).

- **Application Numbers:** Enter "512348" for the same permitted spray booth.
- **Emission Factors:** The primer is sprayed in an enclosed spray booth with conventional filters at 90% control efficiency. The PM emission factor is determined as follows:

Density of enamel = 0.895 * 8.34 lbs/gallon = 7.47 lbs coating/gallon coating

7.47 lbs coating/gallon coating * 0.33 lb solid/lb coating * (1 - 0.90) = 0.25 lb solid/gallon coating

Enter "0.25" in the Particulate Matter emission factor field and "0" in the emission factor field for all the other pollutants.



- Click on the "Add Records" button to save the data. The device and its data will appear in the Form B4 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 4 ([Example G](#)).

The following steps describe how to add PM emissions from a plating process. If a blank data entry screen is not shown, a single click on Add Records button will open a blank data entry form:

- **Process Description:** Enter "Custom Designed Hard-chrome".
- **Activity Code:** Select "5a. Plating Process - Hexavalent Chromium" from the drop-down list.
- **Annual Throughput:** Enter "1336.75".
- **Unit Code:** Select "8. 1000 Amp-hr" from the drop-down list.
- **Rule Number:** Enter "1469" for plating operations.
- **TAC/ODC:** Mark the checkbox because of the presence of hexavalent chromium in the plating material.
- **Application Number:** Enter "542400".

- **Emission Factors:** Please refer to technical guidance documents for PM emission factors and control efficiencies for plating operations. In this example, the controlled emission factor for plating with the use of Fumetrol 140 is 0.000045 lbs/1000 Amp-hr. Enter "0.000045" as the PM emission factor field and "0" as the emission factor for all other pollutants.

B4 - Permitted Annual Equipment Emissions from Miscellaneous Sources

Process Description: Custom Designed Hard-chrome
 Activity Code: 5a. Plating Process - Hexavalent
 Annual Throughput: 1336.75
 Unit Code: 8. 1000 amp-hour
 Rule Number: 1469
 TAC/ODC:
 Application Numbers: 542400

	Organic Gases:	Specific Organics:	Nitrogen Oxides:	Sulfur Oxides:	Carbon Monoxide:	Particulate Matter:
Emission Factors	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Emissions	0.00	0.00	0.00	0.00	0.00	0.00

#	Process Description	Activity Code	TAC/ODC	Rule Number	Annual throughput	Unit Codes	Organic Gases Emission Factor	Organic Gases Emissions Total	Specific Organics Emission Factor	Specific Organics Emissions Total	Nitrogen Oxides Emission Factor	Nitrogen Oxides Emissions Total	Sulfur Oxides Emission Factor	Sulfur Oxides Emissions Total	Carbon Monoxide Emission Factor	Carbon Monoxide Emissions Total	Particulate Matter Emission Factor	Particulate Matter Emissions Total
1	Spray primer in 100B booth	36. Spraybooth - Particulate emissions	Y	1107	2,250.00	2. gallon	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00
2	Spray enamel in 100B booth	36. Spraybooth - Particulate emissions	N	1107	1,080.00	2. gallon	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00	0.0000	0.00
Total Emissions in Pounds:								0.00		0.00		0.00		0.00		0.00		0.00
Total Emissions in Tons:								0		0		0		0		0		0

NOTE: Particulate Matter emission factor should be 0.000045 (not round off to zero).

- Click on the "Add Records" button to save the data. The device and its data will appear in the Form B4 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 4 (Example G).

The following steps are for adding VOC emissions from an MEK storage tank. If a blank data entry screen is not shown, single click on the "Add Records" button will open a blank data entry form:

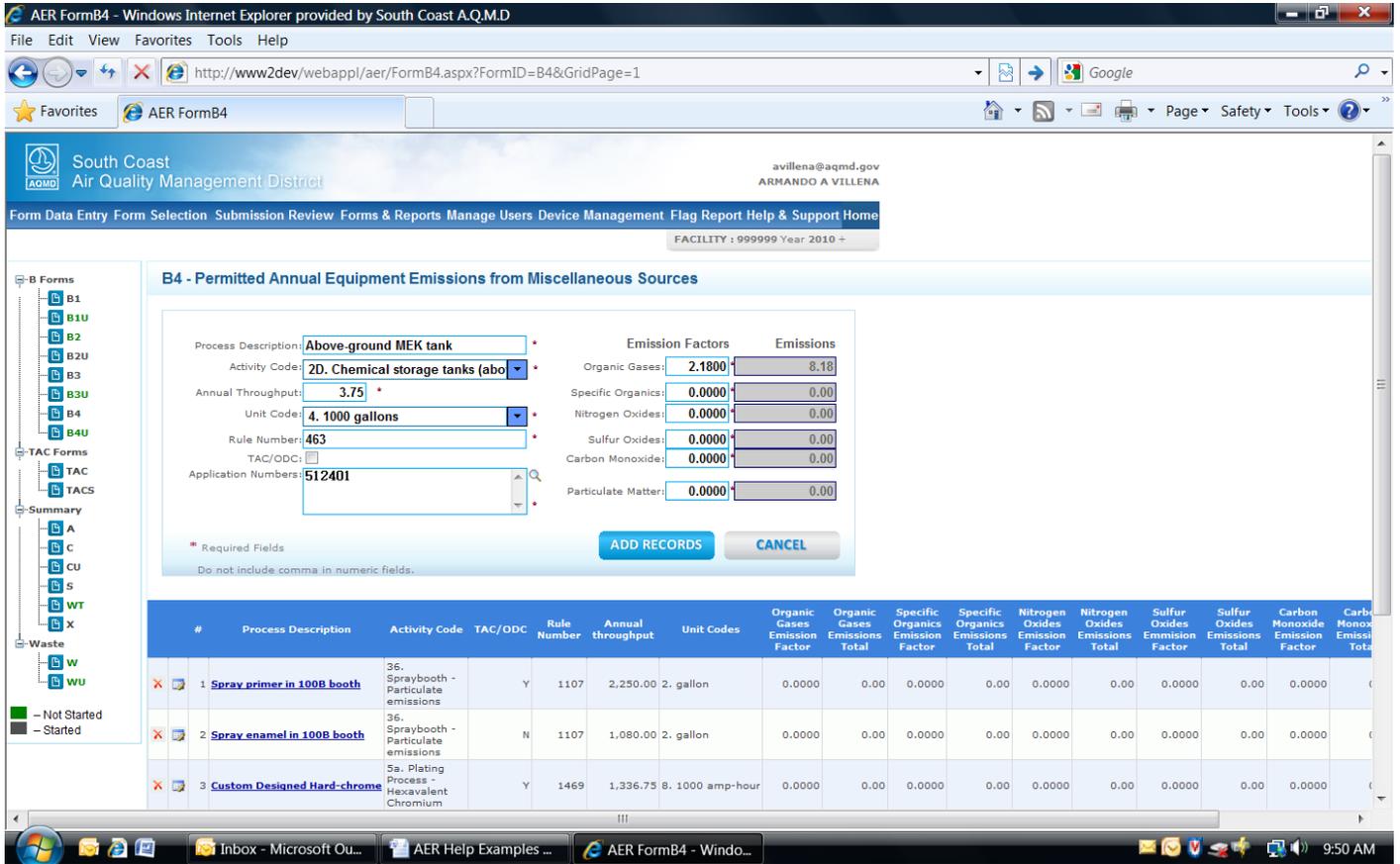
- **Process Description:** Enter "Above-ground MEK tank"
- **Activity Code:** Select "2D. Chemical Storage Tanks" from the drop-down list
- **Annual Throughput:** Enter "3.75"
- **Unit Code:** Select "4. 1000 gallons"
- **Rule Number:** Enter "463"
- **TAC/ODC:** Do not mark the checkbox since there is no toxic organic presence in the MEK in storage tank.
- **Application Numbers:** Enter "512401"
- **Emission Factors:** VOC emission factor is determined as follows:

In this example, annual throughput Q = 3.75 Mgal, tank capacity C = 2.00 Mgal, and tank height H = 8 ft. From Appendix K, the loss factors for MEK are: a = 0.022, b = 0.033, and f = 2.173.

Substitute these parameters in Equation 2 of the emissions calculation methodology and loss factors for small storage tanks to calculate the VOC emission factor for your tank:

$$EF = (a * (C / Q) / [1 + (b * H)]) + f = (0.022 * (2.00/3.75) / [1 + (0.033 * 8)]) + 2.173 = 2.18 \text{ lb/1000 gallons}$$

Enter "2.18" for the VOC emission factor and "0" for other contaminants.



- Click on the "Add Records" button to save the data. The device and its data will appear in the Form B4 grid and Total Emissions in both pounds and tons are automatically calculated at the bottom of the grid. Emissions in tons are automatically transferred to form C, line 4 (Example G).

Example E - Form TAC

Form TAC - Toxic Air Contaminants/Ozone Depleters Emission by Emission Source

Form TAC is automatically populated with toxic emissions associated with certain combustion processes reported on criteria forms only if default toxic emission factors are available (see Default Toxic Emission Factors for Natural Gas Combustion Equipment; Gasoline Combustion Equipment; Jet Fuel Combustion; Diesel/Distillate Oil Combustion; LPG, Butane, or Propane Combustion; and Landfill Gas Combustion); otherwise the toxic emission factors must be entered manually. **Toxic emission factors for all other types of emission sources must be manually added to form TAC.**

STEPS TO FOLLOW:

- Combustion toxics:** Form TAC is automatically populated with toxics associated with fuel combustion sources (i.e., boilers, afterburners, ICEs) as shown in the grid on Form TAC with form references B1-1, B1-2, B1-3, B2U-1, and B2U-2. Note that Form references are repeated for the each default toxic air contaminant.

TAC - Toxic Air Contaminants & Ozone Depleters by Reference Numbers

#	Form ID	Device Description	TAC Code	CAS#	Annual Usage	Emission Factor	Control Efficiency (Fraction)	Annual Gross Emission
1	B1-1	East building - Boiler #1	02-Benzene	71432	18.61	0.008000000	0.0000	0.1489
2	B1-1	East building - Boiler #1	12-Formaldehyde	50000	18.61	0.017000000	0.0000	0.3164
3	B1-1	East building - Boiler #1	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	18.61	0.000100000	0.0000	0.0019
4	B1-1	East building - Boiler #1	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	18.61	0.000300000	0.0000	0.0056
5	B1-1	East building - Boiler #1	32-Ammonia	7664417	18.61	18.000000000	0.0000	334.9800
6	B1-2	East Building - Boiler #2	02-Benzene	71432	37.21	0.005800000	0.0000	0.2158
7	B1-2	East Building - Boiler #2	12-Formaldehyde	50000	37.21	0.012300000	0.0000	0.4577
8	B1-2	East Building - Boiler #2	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	37.21	0.000100000	0.0000	0.0037
9	B1-2	East Building - Boiler #2	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	37.21	0.000300000	0.0000	0.0112
10	B1-2	East Building - Boiler #2	32-Ammonia	7664417	37.21	18.000000000	0.0000	669.7800
11	B1-3	Thermal Oxidizer controlling sprayer booth emissions	02-Benzene	71432	12.57	0.005800000	0.0000	0.0729
12	B1-3	Thermal Oxidizer controlling sprayer booth emissions	12-Formaldehyde	50000	12.57	0.012300000	0.0000	0.1546
13	B1-3	Thermal Oxidizer controlling sprayer booth emissions	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	12.57	0.000100000	0.0000	0.0013
14	B1-3	Thermal Oxidizer controlling sprayer booth emissions	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	12.57	0.000300000	0.0000	0.0038
15	B1-3	Thermal Oxidizer controlling sprayer booth emissions	32-Ammonia	7664417	12.57	18.000000000	0.0000	226.2600

