Example Calculations and Forms

Introduction

This section provides example calculations and forms to show how emission estimation methods are used to develop an inventory for both potential and actual emissions. There are six basic approaches or methods used to develop emission estimates and inventories. These methods are:

- Continuous emissions monitoring
- Stack test data
- Material balance
- EPA approved emission factors
- Vendor supplied factors
- Engineering estimates based on best available process operating data

Most sources will use material balance or EPA-approved emission factors for estimating emissions. These two methods will be the focus of this section. Each example calculation shows how the method may be used for a specific emissions source category. It is intended that the reader use the information to apply the methods to other applicable source categories.

Potential Emissions

Potential to emit is calculated assuming equipment is running at maximum capacity while operating at the maximum hours of operation under its physical and operational design. Usually, maximum hours of operation are 8,760 hours per year unless enforceable limitations on hours of operation have been incorporated within the construction permit or an enforcement order for that equipment.

Only federally enforceable limitations on raw materials, fuels, capacity or hours of operation can be used to limit potential emissions. 'Bottlenecks' do not count unless federally enforceable.

Calculation of potential emissions must be done with "worst-case" values for each pollutant. An example would be emissions from solvent use at a facility. Solvent A contains 3 lb/gal toluene and 2 lb/gal benzene, while solvent B contains 1 lb/gal toluene and 4 lb/gal benzene. Solvent emissions would be calculated based on the solvent A toluene value of 3 lb/gal and the solvent B benzene value of 4 lb/gal. An example of this scenario is detailed on pages 36 - 38.

Calculating potential to emit with control equipment general equation:

(Maximum Hourly Design Rate) x (Emission factor) x (Control Efficiency) x (Potential hours) x (conversion factor to tons) = tons per year

Rate: Process rate is based on the maximum design rate of the equipment, i.e., tons/hr, gal/hr, or MMcf/hr

Emission factors are values based on the amount of pollution produced and the raw material processed such as lb/ton, lb/gal, or lb/MMcf.

Control Efficiency = Control equipment pollutant removal efficiency

Potential hours will be 8,760 hr/yr unless there is a federally enforceable limit such as a construction permit which limits the number of hours the emission unit can operate.

To convert to tons, see the conversion factors listed on page 85 in Appendix D.

Actual Emissions

Actual emissions are the actual rate of air pollution from an emission unit calculated using the emission unit's actual operating hours, production rates, and types of materials processed, stored, or combusted for the calendar year.

General equation for calculating actual emissions with control equipment:

(Actual Throughput) x (Emission Factor) x (Control Efficiency) x (conversion factor to tons) = tons per year

Actual Throughput: Amount of material actually used for the calendar year such as gallons per year, tons per year, million cubic feet per year, etc.

Emission factors are values based on the amount of pollution produced and the raw material processed such as lb/ton, lb/gal, or lb/MMcf.

Control Efficiency is the control equipment pollutant removal efficiency.

To convert to tons, see the conversion factors listed on page 85 in Appendix D.

Example MSEI's

The following example shows how calculations are performed and where data is reported on the inventory forms.

ACME Corporation manufactures grain wagons and has three reportable emission units including a welding station, paint booth, and No. 2 fuel oil-fired boiler. Each emission unit has one emission point associated with it. The emission points, emission units, and any control equipment were identified and assigned a number.

ACME Hospital has four reportable emission units including a natural gas-fired boiler, two diesel-fired generators, and a dual-fuel fired generator.

For each emission point, information was gathered on the stack opening, height, flow rate (fan rating), and temperature. Information gathered for each emission unit included a description of the process, raw materials used, the maximum hourly design rate, and any permit limits. If there is an air quality construction permit for the emission source, most of this information can be found in the permit.

The next step was finding emission factors in EPA documents for each pollutant produced by the boiler and welding station. A mass balance calculation was performed using Safety Data Sheets (SDS) information to estimate emission factors for the paint booth.

The following calculations were performed and inventory forms for ACME Corporation and ACME Hospital were completed:



IOWA DNR Emission Inventory Questionnaire

Form INV -1 Facility Identification

1) Application Type	Initial	\triangleleft	Supplemental Information			
2) Facility Number			99-99-999			
3) Company/Facility Name			ACME CORPORATIO	N		
4) Number of State-Wide Co	mpany Employe	ees	Less Than or Equal to 100	\square	Greater Than 100	
5) Emission Year			2014			
6) Facility Street Address			111 N 2 ND ST			
7) Facility City	cility City Code Cility Contact Person Acility Contact Phone Number / E-Mail Add ailing Street/PO Box ailing City ate		ANYTOWN			IA
8) Zip Code	mber of State-Wide Company Employees ission Year cility Street Address cility City Code cility Contact Person acility Contact Phone Number / E-Mail Ad ailing Street/PO Box ailing City ate p Code arent Company / Owner Name arent Company / Owner Mailing Address ty ate p Code		55555			
9) Facility Contact Person			JOHN BEEMER			
10) Facility Contact Phone	Number / E-Mail	Address	515 - 555 - 5555		JBEEMER@EMAILACMECORP	
11) Mailing Street/PO Box			PO BOX 123			
12) Mailing City			ANYTOWN			
13) State			IA			
14) Zip Code			55555			
15) Parent Company / Owne	r Name					
16) Parent Company / Owne	r Mailing Addre	SS				
17) City						
18) State						
19) Zip Code						
20) Parent Company Contac	ct/Agent					
21) Parent Company Contac	t Phone Numbe	ŧr				
	e, accurate, and inal penalties."	l complete	e. I understand that making	ed after rea false stater	ENT sonable inquiry, the statements and informat nents, representations, or certifications of the ponsible Official	
	emota			The of Rea		

24) Signature of Responsible Official

25) Date of Signature 3523

26) Primary Standard Industrial Classification (SIC) 27) Ac

Primary North American Industrial Classification System (NAICS)

tivity Description	Manufacture farm equipment and grain wagons

	28) S	ECONDARY ACTIVITIE	S
SI SIC		NAICS	
Activity Description		Activity Description	
SSIC		NAICS	
Activity Description		Activity Description	
	29) PLANT LOCATION	
Latitude	41.605621		
Longitude	-93.588353		

333111

Form INV-2 EMIS		NT DESCRIF	PTION					Duplicate Emission		for EACH	
1) Company/Facility Name	ACME		ATION				1a) Form IN	IV-2 Page	1	of	3
2) Emission Point Number	EP1										
3) Emission Point Description	WELC	ING VENT									
4) Is this stack/vent used as an Emergency Bypass Stack?	No	Yes	s 🗌								
If YES, for which stack(s)? List Emis	sion Point N	los.:									
		EN	ISSION P	OINT INF	ORMATIO	N					
5) Emission Point Type											
Stack/Vent											
Fugitive (specify)											
Other (specify)											
6) Stack Shape and Dimensions: (i	nterior dime	nsions at exit poir	nt)								
Circular Diameter:]	inches	6								
Rectangular Dimensions:	8	inches	s X	10		inches					
Other Dimensions]	inches	6								
7) Stack Height Above Ground	12	feet									
8) Does the Emission Point have a	ain cap (or a	nything else) whi	ch obstru	cts the flo	ow of gase	es leaving th	e Emission P	oint, or a hor	izontal di	ischarge?	
No YES (specify):		HORIZON	TAL DI	ISCHA	RGE						
		•	MPOSTION	OF EXH	AUST ST	REAM					
Exhaust Stream Characteristics		nission Point on of Exhaust Stre	eam U	Inits of M	easure						
a) Flow Rate	900		D	ACFM	□ s	CFM					
b) Temperature	Ambient	1	D	egree Fa	hrenheit						
			10) BY	PASS ST	ACKS						
Bypass Stack – Emission Point No.		Bypass Stack Description									
Bypass Stack – Emission Point No.		Bypass Stack Description									
	11) LI	ST OF EMISSION	UNITS VE	NTING TH	IROUGH "	THIS EMISSI	ON POINT	_			
Emission Unit No.	Emissio	on Unit No		Em	ission Uni	it No.		Emission	Unit No.		
EU1											