AER FormTAC - Windows Internet Explorer provided by South Coast A.Q.M.D

http://www2dev/webappl/aer/FormTAC.aspx?FormID=TAC

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FACILITY : 999999 Year: 2010

TAC - Toxic Air Contaminants & Ozone Depleters by Reference Numbers

ADD RECORDS

#	Form ID	Device Description	TAC Code	CAS#	Annual Usage	Emission Factor	Control Efficiency (Fraction)	Annual Gross Emission
1	B1-1	East building - Boiler #1	02-Benzene	71432	18.61	0.008000000	0.0000	0.1489
2	B1-1	East building - Boiler #1	12-Formaldehyde	50000	18.61	0.017000000	0.0000	0.3164
3	B1-1	East building - Boiler #1	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	18.61	0.000100000	0.0000	0.0019
4	B1-1	East building - Boiler #1	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	18.61	0.000300000	0.0000	0.0056
5	B1-1	East building - Boiler #1	32-Ammonia	7664417	18.61	18.000000000	0.0000	334.9800
6	B1-2	East Building - Boiler #2	02-Benzene	71432	37.21	0.005800000	0.0000	0.2158
7	B1-2	East Building - Boiler #2	12-Formaldehyde	50000	37.21	0.012300000	0.0000	0.4577
8	B1-2	East Building - Boiler #2	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	37.21	0.000100000	0.0000	0.0037
9	B1-2	East Building - Boiler #2	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	37.21	0.000300000	0.0000	0.0112
10	B1-2	East Building - Boiler #2	32-Ammonia	7664417	37.21	18.000000000	0.0000	669.7800
11	B1-3	Thermal Oxidizer controlling spray booth emissions	02-Benzene	71432	12.57	0.005800000	0.0000	0.0729
12	B1-3	Thermal Oxidizer controlling spray booth emissions	12-Formaldehyde	50000	12.57	0.012300000	0.0000	0.1546
13	B1-3	Thermal Oxidizer controlling spray booth emissions	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	12.57	0.000100000	0.0000	0.0013
14	B1-3	Thermal Oxidizer controlling spray booth emissions	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	12.57	0.000300000	0.0000	0.0038
15	B1-3	Thermal Oxidizer controlling spray booth emissions	32-Ammonia	7664417	12.57	18.000000000	0.0000	226.2600
16	B2U-1	25 HP Generator	02-Benzene	71432	2.91	3.806100000	0.0000	11.0758
17	B2U-1	25 HP Generator	04-1,3-Butadiene	106990	2.91	0.918300000	0.0000	2.6723
18	B2U-1	25 HP Generator	12-Formaldehyde	50000	2.91	3.452000000	0.0000	10.0453
19	B2U-1	25 HP Generator	17-Nickel	7440020	2.91	0.003300000	0.0000	0.0096
20	B2U-1	25 HP Generator	19-polynuclear Aromatic Hydrocarbons (PAHs)	91203	2.91	0.143800000	0.0000	0.4185
21	B2U-2	48 HP Generator	02-Benzene	71432	5.60	0.156400000	0.0000	0.8758
22	B2U-2	48 HP Generator	04-1,3-Butadiene	106990	5.60	0.032200000	0.0000	0.1803
23	B2U-2	48 HP Generator	12-Formaldehyde	50000	5.60	0.100700000	0.0000	0.5639
24	B2U-2	48 HP Generator	17-Nickel	7440020	5.60	0.003300000	0.0000	0.0185
25	B2U-2	48 HP Generator	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	5.60	0.002900000	0.0000	0.0162