TYPE ALL INFORMATION

Form INV-5 CALCULATIONS

Duplicate this form for each Form it will accompany in the Questionnaire

_	10111111-3	ALCOLATIONS					accompany in the C	<u>{uestionn</u>	aire	
1	1) Company/Facility Name	ACME CORPORATION					1a) Form INV-5 Page	1	of	5
1	2) Emission Point No.	EP1	3)	Emission Un	it No.	EU	1			
4	4) Calculations are provided	in support of information reported on Form	n INV	- 3 🖂	4 🖂		for the Emission Point a	nd Emissi	ion Unit list	ed above.
ł	5) Emissions Calculations									
	Process: Gas Metal Arc SCC No.: 309052	Welding, E308 Electrode 212								
	Maximum rate: 30 lb c Actual Year Throughput	of electrode per hour – Yearly Total: 40,000 pounds	of e	electrode						
	$\begin{array}{llllllllllllllllllllllllllllllllllll$	on Factors from AP-42, Chapter 12 /1,000 lbs of electrode consumed (P /1,000 lbs of electrode consumed lb/1,000 lbs of electrode consumed lb/1,000 lbs of electrode consumed lb/1,000 lbs of electrode consumed	PM _{2.5}	is assumed	l to be e	equa	l to PM ₁₀ for welding	ţ)		
	<u>Calculations</u>									
	POTENTIAL EMISSIC Potential PM _{2.5} tons/yr Potential PM ₁₀ tons/yr	ONS:								
	(.030 1,000 lb/hr) x (5.	4 lb/1,000 lbs) x (8,760 hrs/year)	x (1	ton/2,000	lbs) = 0	.71	tons per year			
	The same formula is use	d to calculate the other pollutants wi	ith tl	heir corresp	onding	emi	ssion factors.			
	Potential Chromium tons Potential Manganese ton Potential Nickel tons/yr	s/yr = 0.05								
	ACTUAL EMISSIONS Actual PM _{2.5} tons Actual PM ₁₀ tons	k:								
	(40 1,000 lbs) x (5.4 lb/	(1,000lbs) x (1 ton/2,000 lbs) = 0.1	1 toı	ıs						
	The same formula is use	d to calculate the other pollutants wi	ith tl	heir corresp	onding	emi	ssion factors.			
	Actual Chromium tons = Actual Manganese tons = Actual Nickel tons = 0.0	= 0.01								

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH Emission UNIT

Company/F	acility Name	A	СМЕ	СС	DRP	ORATIO	ON			1a) F	orm INV-3 Pag	je 🖌	1		of	3	
Emission P	oint Number	E	P1														
					EMIS		(PROCESS)	IDENTIFICATION &	DESC	RIPTI	ON						
Emission U	nit Number	E	J1														
SCC Numb	er	30)905	212													
Description	of Process	G	AS N	/IET	AL	ARC W	ELDING	;									
			985		7)	Date of In	stallation	2/15/1985	8	5) D	ate of Modifica	tion					
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Federally E	nforceable Lim	it															
Permit or R	ule Establishin	g Limit															
Maximum H	lourly Design F	Rate		0.0)30			1	,000	PO	UNDS			Per H	our		
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Control Equ	uipment Descri	ption						EMISSIONS									
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ir Pollutant	Emission Factor			tor			Ash or Sulfur %	Uncontrolled Emissions (Lbs/Hr)	Cor	ntrol	Transfer Efficiency	0	Controlle	d	Em	tial Annual hissions ons/Yr)	
PM-2.5	5.4	LB/1	000	LB	AP	-42		0.16							0.71		
PM-10	5.4	LB/1	000	LB	AP	-42		0.16							0.71		
SO ₂																	
NOx																	
VOC																	
со																	
Lead																	
Ammonia																	
DTENTIAL E	EMISSIONS -	Individu	al HA	Ps a	nd ad	lditional re	egulated ai	r pollutants – list	each	indiv	vidual polluta	nt na	ame in	Colu	mn 14		
Cr	0.524	LB/1	000	LB	AP	-42		0.02							0.07	,	
Mn	0.346	LB/1	000	LB	AP	-42		0.01							0.05	;	
Ni	0.184	LB/1	000	LB	AP	-42		0.01							0.02	2	
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*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Form	INV-4 EMIS	SSIO	N UNIT DES	CRI	PTION - ACT	TUAL	EMIS	SION	S					СН	
1) Company/Facili	ty Name	AC	ME CORPO										of	3	
2) Emission Year		201	4 :	3) Emi	ission Point Num	ber			EP1						
				SSION	UNIT – ACTUAL	OPERAT	IONS A	ND EMI	SSIONS						
4) Emission Unit N	lumber	EU					5) S	CC Num	ber	309	905212				
6) Description of F	Process	GA	<mark>S METAL A</mark>	RC		Point Number EP1 ACTUAL OPERATIONS AND EMISSIONS 5) SCC Number 30905212 DING ACTUAL THROUGHPUT 9) Units Raw Material 1,000 POUNDS Operating Rate/Schedule 11) Hours/Day 12) Days/Week 13) Weeks/Quarter 8 6 13 8 6 1									
7) Raw Material			ELECTRO	DE E		HPUI									
8) Actual Through	put – Yearly To		40			Units F	Raw Ma	terial	1.00)0 P					
					Actual Operating	Rate/Sc	hedule		,						
	10) Perce	ent of	Total Operating T	ime						-	eek		•		
JAN – MAR			25												
APR – JUN			25												
JUL – SEP			25												
OCT - DEC 14)			25	AIR				IENT (C	E)	0			13		
Control Equip	ment Number														
Control Equip	ment Descriptio	on													
Control Equip	ment Number														
Control Equip	ment Descriptio	on													
ACTUAL EMISSIONS															
15 Air Pollutant	16 Emission Factor	En	17 nission Factor Units	So	urce of Emission Factor				ined Con			ciency			
PM-2.5	5.4	LI	B/1,000 LB	AP	-42								0.11		
PM-10	5.4	LI	B/1,000 LB	AP	-42							0.11			
SO ₂															
ΝΟΧ															
voc															
со															
Lead															
Ammonia															
ACTUAL EMISS	IONS – Indivi	dual	HAPs and addi	tional	l regulated air p	ollutan	ts – lis	t each	individ	lual p	ollutant na	ame in	Column 15		
Cr (0.524	LI	B/1,000 LB	AP	-42								0.01		
	0.346		B/1,000 LB	AP	-42								0.01		
Ni	0.184	LI	B/1,000 LB	AP	-42								0.00		

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Duplicate this form as needed

TYPE ALL INFORMATION

Form INV-2 EMIS	SION PO	NT DESC	CRIPTIO	N				Duplicate Emission		for EACH	
1) Company/Facility Name	ACME	CORPO	ORATIO	N			1a) Form IN	V-2 Page	2	of	3
2) Emission Point Number	EP2										
3) Emission Point Description	SPRA		воот	H ST	ACK						
4) Is this stack/vent used as an Emergency Bypass Stack?	No	\square	Yes								
If YES, for which stack(s)? List Emi	ssion Point N	los.:									
			EMISSIO	N POIN	T INFORMAT	ON					
5) Emission Point Type											
Stack/Vent											
Fugitive (specify)											
Other (specify)											
6) Stack Shape and Dimensions: (interior dime	nsions at exi	t point)								
Circular Diameter:	30	iı	nches								
Rectangular Dimensions:]	i	nches X			inches					
Other Dimensions		i	nches								
7) Stack Height Above Ground	18	feet									
8) Does the Emission Point have a	rain cap (or a	nything else) which obs	structs	the flow of ga	ses leaving th	ne Emission Po	oint, or a ho	rizontal di	scharge?	
No YES (specify)	:	RAINC	CAP								
i		9) COMPOST		EXHAUST S	TREAM					
Exhaust Stream Characteristics		nission Point on of Exhaus		Units	s of Measure						
a) Flow Rate	18	,000				SCFM					
b) Temperature	an	nbient		Degr	ee Fahrenhei	:					
			10)	BYPAS	SS STACKS						
Bypass Stack – Emission Point No.		Bypass Sta Descriptio									
Bypass Stack – Emission Point No.		Bypass Sta Description									
	11) LI	ST OF EMIS		VENTI	NG THROUGH	I THIS EMISS	ION POINT				
Emission Unit No.	Emissio	on Unit No			Emission U	nit No.		Emission	Unit No.		
EU2											

TYPE ALL INFORMATION

	Form INV-5 C	ALCULATIONS				Duplicate this form accompany in the C			
1)	Company/Facility Name	ACME CORPORATION				1a) Form INV-5 Page	2	of	5
2)	Emission Point No.	FP2	3)	Emission Unit No.	FU2	2			

4) Calculations are provided in support of information reported on Form INV - 3 4 for the Emission Point and Emission Unit listed above.

5) Emissions Calculations

ACME Corporation applies a base coat and a top coat to each wagon in the same spray booth. The paint comes in five gallon pails and is sprayed directly from the container with no thinning or mixing at the facility. The paint booth has an Iowa Air Quality construction permit with a paint usage limit of 4,000 gallons per year. ACME Corp only sprayed 1,300 gallons per year (500 gallons of basecoat and 800 gallons of top coat). ACME Corp. uses a high volume low pressure (HVLP) spray gun with a maximum capacity of 7 gallons/hr. The filter used in the booth has a 95 percent particulate removal efficiency.

Material balance (also known as mass balance) utilizes the raw material usage rate to estimate the amount of pollutant emitted. In this method, emissions are estimated as the difference between material input and material output across a process. This method is typically used in surface coating processes. Information regarding the amount of pollutants in a material can be found on the material safety data sheet (MSDS).

Most material balances assume that all solvent used in a process will evaporate to become air emissions somewhere at the facility. In these cases, emissions equal the amount of solvent contained in the surface coating.

From information found on paint MSDS the top and base coats have the following characteristics and HAP components:

	Top Coat	Base Coat
Paint Weight (lbs/gal)	8.75	7.21
% VOC	25	42
% Solids	75	58
% Xylene	8	2
% Toluene	0	15

Note: All percents are weight percents and expressed as percent of total paint weight

POTENTIAL EMISSIONS:

Step 1 - Determine the maximum amount of paint that could be used

Since ACME Corp. has a usage limit of **4,000** gallons per year, this is the maximum amount of paint that could be used. If they didn't have this limit, the maximum usage would be calculated by taking the maximum gun capacity (7 gallon/hr), and multiplying by 8,760 hours per year.

 $(7 \text{ gallon/hr}) \times (8,760 \text{ hrs/yr}) = 61,320 \text{ gallons/yr}$

Step 2 - Calculate the yearly potential VOC and HAP emissions

To calculate the maximum amount of VOC and HAP emitted from this spray booth in one year, the highest amounts of each constituent from the base or top coat must be used.

In this case the top coat VOC = 0.25×8.75 lbs/gal = 2.19 lbs VOC/gal. The base coat VOC = 0.42×7.21 lbs/gal = 3.03 lbs VOC/gal, which is the higher VOC content.

First, multiply the greatest VOC density (base coat 3.03 lbs/gal) by the maximum paint used (4,000 gallons). To convert it to tons per year divide the answer by 2,000 lbs/ton.

(Density lbs/gal) x (Max. annual paint usage gal/yr) x (1 ton/2,000 lb) = 3.03 lbs/gal x 4,000 gal/yr x 1ton/2,000 lbs = 6.06 tons/yr

Duplicate this form for each Form it will

							accompany in the	Questionin	anc	
1)	Company/Facility Name	ACME CORPORATION					1a) Form INV-5 Page	3	of	5
2)	Emission Point No.	EP2	3)	Emission Unit	No.	EU	2			
4)	Calculations are provided in	n support of information reported on Form	n INV	3	4		for the Emission Point	and Emiss	ion Unit lis	ed above.
5)	Emissions Calculations									
	OTENTIAL EMISSIO	NS (CONTINUED)		f1- 1		1 -	41			

To calculate the maximum emissions of each HAP, use the same formula, but in each case use the paint with the highest density of the HAP.

Xylene = (8.75 lb/gal) x (4,000 gallon/yr) x (0.08) x (1 ton/2,000 lbs) =**1.40 \text{ tons/yr** $}$ Toluene = (7.21 lb/gal) x (4,000 gallon/yr) x (0.15) x (1 ton/2,000 lbs) =**2.16 \text{ tons/yr** $}$

Step 3 - Calculate the yearly potential $PM_{2.5}$ and PM_{10} emissions. For surface coating, $PM_{2.5}$ and PM_{10} are assumed to be equal. To calculate $PM_{2.5}$ and PM_{10} emissions the spray transfer efficiency (TE) of the spray gun and the control efficiency (CE) of the filter must be inserted in the formula used to calculate the VOC and HAP emissions. The transfer efficiency is the percentage of paint from the gun that actually adheres to the part being painted. The HVLP gun has a transfer efficiency of 65%, and the filter control efficiency is 95%. Refer to Appendices C and D or other supporting documentation for guidance on transfer and control efficiencies.

In ACME Corp.'s painting process 65% of the paint being sprayed hits the part and the remaining (35%) goes in the exhaust stream. The filters capture 95% of the solids in the exhaust and the remaining (5%) is discharged out the stack.

(Density lb/gal) x (Max. annual paint usage gal/yr) x (Max.% solid) x (1-TE) x (1-CE) x (1 ton/2000 lbs)

(8.75 lb/gal) x (4,000 gal/yr) x (0.75) x (1-0.65) x (1-0.95) x (1 ton/2,000 lbs) = 0.23 tons/yr

Step 4 - Calculating maximum hourly emissions

Form INV-5 CALCULATIONS

To calculate maximum hourly emissions multiply the maximum gun capacity by the weight of the highest constituent, considering all paints used. The lb/gal density for each paint, multiplied by the percent of the pollutant in each paint equals a pound per gallon emission factor. To calculate the hourly PM_{10} emissions the transfer efficiency and filter control efficiency must be included in the formula.

(Max. Gun Capacity gal/hr) x (Density lbs/gal x Max. % VOC/HAP) = VOC or HAP (Max. Gun Capacity gal/hr) x (Density lbs/gal x Max. % solids) x (1-TE) x (1-CE) = $PM_{2.5}$ or PM_{10}

> VOC s = (7 gal/hr) x (7.21 lb/gal x 0.42) = **21.20 lb/hr** Xylene = (7 gal/hr) x (8.75 lb/gal x 0.08) = **4.9 lb/hr** Toluene = (7 gal/hr) x (7.21 lb/gal x 0.15) = **7.57 lb/hr** $PM_{2.5} = (7 gal/hr) x (8.75 lb/gal x 0.75) = 45.94 lb/hr uncontrolled x (1-0.65) x (1-0.95) =$ **0.80 lb/hr controlled** $PM_{10} = (7 gal/hr) x (8.75 lb/gal x 0.75) = 45.94 lb/hr uncontrolled x (1-0.65) x (1-0.95) =$ **0.80 lb/hr controlled**

Step 5 – Calculate the emission factor

To determine the emission factor to report in Box 15, divide the lb/hr uncontrolled potential emissions by the gallons/hr capacity.