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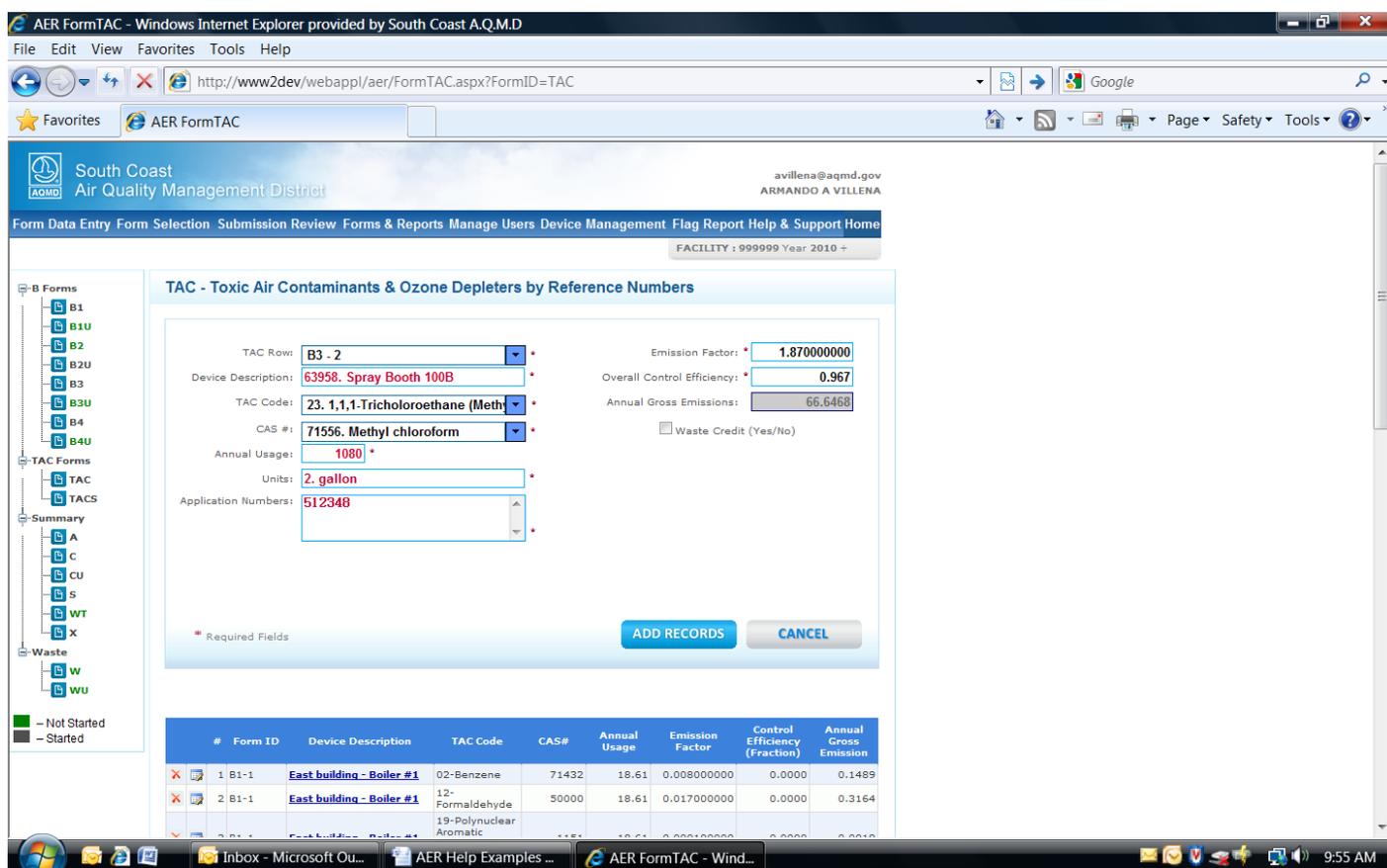
2. **Other toxics:** If a blank data entry screen is not shown, single click on the "Add Records" button to open a blank form.

- a. **TAC Row:** Reference numbers for other emission sources that contain TAC/ODC can be selected from the drop-down list. For the first TAC entry, select reference number **B3-2** for TAC in enamel. The device description, annual usage, and application numbers are automatically filled in from the Form B3 data.

- b. **TAC Code:** Select "**23. 1,1,1-Trichloroethane**" from the TAC Code drop-down list; CAS # 71556 is automatically filled in.
- c. **Unit Code** should be the same as on the originating form; select "**2**" for gallons in this example.
- d. **Emission Factor (EF)** is calculated as follows:

$$EF = 8.345 \text{ lbs/gal} * \text{material specific gravity} * \text{weight fraction of solvent}$$

$$EF = 8.345 \text{ lbs/gal} * 0.895 * 0.25 = 1.87 \text{ lbs/gal.}$$
 Enter "**1.87**" in the Emission Factor field.
- e. **Overall Control Efficiency:** As indicated in Example C, reference point B3-2 (with 111-TCA) is controlled by the thermal oxidizer with 96.7% overall efficiency. Enter "**0.967**" here
- f. 111-TCA emissions are calculated as shown,



- g. **Waste Credit:** Leave blank
- h. Click the "**Add Records**" button to save the data. The device and its data will appear in the grid and Annual Gross Emissions in pounds are automatically calculated. Emissions in tons are automatically transferred to form TACS ([Example F](#)).

Repeat steps 2.a. - 2.g. to add the next TAC identified by reference number on the drop-down list:

- **TAC Row:** The next TAC entry is identified by reference number **B3-4** for PERC degreaser. The device description, annual usage, and application numbers are automatically filled in from the Form B3 data.
- **TAC Code:** Select "**18. Perchloroethylene**" from the TAC Code drop-down list; CAS # 127184 is automatically filled in.
- **Unit Code** should be the same as on the originating form; select "**2**" for gallon in this example.

- **Emission Factor (EF):** Enter "**0.23**", which is calculated as follows:
 $EF = 8.6 \text{ lbs/gal} * \text{weight fraction of hex chrome}$
 $EF = 8.6 \text{ lbs/gal} * 0.027 = 0.23 \text{ lbs/gal}$
- **Overall Control Efficiency:** Enter "**0.00**" here
- PERC emissions are calculated as shown
- **Waste Credit:** Leave blank

#	Form ID	Device Description	TAC Code	CAS#	Annual Usage	Emission Factor	Control Efficiency (Fraction)	Annual Gross Emission
1	B1-1	East building - Boiler #1	02-Benzene	71432	18.61	0.008000000	0.0000	0.1489
2	B1-1	East building - Boiler #1	12-Formaldehyde	50000	18.61	0.017000000	0.0000	0.3164

- Click the "**Add Records**" button to save the data. The device and its data will appear in the grid and Annual Gross Emissions in pounds are automatically calculated. Emissions in tons are automatically transferred to form TACS ([Example F](#)).

Repeat steps 2.a. - 2.g. to add the next TAC identified by reference number on the drop-down list:

- **TAC Row:** The next TAC entry is identified by reference number **B4-1** for hexavalent chromium emissions for the primer used in the spray booth. The device description, annual usage, and application numbers are automatically filled in from the Form B4 data.
- **TAC Code:** Select "**13. Hexavalent Chromium**" from the TAC Code drop-down list; CAS # is automatically filled in.
- **Unit Code** should be the same as on the originating form; select "**2**" for gallon in this example.
- **Emission Factor:** Enter "**13.53**" which is density of pure PERC in lbs/gallon.
- **Overall Control Efficiency:** Enter "**0.965**" here.