(lb/hr emissions uncontrolled) x (hr/gallons) = lb/gal

VOC s = (21.20 lb/hr) x (hr/7 gal) = 3.03 lb/galXylene = (4.9 lb/hr) x (hr/7 gal) = 0.7 lb/galToluene = (7.57 lb/hr) x (hr/7 gal) = 1.08 lb/galPM_{2.5} = (45.94 lb/hr) x (hr/7 gal) = 6.56 lb/galPM₁₀ = (45.94 lb/hr) x (hr/7 gal) = 6.56 lb/gal

1)	Company/Facility Name	ACME CORPORATIO	ON					accompany in 1a) Form INV-5 F		4	of	5
<i>.</i>	Emission Point No.	EP2		Emissio	Unit N	o.	EU		490	-		5
		n support of information reported	-			1		for the Emission F	Point a	nd Emiss	ion Unit li	isted above
	Emissions Calculations			J			4		•			
'' 												
St		MISSIONS: tal actual VOC and HAP er and HAP emissions you m		ate the en	ission	ıs fro	om e	each coating then	add	them tog	gether.	
(F	Paint used gal/yr) x (Pair	nt Weight lb/gal x Pollutant	t %) x (1 to	on/2,000 l	os)							
		al) $x (8.75 \text{ lb/gal } x 0.25) = 3$ al) $x (7.21 \text{ lb/gal } x 0.42) = 3$										
						+_	1.63	tons of VOC				
X	ylene - Top Coat: (800	gal) x (8.75 lb/gal x 0.08)	= 560 lb x	(1 ton/2	000 It	os)	= 0).28 tons				
X	ylene -Base Coat: (500) gal) x (7.21 lb/gal x 0.02)	= 72.1 lb :	x (1 ton/2)	000 11	os) +	= 0	0.04 tons				
						Г	0.	.32 tons of Xyle	ne			
Te	oluene -Top Coat: (800) gal) x (8.75 lb/gal x 0.00)	= 0.00 lb .	x (1 ton/2	000 11	bs)	=	0.0 tons				
T	oluene -Base Coat: (500) gal) x (7.21 lb/gal x 0.15)	= 540.75	lb x (1 to)	/2,00	0 lbs +	s) =	0.27 tons				
						1	(0.27 tons of Tol	uene			
T		ly $PM_{2.5}$ and PM_{10} emission $M_{2.5}$ and PM_{10} emissions, the second se		rmula is u	sed, b	out tr	ansf	fer efficiency and	l con	trol effic	ciency n	nust be
		.75 lb/gal x 0.75) x (1-0.65) .21 lb/gal x 0.58) x (1-0.65)										
								0.07 ton	s of	PM _{2.5} a	nd PM	10
in		a painting operation where the maximum constituents										
T	t ep 8 – Calculate the em o determine the emissio punds.	ission factor n factor to report in Box 16	5, divide th	e total to	s of e	miss	sions	s by the gallons u	ised a	and conv	vert tons	s to
[(1	tons) / (gallons)] x (2,00	00 lbs/ton) = lb/gal										
	Xylene = Toluene	= (1.63 tons/1,300 gallons z = (0.32 tons/1,300 gallons z = (0.27 tons/1,300 gallons z (0.07 tons/1,300 gallons z 2	x 2,000 lbs x 2,000 lb	/ton) = 0. s/ton) = 0	19 lb/g .42 lb	gal /gal		6 15 11 / 1				

Duplicate this form for EACH Emission UNIT

1)	Company/F	acility Name	A	CME CORPORATION 1a) Form INV-3 Page 2 of 3								3					
2)	Emission P	oint Number	E	P2													
						EMISS	ION UNIT (PI	ROCESS)	IDENTIFICATION &	DESC	RIPTI	ON					
3)	Emission U	nit Number		J2													
4)	SCC Numb	er)202													
5)	Description	of Process	S	PRA	ΥP	AIN.	TING										
6)	Date of Cor		8/1/19	85		7)	Date of Insta	allation	8/1/1985	8) D	ate of Modific	atio	า			
9)		al – OR Fuels ase for EACH			PA	AINT											
10)	Federally E	nforceable Lin	nit		4,0	000 (GALLON	IS PER	YEAR								
11)																	
12)	Maximum Hourly Design Rate 7.0 GALLONS Per Hour																
13)								JTION CO	NTROL EQUIPMEN	T (CE)							
	Control Equipment Number CE1																
	Control Equipment Description PANEL FILTER																
	Control Equipment Number																
	Control Equipment Description																
	POTENTIAL EMISSIONS 14 15 16 17 18 19 20 21 22 23																
Ai	14 r Pollutant	Emission Factor	Emi	ssion Fa	actor		Source of ission Factor	Ash or Sulfur %	Potential Hourly Uncontrolled Emissions (Lbs/Hr)	Cor	bined htrol iency	Transfer Efficiency		otential Contro issions	lled	En	ntial Annual nissions ſons/Yr)
	PM-2.5	6.56	LB	/GAL		МА	SS BAL		45.92	95		65	0.	8		0.23	3
	PM-10	6.56	LB	/GAL	I	MA	SS BAL		45.92	95		65	0.	8		0.23	3
	SO ₂																
	NOx																
	voc	3.03	LB	/GAL		MA	SS BAL		21.21							6.06	3
	со																
	Lead																
A	mmonia																
РО	TENTIAL E	MISSIONS -	- Individu	al HA	Ps a	nd ad	ditional reg	ulated ai	r pollutants – list	each	indiv	vidual polluta	ant	name i	in Colu	ımn 14	ŀ
Х	Xylene 0.7 LB/GAL MASS BAL 4.9 4.9 1.40)							
Т	oluene	1.08	LB	/GAL		МА	SS BAL		7.56							2.16	3

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Forn	n INV-4 EMI	SSIC	N UNIT DES	CRI	PTION - ACT	UAL E	EMIS	SION	S			ate this	s form for EAC IT	н	
1) Company/Fac	ility Name	AC	ME CORPO	RA	ΓΙΟΝ				1a) For	m IN\	/-4 Page	2	of	3	
2) Emission Yea	r	201	4 3) Emi	ssion Point Numb	ber			EP2						
				SION	UNIT – ACTUAL (OPERAT	1								
4) Emission Uni	t Number	EU					5) S	CC Nur	nber	402	202501				
6) Description o	f Process	SP	RAY PAINT	BO	OTH ACTUAL T		IDUIT								
7) Raw Material			PAINT		ACTUAL I	nkoogr	1501								
-	ghput – Yearly T		1,300		9)	Units R	aw Ma	terial	GAL	LO	NS				
			-,		Actual Operating	Rate/Sc	hedule								
	10) Perc	ent of	Total Operating T	ime	11) Hou				12) Da		ek	13) Weeks/Quarter			
JAN – MAR			25		8					5		13			
APR – JUN			25		8 8			5				13			
JUL – SEP			25		8					5			13		
OCT - DEC 14)			25	8 5 13 AIR POLLUTION CONTROL EQUIPMENT (CE)											
	ipment Number		CE2												
Control Equ	ipment Descript	ion	PANEL F	ANEL FILTER											
Control Equ	ipment Number														
Control Equ	ipment Descript	ion													
	1			_	ACTUAL EN			1	20						
15 Air Pollutant	16 Emission Facto	or Er	17 nission Factor Units	So	urce of Emission Factor	19 Ash or Si			20 bined Con fficiency	trol	21 Transfer Effi	ciency	22 Actual Emissio		
PM-2.5	6.15	L	B/GAL	MA	SS BAL			95		65			0.07		
PM-10	6.15	L	B/GAL	MA	SS BAL		95		95		65		0.07		
SO ₂															
NOX															
voc	2.51	L	B/GAL	MA	SS BAL								1.63		
со															
Lead															
Ammonia															
ACTUAL EMIS	SSIONS – Indiv	vidual	HAPs and addit	ional	regulated air p	ollutant	s – lis	t each	individ	ual p	ollutant na	ame in	Column 15		
Xylene	0.49	L	B/GAL	MA	SS BAL								0.32		
Toluene	Toluene 0.42 LB/GAL			MA	SS BAL								0.27		

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Duplicate this form as needed

TYPE ALL INFORMATION

Form INV-2 EMIS	PTION	TON Duplicate this form for EACH Emission POINT									
1) Company/Facility Name	ACME	CORPOR		1			1a) Form IN	V-2 Page	3	of	3
2) Emission Point Number	EP3										
3) Emission Point Description	BOILE	ER STACK									
4) Is this stack/vent used as an Emergency Bypass Stack?	No	Yes	;								
If YES, for which stack(s)? List Emis	sion Point N	los.:									
		EN	ISSION	POIN	TINFORMATIC	N					
5) Emission Point Type											
Stack/Vent											
Fugitive (specify)											
Other (specify)											
6) Stack Shape and Dimensions: (i	nterior dime	nsions at exit poir	nt)								
Circular Diameter:] 24	inche	S		·	-					
Rectangular Dimensions:]	inche	s X			inches					
Other Dimensions]	inches	5								
7) Stack Height Above Ground	35	feet									
8) Does the Emission Point have a	ain cap (or a	nything else) wh	ich obst	ructs	the flow of gas	es leaving th	e Emission Po	pint, or a hor	rizontal di	ischarge?	
No YES (specify):		RAIN CAP)								
		9) COI	MPOSTI	ON OF	EXHAUST ST	REAM					
Exhaust Stream Characteristics		nission Point on of Exhaust Stre	eam	Units	of Measure						
a) Flow Rate	6,100				CFM 🗆 S	CFM					
b) Temperature	350			Degr	ee Fahrenheit						
			10) E	SYPAS	S STACKS						
Bypass Stack – Emission Point No.		Bypass Stack Description									
Bypass Stack – Emission Point No.		Bypass Stack Description									
	11) LI	ST OF EMISSION	UNITS V	/ENTI	NG THROUGH	THIS EMISSI	ON POINT				
Emission Unit No.	Emissio	on Unit No			Emission Un	it No.		Emission	Unit No.		
EU3											

TYPE ALL INFORMATION

Form INV-5 C	ALCULATIONS				Duplicate this form accompany in the (
1) Company/Facility Name	ACME CORPORATION				1a) Form INV-5 Page	5	of	5
2) Emission Point No.	EP3	3) I	Emission Uni	t No. 🛛	EU3			
4) Calculations are provided i	n support of information reported on Form	n INV -	3 🛛	4 🖂	for the Emission Point a	Ind Emissio	on Unit lis	ted above.
5) Emissions Calculations								
Process: Industrial Boiler	SCC No. 10200502							
Maximum rate: 15 Mill	Fuel Oil: 140,000 Btu per gallon, Pe lion Btu/hr, 107 gallons per hour = - Yearly Total: 5,000 gallons							
	on Factors from FIRE 6.25 (SCC N	lo. 10)200502)					
	per 1,000 gallons burned per 1,000 gallons burned							
SO ₂ 142 (S)) lb per 1,000 gallons burned		S =	percent	sulfur in fuel			
	per 1,000 gallons burned per 1,000 gallons burned							
1	per 1,000 gallons burned							
Ammonia 0.8 lb p	per 1,000 gallons burned							
Calculations POTENTIAL EMISSIC								
	on to work, the design capacity unit value. Since the emission factor un per hour.							
Potential PM _{2.5} tons/yr (0.107 1,000 gal/hr) x (1.55 lb/1,000 gal) x (8,760 hr/yr)	x (1	ton/2,000	lb) = 0.	73			
Potential SO ₂ tons/yr $(0.107 \ 1,000 \ \text{gal/hr}) \ x$ [142 (0.4 % sulfur) lb/1,000 gal] x	(8,76	50 hr/yr) x	(1 ton/2	2,000 lb) = 26.62			
Potential PM_{10} tons/yr = Potential NOx tons/yr = 9 Potential VOC tons/yr = 9	9.37							
Potential CO tons/ $yr = 2$. Potential Ammonia tons/ yr	34							
ACTUAL ANNUAL EN Actual PM _{2.5} tons (5 1,000 gal) x (1.55 lb/	MISSIONS: (1 ton/2,000 lb) = 0.0)0						
Actual SO ₂ tons (5 1,000 gal) x [142 (0.4)	4 % sulfur) lb/1,000 gal] x (1 ton/2	2,000) lb) = 0.14					
Actual PM_{10} tons = 0.01								
Actual NOx tons $= 0.05$								
Actual VOC tons = 0.00 Actual CO tons = 0.01								
Actual Ammonia tons = 0.01).00							
Duplicate this form as needed	Тү	PE ALL			(DNR Form 5	42-4003. De	ecember 24,	2007)

Duplicate this form for EACH Emission UNIT

1)	Company/F	acility Name	AC	ME	ME CORPORATION 1a) Form INV-3 F								of	3
2)	Emission P	oint Number	EF	' 3					·		•	•		
					E	VISSION UNIT (P	ROCESS)	IDENTIFICATION &	DESCRIP	TION				
3)	Emission U	Init Number	EL	J3										
4)	SCC Numb	er	10	2005	502									
5)	Description	of Process	NC). 2	FUE	L OIL COM	IBUSTI	ON						
6)	Date of Cor	nstruction	1 0/30/ 1	985	7	7) Date of Inst	tallation	10/30/1985	8)	Date of Modifica	tion			
9)		al – OR Fuels U case for EACH p			NO.	2 FUEL O	IL							
10)	Federally E	nforceable Limi	it											
11)	Permit or R	ule Establishing	g Limit											
12)	Maximum H	lourly Design R	ate		0.10)7		1,0	000 G/	ALLONS		Per H	our	
13)				1		AIR POLL	UTION CO	NTROL EQUIPMEN	T (CE)					
	Control Equ	I Equipment Number												
	Control Eq	uipment Descrip	otion											
		uipment Numbe												
	Control Equ	ontrol Equipment Description												
	POTENTIAL EMISSIONS 15 17 18 19 20 21 22 23													
Ai	14 r Pollutant	Emission Factor	Emissio	16 n Facto	r Units	Source of Emission Factor	Ash or Sulfur %	Potential Hourly Uncontrolled Emissions (Lbs/Hr)	Combine Control Efficienc	d Transfer	Potential Contro Emissions	lled	Emission	
	PM-2.5	1.55	LB/1,	000 (GAL	WEBFIRE		0.17					0.73	}
	PM-10	2.3	LB/1,	000 (GAL	WEBFIRE		0.25					1.08	3
	SO ₂	142	LB/1,	000 (GAL	WEBFIRE	0.4	6.08					26.6	52
	NOx	20.0	LB/1,	000 (GAL	WEBFIRE		2.14					9.37	7
	voc	0.2	LB/1,	000 (GAL	WEBFIRE		0.02					0.09	•
	со	5.0	LB/1,	000 (GAL	WEBFIRE		0.54					2.34	1
	Lead													
A	mmonia	0.80	LB/10	00 G	GAL	WEBFIRE		0.09					0.37	7
PO	TENTIAL E	EMISSIONS -	Individua	al HAF	os and	additional reg	gulated ai	r pollutants – list	each ine	dividual polluta	nt name i	in Colu	ımn 14	r