Hexavalent chromium is a toxic particulate in coating materials (primer), which is captured and controlled by the spray gun's transfer efficiency (65%) and spray booth's default filter efficiency (90%). In this example, the overall control efficiency for hexavalent chromium is:

$$1 - [(1 - 0.65) \times (1 - 0.90)] = 0.965$$

- Hexavalent chromium emissions are calculated as shown
- **Waste Credit:** Leave blank

#	Form ID	Device Description	TAC Code	CAS#	Annual Usage	Emission Factor	Control Efficiency (Fraction)	Annual Gross Emission
1	B1-1	East building - Boiler #1	02-Benzene	71432	18.61	0.008000000	0.0000	0.1489
2	B1-1	East building - Boiler #1	12-Formaldehyde	50000	18.61	0.017000000	0.0000	0.3164
3	B1-1	East building - Boiler #1	19-Polynuclear Aromatic Hydrocarbons	1151	18.61	0.000100000	0.0000	0.0019

- Click the **"Add Records"** button to save the data. The device and its data will appear in the grid and Annual Gross Emissions in pounds are automatically calculated. Emissions in tons are automatically transferred to form TACS ([Example F](#)).

Repeat steps 2.a. - 2.g. to add the next TAC identified by reference number on the drop-down list:

- **TAC Row:** The next TAC entry is identified by reference number **B4-3** for hexavalent chromium emissions from the plating process. The device description, annual usage, and application numbers are automatically filled in from the Form B4 data.
- **TAC Code:** Select **"13. Hexavalent Chromium"** from the TAC Code drop-down list; CAS # is automatically filled in.
- **Unit Code** should be the same as on the originating form; select **"8"** for 1000 amp-hour in this example.
- **Emission Factor:** Enter **"0.000022"** which is the default emission factor for chrome plating using Fumetrol 140 as a suppressant.
- **Overall Control Efficiency:** Enter **"0.00"** here. The efficiency of Fumetrol 140 is already included in the default controlled factor.
- Hexavalent chromium emissions are calculated as shown
- **Waste Credit:** Leave blank

AER FormTAC - Windows Internet Explorer provided by South Coast A.Q.M.D.

http://www2dev/webappl/aer/FormTAC.aspx?FormID=TAC&GridPage=1

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FACILITY : 999999 Year 2010 +

TAC - Toxic Air Contaminants & Ozone Depleters by Reference Numbers

TAC Row: **B4 - 3** Emission Factor: **0.000022000**

Device Description: **63967. Custom Designed Hard-chrom** Overall Control Efficiency: **0.00**

TAC Code: **13. Hexavalent Chromium** Annual Gross Emissions: **0.0294**

CAS #: **18540299. Chromium (VI)** Waste Credit (Yes/No)

Annual Usage: **1336.75**

Units: **8. 1000 amp-hour**

Application Numbers: **542400**

ADD RECORDS **CANCEL**

#	Form ID	Device Description	TAC Code	CAS#	Annual Usage	Emission Factor	Control Efficiency (Fraction)	Annual Gross Emission
X	1 B1-1	East building - Boiler #1	02-Benzene	71432	18.61	0.008000000	0.0000	0.1489
X	2 B1-1	East building - Boiler #1	12-Formaldehyde	50000	18.61	0.017000000	0.0000	0.3164
X	3 B1-1	East building - Boiler #1	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	18.61	0.000100000	0.0000	0.0019

- Click the "Add Records" button to save the data. The device and its data will appear in the grid and Annual Gross Emissions in pounds are automatically calculated.
- These toxic emissions are automatically transferred and summarized on Form TACS ([Example F](#)). See a screen-shot of the manually added TAC rows:

AER FormTAC - Windows Internet Explorer provided by South Coast A.Q.M.D.

http://www2dev/webappl/aer/FormTAC.aspx?FormID=TAC&GridPage=1

AER FormTAC

X	12 B1-3	Thermal Oxidizer controlling sprav booth emissions	12-Formaldehyde	50000	12.57	0.012300000	0.0000	0.1546
X	13 B1-3	Thermal Oxidizer controlling sprav booth emissions	19-Polynuclear Aromatic Hydrocarbons (PAHs)	1151	12.57	0.000100000	0.0000	0.0013
X	14 B1-3	Thermal Oxidizer controlling sprav booth emissions	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	12.57	0.000300000	0.0000	0.0038
X	15 B1-3	Thermal Oxidizer controlling sprav booth emissions	32-Ammonia	7664417	12.57	18.000000000	0.0000	226.2600
X	16 B2U-1	25 HP Generator	02-Benzene	71432	2.91	3.806100000	0.0000	11.0758
X	17 B2U-1	25 HP Generator	04-1,3-Butadiene	106990	2.91	0.918300000	0.0000	2.6723
X	18 B2U-1	25 HP Generator	12-Formaldehyde	50000	2.91	3.452000000	0.0000	10.0453
X	19 B2U-1	25 HP Generator	17-Nickel	7440020	2.91	0.003300000	0.0000	0.0096
X	20 B2U-1	25 HP Generator	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	2.91	0.143800000	0.0000	0.4185
X	21 B2U-2	48 HP Generator	02-Benzene	71432	5.60	0.156400000	0.0000	0.8758
X	22 B2U-2	48 HP Generator	04-1,3-Butadiene	106990	5.60	0.032200000	0.0000	0.1803
X	23 B2U-2	48 HP Generator	12-Formaldehyde	50000	5.60	0.100700000	0.0000	0.5639
X	24 B2U-2	48 HP Generator	17-Nickel	7440020	5.60	0.003300000	0.0000	0.0185
X	25 B2U-2	48 HP Generator	19-Polynuclear Aromatic Hydrocarbons (PAHs)	91203	5.60	0.002900000	0.0000	0.0162
X	26 B3-2	Sprav Booth 100B	23-1,1,1-Trichloroethane (Methyl chloroform)	71556	1,080.00	1.870000000	0.9670	66.6468
X	27 B3-4	Degreaser 99A using Perchloroethylene	18-Perchloroethylene	127184	425.00	0.230000000	0.0000	97.7500
X	28 B4-1	Sprav primer in 100B booth	13-Hexavalent Chromium	18540299	2,250.00	13.530000000	0.9650	1,065.4875
X	29 B4-3	Custom Designed Hard-chrome	13-Hexavalent Chromium	18540299	1,336.75	0.000022000	0.0000	0.0294