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Form INV-4 EMISSION UNIT DESCRIPTION – ACTUAL EMISSIONS Duplicate this form for EACH Emission UNIT															
1) Company/Facility	y Name	ACI	ME CORPO	RAT	ION				1a) Fo	rm IN	/-4 Page	3	of	3	
2) Emission Year		201	4 3)) Emi	ssion Point Num	ber			EP3			•	·	-	
				SION	UNIT – ACTUAL	OPERAT	IONS A	ND EM	ISSIONS						
4) Emission Unit Nu		EU3					5) S	CC Nur	nber	102	200502				
6) Description of Pr	ocess	NO.	2 FUEL OI												
					ACTUAL	THROUG	IPUT								
7) Raw Material			NO. 2 FUEL						4.00			<u> </u>			
8) Actual Throughp	out – Yearly Tot	al	5		9) Actual Operating		aw Ma	terial	1,00	00 G	ALLON	5			
	10) Percer	nt of ⁻	Total Operating Ti		11) Hou	-	lieuule		12) Da	ys/W	ek		13) Weeks/Qu	arter	
JAN – MAR			35		2	4				7			13		
APR – JUN			15		2	4			7				6		
JUL – SEP			15		2	4			7				6		
OCT - DEC			35		24					7			13		
14)				AIR	POLLUTION CO	NTROL E		IENT (C	E)						
Control Equipm	nent Number														
Control Equipm	nent Description	n													
Control Equipm	nent Number														
Control Equipm	nent Description	n													
		—		r –	ACTUAL E	1		1	20						
15 Air Pollutant	16 Emission Factor	Em	17 nission Factor Units	Sou	Irce of Emission Factor	19 Ash or S			oined Cor		21 Transfer Eff	iciency	22 Actual Emissio		
PM-2.5 1	.55	LE	B/1,000 GAL	WE	BFIRE								0.00		
PM-10 2	.3	LE	B/1,000 GAL	WE	BFIRE								0.01		
so₂ 1	42	LE	B/1,000 GAL	WE	BFIRE	0.4							0.14		
NOX 2	0.0	LE	B/1,000 GAL	WE	BFIRE								0.05		
voc 0	.2	LE	B/1,000 GAL	WE	BFIRE								0.00		
co <mark>5</mark>	.0	LE	B/1,000 GAL	WE	BFIRE								0.01		
Lead															
Ammonia <mark>0</mark>	.80	LE	B/1,000 GAL	WE	BFIRE								0.00		
ACTUAL EMISSI	ONS – Individ	lual	HAPs and addit	ional	regulated air	ollutan	ts – lis	t each	indivic	lual p	ollutant n	ame in	Column 15		

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed

TYPE ALL INFORMATION

Form INV-6 FACILITY-WIDE POTENTIAL & ACTUAL EMISSIONS

1) Facility Name	AC	2) Form INV-6 Page	1	of	1			
3) Emission Year	I				20'	14		
The facility-wide por annual emissions" (otals for each air pollutant may be c IV-3 forms	alculated by summing	j the "	potentia	al		
The facility-wide act emissions" (box #22		ls for each air pollutant may be calo ms	ulated by summing th	ie "act	ual			
4) Facility-Wide Crit Tons/Yr Where App		and Ammonia Emissions (Use Faci	lity-Wide Permit Limit	For P	otential			
Air Pollutant		ID or CAS Number	Potential Tons/Y	r Ac	tual To	ns		
PM-2.5		PM-2.5	1.67		0.18	5		
PM-10		PM-10	2.02		0.19)		
Sulfur Dioxide		7446-09-5	26.62		0.14			
Nitrogen OxidesNOx9.370.05								
Volatile Organic Co	mpounds	VOC	6.15		1.63	;		
Carbon Monoxide		630-08-0	2.34		0.01			
Lead		7439-92-1						
Ammonia		7664-41-7	0.37		0.00			
5) Facility-Wide Haz Limit For Potential 1		ant and Other Regulated Air Polluta plicable)	nt Emissions (Use Fa	cility-\	Nide Pe	ermit		
Please duplicate the being emitted at the	is form as necess e facility	ary to include all hazardous air poll	utants and other regu	lated a	air pollu	itants		
Air Pollutant		ID or CAS Number	Potential Tons/Y	r Ac	tual To	ns		
Chromium Compou	ınds	7440-47-3	0.07		0.01			
Manganese Compo	unds	7439-96-5	0.05		0.01			
Nickel Compounds		7440-02-0	0.02		0.00)		
Xylene		1330-20-7	1.40		0.32	2		
Toluene		108-88-3	2.16		0.27	,		



AIR QUALITY BUREAU 7900 Hickman Rd., Suite 1 Windsor Heights, IA 50324

IOWA DNR Emission Inventory Questionnaire

Form INV-1 Facility Identification

1) Application Type	Initial	Supplemental I	nformation									
2) Facility Number		99-99-999										
3) Company/Facility Na	ame	ACME HO	SPITAL									
4) Number of State-Wi	de Company Employees	Less Than or E	qual to 100	Greater Than 100								
5) Emission Year		2014										
6) Facility Street Addre	ess	222 N 2 ND	ST									
7) Facility City		ANYTOW	N		IA							
8) Zip Code		55555										
9) Facility Contact Per	son	DAVID SN	ІІТН									
10) Facility Contact Ph	one Number / E-Mail Address	515-555-5	DSMITH@EMAILACMECORP									
11) Mailing Street/PO E	Box	PO BOX 1	23	•								
12) Mailing City		ANYTOW	N									
13) State		IA										
14) Zip Code		55555										
15) Parent Company /	Owner Name											
16) Parent Company /	Owner Mailing Address											
17) City												
18) State												
19) Zip Code												
20) Parent Company C	ontact/Agent											
21) Parent Company C	ontact Phone Number											
	true, accurate, and complete	nformation and		MENT easonable inquiry, the statements and informati ements, representations, or certifications of thi								
22) Name of Respon	sible Official		23) Title of R	esponsible Official								
	nensible Official											
24) Signature of Res	-	0000	25) Date of S	-	2214.0							
	ndustrial Classification (SIC)	8062	-	an Industrial Classification System (NAICS) 62	22110							
27) Activity Descriptio	General medical		-									
		28) S		3								
SIC			NAICS									
Activity Description			Activity Description NAICS									
SIC												
Activity Description			Activity Description									
		29) PLANT LOCATION									
Latitude	41.605621											
Longitude	-93.588353											

Form INV-2 EMISS	PTION	N Duplicate this form for EACH Emission POINT									
1) Company/Facility Name	ACME	HOSPITAL	_				1a) Form IN	V-2 Page	1	of	4
2) Emission Point Number	EP4										
3) Emission Point Description	BOILE	R STACK									
4) Is this stack/vent used as an Emergency Bypass Stack?	No	Yes]							
If YES, for which stack(s)? List Emiss	ion Point N	os.:									
		EN	IISSION P	POINT	INFORMATIO	N					
5) Emission Point Type											
Stack/Vent											
Fugitive (specify)											
Other (specify)											
6) Stack Shape and Dimensions: (in	terior dimen	nsions at exit poir	nt)								
Circular Diameter:	18	inches	6	-							
Rectangular Dimensions:		inches	5 X			inches					
Other Dimensions		inches	6								
7) Stack Height Above Ground	20	feet									
8) Does the Emission Point have a ra	in cap (or a	nything else) whi	ch obstru	ucts th	e flow of gas	es leaving th	e Emission P	oint, or a hor	izontal di	scharge?	
No YES (specify):											
		9) COM	IPOSTIO	N OF I	EXHAUST ST	REAM					
Exhaust Stream Characteristics		ission Point on of Exhaust Stre	am l	Units o	of Measure						
a) Flow Rate 3	,600		1	🛛 AC	FM 🗆 S	SCFM					
b) Temperature 3	00		C	Degree	e Fahrenheit						
			10) BY	PASS	STACKS						
Bypass Stack – Emission Point No.		Bypass Stack Description									
Bypass Stack – Emission Point No.		Bypass Stack Description									
	11) LIS	ST OF EMISSION	UNITS VE		G THROUGH	THIS EMISSI					
Emission Unit No.	Emissio	n Unit No			Emission Ur	nit No.		Emission	Unit No.		
EU4											