First Prev Page 1 of 1 (29 records) Next Last Page 1 Export To Excel

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Example F - Form TACS

Form TACS - Toxic Air Contaminants/Ozone Depleters Emission/Fee Summary

This form summarizes TAC/ODC emissions for 24 compounds from Form TAC that are subject to fees per Rule 301(e). Emissions on Form TACS are totaled by TAC code and rounded to the whole pound for fee purposes. If specific TAC Code emissions are below the thresholds listed in Rule 301(e) Table IV, there will be no fees. Note that, in the example, the Nickel emissions are less than the threshold and the fee is zero. Form TACS is automatically filled out by the system based on information reported on forms TAC and WT. The fees are totaled and transferred to Form S, line 2 ([Example I](#)).

AER FormTACS - Windows Internet Explorer provided by South Coast A.Q.M.D.

http://www2dev/webappl/aer/FormTACS.aspx?FormID=TACS

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TACS - Toxic Air Contaminants and Ozone Depleters Emissions / Fee Summary

TAC Code	Toxic Air Contaminants Ozone Depleters	Gross Emissions (lbs)	Recycling Credit (lbs)	Net Emissions (lbs)	Emission Subject to Fee	Fee Rate (\$/lb)	Fee Due (\$)
01	Asbestos					\$5.53	
02	Benzene	12.39		12.39	12.00	\$1.85	\$22.20
03	Beryllium					\$5.53	
04	1,3-Butadiene	2.85		2.85	3.00	\$5.53	\$16.59
05	Cadmium					\$5.53	
06	Carbon Tetrachloride					\$1.85	
07	Chlorinated Dioxins & Dibenzofurans					\$9.20	
08	1,4-Dioxane					\$0.40	
09	Ethylene Dibromide					\$1.85	
10	Ethylene Dichloride					\$1.85	
11	Ethylene Oxide					\$1.85	
12	Formaldehyde	11.54		11.54	12.00	\$0.40	\$4.80
13	Hexavalent Chromium	1,065.52		1,065.52	1,066.00	\$7.36	\$7,845.76
14	Inorganic Arsenic					\$5.53	
15	Lead					\$1.85	
16	Methylene Chloride					\$0.08	
17	Nickel	0.03		0.03		\$3.66	
18	Perchloroethylene	97.75		97.75	98.00	\$0.40	\$39.20
19	Polynuclear Aromatic Hydrocarbons (PAHs)	0.46		0.46		\$5.53	
20	Trichloroethylene					\$0.16	
21	Vinyl Chloride					\$1.85	
22	Chlorofluorocarbons (CFCs/Freons)					\$0.34	
23	1,1,1-Trichloroethane	66.65		66.65	67.00	\$0.05	\$3.35

■ - Not Started
■ - Started

Submission Review

A review of all forms is needed to verify completeness of report prior to submitting the report.

- Click “**Submission Review**” to verify completeness of the Forms. Comments in red font means corrections are required prior to printing and submitting. Comments in orange font is just a warning and forms would still be able to submit. Comments in black means passed.
- Click “**Submit**” when all forms passed the review.

The screenshot shows a web browser window displaying the 'Submission Review' page for the South Coast Air Quality Management District. The page includes a navigation menu, a facility identifier (999999 Year 2010+), and a table listing the status of various forms. A 'Submit' button is visible at the bottom of the table area. The Windows taskbar at the bottom shows several open applications, including Microsoft Outlook, Excel, and the current web browser window.

Submission Review - Windows Internet Explorer provided by South Coast A.Q.M.D.
http://www2dev/webappl/aer/ReviewSubmit.aspx

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Submission Review

Warning Can proceed to submit.
Error Cannot submit until corrected.

Form Name	Row	Columns	Types of Errors or Warnings
Form B1			This Form has passed
Form B2U			This Form has passed
Form B3			This Form has passed
Form B4			This Form has passed
Form TAC			This Form has passed
Form TACS			This Form has passed
Form WT			This Form has passed
Form X			This Form has passed

Submit

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8:19 AM

Example G - Form C

Form C - Permitted Annual Emissions Summary

Based on the information reported on different forms as shown in the previous examples for Company A, Form C is automatically completed by the system. Total emissions (in tons) for each of the selected forms reporting permitted emissions are transferred to the corresponding rows on Form C. Pollutant totals are shown at the bottom of the form in tons/year and transferred to Form S ([Example I](#)).

The screenshot shows a web browser window displaying the AER FormC application. The browser title is "AER FormC - Windows Internet Explorer provided by South Coast A.Q.M.D.". The address bar shows the URL "http://www2dev/webappl/aer/FormC.aspx?FormID=C". The page header includes the South Coast Air Quality Management District logo and contact information for Armando A. Villena. The main content area displays a table titled "C - Annual Emissions Summary - Permitted". The table lists various forms and their corresponding emissions for Organic Gases, Specific Organics, Nitrogen Oxides, Sulfur Oxides, Carbon Monoxide, and Particulate Matter. A total row at the bottom shows the sum of all permitted emissions.

Form ID	Organic Gases	Specific Organics	Nitrogen Oxides	Sulfur Oxides	Carbon Monoxide	Particulate Matter
Form B1, DCB, AB	0.23		4.27	0.02	2.74	0.3
Form B2	0		0	0	0	0
Form B3	10.95	0				
Form B4	0	0	0	0	0	0.45
Form E1	0		0	0	0	0
Form R1	0		0	0	0	0
Total Permitted Emissions (tons)	11.18	0	4.27	0.02	2.74	0.75

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Example H - Form CU

Form CU - Non-Permitted Annual Emissions Summary

Similar to Form C, Form CU is automatically populated by the system. Emissions (in tons) from equipment without permits are totaled and transferred to the corresponding rows on Form CU. Pollutants totals are shown at the bottom of the form and transferred to Form S ([Example I](#)).

The screenshot shows a web browser window displaying the AER FormCU application. The browser title is "AER FormCU - Windows Internet Explorer provided by South Coast A.Q.M.D". The address bar shows the URL "http://www2dev/webappl/aer/FormC.aspx?FormID=CU". The page header includes the South Coast Air Quality Management District logo and contact information for Armando A. Villena. A navigation menu is visible below the header. The main content area displays a table titled "CU - Annual Emissions Summary - Non-Permitted". The table has columns for Form ID, Organic Gases, Specific Organics, Nitrogen Oxides, Sulfur Oxides, Carbon Monoxide, and Particulate Matter. The rows list various forms (B1U, B2U, B3U, B4U, E1U, R1U) and a total row for "Total Permitted Emissions (tons)". The table shows emissions values for Organic Gases (0.88), Nitrogen Oxides (0.43), Sulfur Oxides (0.02), Carbon Monoxide (16.76), and Particulate Matter (0.03). A legend on the left indicates that green boxes represent "Not Started" and grey boxes represent "Started".

Form ID	Organic Gases	Specific Organics	Nitrogen Oxides	Sulfur Oxides	Carbon Monoxide	Particulate Matter
Form B1U, DCBU, ABU	0		0	0	0	0
Form B2U	0.88		0.43	0.02	16.76	0.03
Form B3U	0	0				
Form B4U	0	0	0	0	0	0
Form E1U	0		0	0	0	0
Form R1U	0					
Total Permitted Emissions (tons)	0.88	0	0.43	0.02	16.76	0.03

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Example I - Form S

Form S - Fees Due Summary

Based on the examples for various emission reporting forms for Company "A," Form S is automatically populated by the system as follows:

- Total Emissions:** Emissions from Line 7 of both Forms C and CU are transferred to appropriate columns on Form S. Company "A" is not identified as a RECLAIM facility; therefore, the column headed "Total Emissions from Form CR (tons)" is blank. Total emissions are summed up and rounded off according to the following rule: if the total emissions for VOC, SPOG, NO_x, SO_x, and PM are less than 4 tons (less than 100 tons for CO), the system populates the cells with 0; otherwise, it rounds off to the nearest ton as shown.
- Emission Fee:** In this example, NO_x and VOC emissions exceed 4 tons. The software calculates the corresponding "Emission Fees Due" according to the Emission Fee Table.
- Total Fees Due** are the sum of total emission fees for all criteria pollutants in line 1 and toxic air contaminants/ozone depleter fees transferred from form TACS in line 2.
- If a company paid the six-month fee installments, the fees for both criteria and toxic pollutants will be automatically populated with fee payments. In this example, Company "A" was not subject to fee installments; line 4 (criteria) and 5 (toxic) are blank. The balance is displayed on Line 6.

Company "A" filed the report and paid emission fees on time; therefore, no late payment surcharge incurred.

The screenshot displays the 'S - Fees Due Summary' table within the AER FormS web application. The table is organized into two main sections: a detailed breakdown of emissions and fees, and a summary of total fees due.

Submittal Date no later than March 1 st 2011	Total Permitted Emissions from Form C, Line 7 (tons)	Total Non-Permitted Emissions from Form CU, Line 7 (tons)	Total Emissions from Form CR (tons)	Total Emissions	Emissions Fee Due
Organic Gases	11.18	0.88		12	\$4,751.46
Specific Organics	0.00	0.00		0	\$0.00
Nitrogen Oxides	4.27	0.43	0	5	\$617.74
Sulfur Oxides	0.02	0.02	0	0	\$0.00
Carbon Monoxide	2.74	16.76		0	\$0.00
Particulate Matter	0.75	0.03		0	\$0.00
1. TOTAL EMISSION FEES FOR ALL CRITERIA POLLUTANTS					\$5,369.20
2. TOXIC AIR CONTAMINANTS/OZONE DEPLETER FEES (Enter the total amount from Form TACS or DC)					\$7,931.80
3. TOTAL FEES DUE (Add Line 1 and Line 2)					\$13,301.00
4. FY1011 REBATE					\$273.57
5. INSTALLMENTS PAID FOR 2010 (If any) -- All criteria pollutants					\$0.00
6. INSTALLMENTS PAID FOR 2010 (If any) -- Toxic Air Contaminants/Ozone Depleters					\$0.00
7. BALANCE DUE (Line 3 - Line 4 - Line 5 - Line 6)					\$13,027.43
8. LATE PAYMENT SURCHARGE (if any)					\$0.00
9. AMOUNT DUE					\$13,027.43

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Example J - Form A

Form A - Status Update, Exemption Request, Refund Request, and Use of Alternative Emission Factors

Form A is designed to collect updated information on facility operations such as Status Update, Exemption Request, Refund Request, and Use of Alternative Factors or Calculation Methodologies.