TYPE ALL INFORMATION

	Form I	NV-5 C	ALCULATIONS						Duplicate this fo accompany in th				1
1)	Company/Facility	Name	ACME HOSPITAL						1a) Form INV-5 Page		1	of	7
2)	Emission Point No	b .	EP4		3) E	Emission Unit	No.	EU	4				
4)	Calculations are p	orovided i	n support of information rep	orted on Form	INV -	3 🖂	4 🛛	$\overline{\triangleleft}$	for the Emission Poir	it and	d Emissi	on Unit lis	sted above.
5)	Emissions Calcula	ations											
Pı	rocess: Industria	l Boiler	SCC No. 10200602										
Μ	laximum rate:	15 Mill	Gas: 1050 Btu/ft ³ ion Btu/hr, 14,286 ft ³ /h - Yearly Total: 24.5 M		/lcf/l	hr							
PI PI SC N V C A	M _{2.5} M ₁₀ O ₂ Ox OC	7.6 lb p 7.6 lb p 0.6 lb p 100 lb p 5.5 lb p 84 lb pe 3.2 lb p	on Factors from WebFII er MMcf burned er MMcf burned oer MMcf burned er MMcf burned er MMcf burned er MMcf burned er MMcf burned oer MMcf burned	RE (SCC No	o. 10	200602)							
<u>C</u>	alculations												
P	OTENTIAL EN	MISSIC	NS:										
Pe	otential PM _{2.5} to otential PM ₁₀ to 0.014 MMcf/hr)	ns/yr	lb/MMcf) x (8,760 hr/	yr) x (1 ton	/2,00	00 lb) = 0.	47 to	ns/yr					
Po Po Po Po	otential SO ₂ tonso otential NOx tor otential VOC tonso otential CO tonso otential Ammon otential Hexane	ns/yr = 6 ns/yr = 0 yr = 5.2 ia tons/y	5.13).34 15 yr = 0.20										
A A	CTUAL ANNU ctual $PM_{2.5}$ tons ctual PM_{10} tons 24.5 MMcf) x (IISSIONS: IMcf) x (1 ton/2000 lb	$) = 0.09 ext{ tons}$	5								
A A A A	ctual SO ₂ tons = ctual NOx tons ctual VOC tons ctual CO tons = ctual Ammonia ctual Hexane to	= 1.23 = 0.07 1.03 tons = 0											

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH

1)	Company/F	acility Name			HOS	SPITAL			1a)	Form INV-3 Pa	-	1		of	4
2)		oint Number		EP4							-	-			•
<i>,</i>					Eľ	MISSION UNIT (F	PROCESS)	IDENTIFICATION &	DESCRIP	TION					
3)	Emission U	nit Number	E	EU4											
4)	SCC Numb	er	1	0200	602										
5)	Description	of Process	1	NATU	RAL	GAS COM	BUSTI	ON							
6)	Date of Cor	nstruction	10/30)/1985	5	7) Date of Ins	tallation	10/30/1985	8)	Date of Modific	ation				
9)		al – OR Fuels l ase for EACH		nt	NA	FURAL GA	S								
10)	Federally E	nforceable Lim	nit												
11)	Permit or R	ule Establishin	ng Limit												
12)	Maximum H	lourly Design F	Rate		0.01	4			MN	ICF			Per H	our	
13)						AIR POLI		NTROL EQUIPMEN	T (CE)						
	Control Equ	uipment Numb	er												
	Control Equ	uipment Descri	iption												
	Control Equ	uipment Numb	er												
	Control Equ	uipment Descri	iption												
		45	<u> </u>				1	EMISSIONS 19	20	~ ~	r	22			23
Ai	14 ir Pollutant	15 Emission Factor	Emis	16 sion Facto	or Units	17 Source of Emission Factor	18 Ash or Sulfur %	Potential Hourly Uncontrolled Emissions (Lbs/Hr)	Combine Contro Efficienc	Efficiency		ential Ho Controlle sions (L	ed .	En	ntial Annual nissions ons/Yr)
	PM-2.5	7.6	LB/	MCCF		WEBFIRE		0.11						0.47	r
	PM-10	7.6	LB/	MMCF	-	WEBFIRE		0.11						0.47	7
	SO ₂	0.6	LB/	MMCF	•	WEBFIRE		0.01						0.04	L
	NOx	100	LB/	MMCF	•	WEBFIRE		1.40						6.13	3
	voc	5.5	LB/	MMCF	-	WEBFIRE		0.08						0.34	Ļ
	со	84	LB/	MMCF	-	WEBFIRE		1.18						5.15	5
	Lead														
A	Ammonia	3.2	LB/	MMCF		WEBFIRE		0.04						0.20)
PO	TENTIAL E	EMISSIONS -	Individ	dual HA	Ps and	d additional re	gulated ai	r pollutants – list	each in	dividual pollut	ant na	ame in	Colu	mn 14	
	Hexane	1.8	LI	B/MM(CF	WEBFIRE		0.03						0.11	1

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed

Fo	rm INV-4 EN	IISSIC	ON UNIT DES	CRIPTIO	N – ACT	FUAL E	EMISS	SION	S			cate thi sion UN	s form for EAC	н
1) Company/F	acility Name	AC	ME HOSPIT	AL					1a) For	rm IN	V-4 Page	1	of	5
2) Emission Y	'ear	201	14 3) Emission I	Point Numl	ber			EP4			•	·	
				SION UNIT -	- ACTUAL	OPERATI	ONS AI	ND EMI	SSIONS					
4) Emission U	Init Number	EU					5) SC	CC Num	ber	102	200602			
6) Description	of Process	NA	TURAL GAS											
7) Raw Materi	al		NATURAL		ACTUAL T	HROUGH	IPUT							
,	oughput – Yearly	Tetel	24.5	GAS	9)	Units R	ow Mot	arial	RANA	<u> </u>				
8) Actual Thro	bugnput – rearly	Total	24.3	Actual	Operating			eriai	MM	GL				
	10) Pe	rcent of	Total Operating T		11) Hou				12) Da	ys/W	eek		13) Weeks/Qu	larter
JAN – MA	R		25		8					5			13	
APR – JU	N		25		8	}				5			13	
JUL – SEI	2		25		8	1				5			13	
OCT - DE	C		25		8					5			13	
14)				AIR POLL	UTION CO	NTROL E	QUIPM	ENT (C	E)					
	quipment Numbe													
Control E	quipment Descri	otion												
Control E	quipment Numbe	r												
Control E	quipment Descri	otion												
15	16		17	18		MISSIONS 19	5		20		21		22	2
Air Pollutant	Emission Fac	tor E	mission Factor Units	Source of Fact		Ash or Su	ılfur %		ined Con ficiency		Transfer Eff	iciency	Actual Emissio	
PM-2.5	7.6	L	B/MMCF	WEBFIF	RE								0.09	
PM-10	7.6	L	B/MMCF	WEBFIF	RE								0.09	
SO2	0.6	L	B/MMCF	WEBFIF	RE								0.01	
NOX	100	L	B/MMCF	WEBFIF	RE								1.23	
voc	5.5	L	B/MMCF	WEBFIF	RE								0.07	
со	84	L	B/MMCF	WEBFIF	RE								1.03	
Lead														
Ammonia	3.2	L	B/MMCF	WEBFIF	RE								0.04	
ACTUAL EN	IISSIONS – Ind	ividual	HAPs and addit	ional regul	ated air p	ollutant	s – list	t each	individ	lual p	ollutant n	ame ir	Column 15	
Hexane	1.8	L	B/MMCF	WEBFIF	RE								0.02	

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Duplicate this form as needed