In this example, Company A reduced its VOC emissions by 55% by switching to low-VOC enamel. The appropriate checkbox is marked ("Emissions are Zero for this year's Report, or Emissions Reduced by 50% or more from last year's Annual Emission Report") and entered a brief explanation in the text box. An image of the Form A screen is shown below.

The screenshot shows the 'A - Status Update' section of the AER Form A web application. The browser window title is 'AER Form A - Windows Internet Explorer provided by South Coast A.Q.M.D.' and the URL is 'http://www2dev/webappl/aer/FormA.aspx?FormID=A'. The page header includes the South Coast Air Quality Management District logo and contact information for Armando A. Villena. A navigation menu is visible at the top, and a sidebar on the left lists various forms (B1, B1U, B2, B2U, B3, B3U, B4, B4U, TAC, TACS, Summary, A, C, CU, S, WT, X, Waste, W, WU) with status indicators for 'Not Started' and 'Started'. The main content area is titled 'A - Status Update' and contains the following sections:

- Status Update (If Applicable)**
 - Contact Permit Services for Official Status Changes**
 - Facility Shutdown Date: [text box]
 - Change of Ownership Date: [text box]
 - New Facility I.D.: [text box]
 - New Facility Name: [text box]
 - Change in Equipment Location Date: [text box]
 - New Facility I.D.: [text box]
 - Change in Equipment Location Facility Address**

Street #	Direction	Street Name	Suffix	Apartment or Suite
[text box]	[dropdown]	[text box]	[dropdown]	[text box]
[text box]	[text box]	[text box]	[text box]	[text box]
 - Old Location Address**

Street #	Direction	Street Name	Suffix	Apartment or Suite
2955	[dropdown]	RANDOLP	Drive	[text box]
COSTA MESA	[text box]	CA	92626	[text box]

The screenshot shows the 'Refund Request' and 'Exemption Request' sections of the AER Form A web application. The browser window title is 'AER Form A - Windows Internet Explorer provided by South Coast A.Q.M.D.' and the URL is 'http://www2dev/webappl/aer/FormA.aspx?FormID=A'. The page header and sidebar are consistent with the previous screenshot. The main content area is titled 'A - Status Update' and contains the following sections:

- Old Location Address**

Street #	Direction	Street Name	Suffix	Apartment or Suite
2955	[dropdown]	RANDOLP	Drive	[text box]
COSTA MESA	[text box]	CA	92626	[text box]
- Variance/Abatement order that resulted in Excess Emissions Case Number: [text box]
- Emissions are Zero for this year's Report, or Emissions Reduced by 50% or more from last year's Annual Emission Report. (Provide a brief description)
[text box]
- Refund Request**
 - I request a refund for overpayment of fees paid for this reporting period (installment payment exceeded total fees due). Provide or attach a brief explanation for your reduced emissions during this reporting period.
 - Amount Requested \$: [text box]
- Exemption Request**
 - I request to be exempt from next year's Annual Emissions Reporting Program for the reason marked below. If approved, I understand the facility will still be required to report its annual emissions and pay any applicable fee in future years if operations change, or AQMD rules change, in any manner that results in increased emissions above those specified under the Exemption Criteria specified.
 - Annual Emissions for this year meet the Exemption Criteria, and emissions for this year will also meet the Exemption Criteria.

Example K - Form X

Form X - Signature Sheet

Form X is designed to collect updated facility information such as Mailing address, details on the primary Contact for AER, the Report Preparer, and the Person Authorized to sign the report prior to submission; Equipment Location, SIC code, Business Operating Hours and a Brief Description of Operations.

An image of the completed Form X for Company "A" is shown below.

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X - Signature Sheet

Information

Facility ID: 999999 AB2588 Filing Period AB2588 Receptor Distance

NAICS Code: 12345 NAICS RECLAIM Worker(ft)

Reporting Year: 2010 Residential (ft)

Company Name: SOUTH COAST SPECIAL FACILITY ID

Street # Direction Street Name Suffix Apartment or Suite
109 N rexview +4

City State Zip
Irvine CA 92620

Equipment Location Address

Facility Name: SOUTH COAST SPECIAL FACILITY ID

Street # Direction Street Name Suffix Apartment or Suite
2955 RANDOLP Drive +4

City State Zip
COSTA MESA CA 92626

City State Zip +4
COSTA MESA CA 92626

Business Operating Hours
Hours/Day: 0
Days/Week: 0
Weeks/Year: 0

Brief Description of Operation

Contact Information

First Name: berhan Last Name: jonesh Email: bidji@yahoo.com
Title: EHS Telephone #: 818-8454547 Fax #:

Preparer Contact Information

Same as Contact
Name of Organization:

First Name: Last Name: Email:
Title: Telephone #: Fax #:

Authorized Contact Information

Same as Contact
First Name: berhan Last Name: jonesh Email: bidji@yahoo.com
Title: EHS Telephone #: 818-8454547 Fax #:

* Required Fields

SAVE CANCEL

City State Zip +4
COSTA MESA CA 92626

Business Operating Hours
Hours/Day: 0
Days/Week: 0
Weeks/Year: 0

Brief Description of Operation

Contact Information

First Name: berhan Last Name: jonesh Email: bidji@yahoo.com
Title: EHS Telephone #: 818-8454547 Fax #:

Preparer Contact Information

Same as Contact
Name of Organization:

First Name: Last Name: Email:
Title: Telephone #: Fax #:

Authorized Contact Information

Same as Contact
First Name: berhan Last Name: jonesh Email: bidji@yahoo.com
Title: EHS Telephone #: 818-8454547 Fax #:

* Required Fields

SAVE CANCEL