TYPE ALL INFORMATION

ON POINT DESCRIPT	ΓΙΟΝ			Duplicate Emission	this form f POINT	for EACH	
ACME HOSPITAL			1a) For		2	of	4
EP5							
DIESEL GENERAT	FOR ST	ACK					
No Yes							
on Point Nos.:							
EMIS	SSION POIN	IT INFORMATIO	N				
erior dimensions at exit point))						
5 inches							
inches	x		inches				
inches							
7 feet							
n cap (or anything else) which	h obstructs	the flow of gase	s leaving the Emissic	on Point, or a hor	rizontal di	scharge?	
9) COMF	POSTION O	F EXHAUST STR	EAM				
Emission Point Composition of Exhaust Stream	m Unit	s of Measure					
795			CFM				
00	Deg	ree Fahrenheit					
	10) BYPA	SS STACKS					
Bypass Stack Description							
Bypass Stack Description							
	NITS VENT	NG THROUGH T	HIS EMISSION POIN	Г			
Emission Unit No		Emission Unit	No.	Emission	Unit No.		
	ACME HOSPITAL EP5 DIESEL GENERAT No Ves on Point Nos.: EMI erior dimensions at exit point 5 inches feet n cap (or anything else) which feet n cap (or anything else) which 9) COMI Emission Point composition of Exhaust Stread 9) COMI Emission Point Composition of Exhaust Stread 795 00	ACME HOSPITAL EP5 DIESEL GENERATOR ST No ✓ Yes ✓ on Point Nos.: EMISSION POIN errior dimensions at exit point) 5 5 inches inches X inches X reap: (or anything else) which obstructs Somposition of Exhaust Stream Unit: O > 9) COMPOSTION OF Emission Point Unit: Composition of Exhaust Stream Unit: 10) BYPA: Ø Bypass Stack ✓ Bypass Stack ✓ Bypass Stack ✓ Discription 11) LIST OF EMISSION UNITS VENTI	ACME HOSPITAL EP5 DIESEL GENERATOR STACK No ✓ Yes on Point Nos.: EMISSION POINT INFORMATION State errior dimensions at exit point) 5 inches inches 7 feet n cap (or anything else) which obstructs the flow of gase 9) COMPOSTION OF EXHAUST STR Emission Point Units of Measure 795 Ø ACFM St 10) BYPASS STACKS Bypass Stack Description Bypass Stack Description 11) LIST OF EMISSION UNITS VENTING THROUGH T Intervalue	ACME HOSPITAL 1a) For EP5 DIESEL GENERATOR STACK No Ves OPOINT INFORMATION EMISSION POINT INFORMATION FINIT DIAL STATE ST	ACME HOSPITAL a) Form INV-2 Page EP5 DIESEL GENERATOR STACK No Yes on Point Nos:: EMISSION POINT INFORMATION	ACME HOSPITAL 1a) Form INV-2 Page 2 EP5 DIESEL GENERATOR STACK No Ves on Point Nos.: EMISSION POINT INFORMATION EMISSION POINT INFORMATION Frior dimensions at exit point) 5 inches 7 feet n cap (or anything else) which obstructs the flow of gases leaving the Emission Point, or a horizontal di 9) COMPOSTION OF EXHAUST STREAM Emission Point 10) BYPASS STACKS Bypass Stack Description 11) LIST OF EMISSION UNITS VENTING THROUGH THIS EMISSION POINT 11) LIST OF EMISSION UNITS VENTING THROUGH THIS EMISSION POINT	ACME HOSPITAL 1a) Form INV-2 Page 2 of EP5 DIESEL GENERATOR STACK No Yes on Point Nos.: EMISSION POINT INFORMATION EMISSION POINT INFORMATION Frior dimensions at exit point) 5 inches inches X inches 7 feet n cap (or anything else) which obstructs the flow of gases leaving the Emission Point, or a horizontal discharge? 9) COMPOSTION OF EXHAUST STREAM Emission Point composition of Exhaust Stream 9) COMPOSTION OF EXHAUST STREAM Emission Point 10 BYPASS STACKS Bypass Stack Description 11) LIST OF EMISSION UNITS VENTING THROUGH THIS EMISSION POINT

TYPE ALL INFORMATION

	Form INV-5 C	ALCULATIONS						Duplicate this form accompany in the C			
1)	Company/Facility Name	ACME HOSPITAL						1a) Form INV-5 Page	2	of	7
2)	Emission Point No.	EP5	3)	Emis	sion Unit	No.	EU	5	<u> </u>	<u> </u>	
4)	Calculations are provided in	n support of information reported on Form	INV	- 3	\bowtie	4 🖂]	for the Emission Point a	nd Emissi	on Unit list	ted above.
5)	Emissions Calculations										
Pr	ocess: Diesel Generator	r < 600 BHP SCC No. 20200102									
M Ad Po Pl Pl	ctual Year ThroughputcllutantEmission $M_{2.5}$ 0.31 lb M_{10} 0.31 lb	Fuel gallons/hr, 0.140 MMBtu/gallon = - Yearly Total: 1,000 gallons, 0.14 on Factors from AP-42 (SCC No. 20 per MMBtu burned (Note: Per We per MMBtu burned per MMBtu burned	40 N 020	4MB 0102	stu/gallon 2)	n = 14)		
		per MMBtu burned									
		per MMBtu burned									
С С	alculations	per MMBtu burned									
Ne	finition of potential to emi	for most generators can be calculated it from 567 IAC 22.100: he purposes of calculating potential to o	emit he g ^F the	for en enera gener	emergency ator has a rator has	y gene actual actua	erator ly bee ally be	rs, "maximum capacity" en operated less than 5 een operated more than	' means o 00 hours	me of the per year	following
Po	otential $PM_{2.5}$ tons/yr otential PM_{10} tons/yr 6.7 MMBtu/hr) x (0.3	1 lb/MMBtu) = 5.177 lb/hr x (500)	hou	ırs∕y€	ear) x (1	ton/	2,000) lb) = 1.29 tons/yr			
Po Po	totential SO ₂ tons/yr = 1. totential NOx tons/yr = 1 totential VOC tons/yr = 1 totential CO tons/yr = 3.9	8.41 1.46									
A A	CTUAL ANNUAL EN ctual $PM_{2.5}$ tons ctual PM_{10} tons 40 MMBtu) x (0.31 lb	MISSIONS: /MMBtu) x (1 ton/2,000 lb) = 0.02	2 toi	ns							
A A	ctual SO ₂ tons = 0.02 ctual NOx tons = 0.31 ctual VOC tons = 0.02 ctual CO tons = 0.07										

Duplicate this form as needed

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH Emission UNIT

1)	Company/F	acility Name	4	ACME	HOSP	ITAL			1a)	Form INV-3 Pa	ge <mark>2</mark>		of	4
2)	Emission P	oint Number	E	EP5					·		·			
					EMIS	SION UNIT (PROCESS)	IDENTIFICATION &	DESCRIPT	ION				
3)	Emission U	nit Number		EU5										
4)	SCC Numb	er	2	20200	102									
5)	Description	of Process	ַן	DIESE	L FUE		BUSTIO	N < 600 BHP						
6)	Date of Cor		6/1/8	5	7)	Date of In	stallation	6/1/85	8)	Date of Modifica	tion			
9)		al – OR Fuels ase for EACH		nt	DIESE	EL FUEL	-							
10)	Federally E	nforceable Lir	mit		500 H	OURS/Y	(EAR							
11)	Permit or R	ule Establishi	ing Limit		567 I <i>A</i>	C 22.10	0							
12)	Maximum H	lourly Design	Rate		16.7			MMBTU				Per H	our	
13)						AIR POL	LUTION CO	NTROL EQUIPMEN	T (CE)					
	Control Equ	uipment Numb	ber											
	Control Equ	uipment Desci	ription											
	Control Equ	uipment Numb	ber											
	Control Equ	uipment Desci	ription											
		15				17	POTENTIAL 18	EMISSIONS 19	20	21	2		<u> </u>	23
Ai	14 r Pollutant	Emission Factor	E	1 mission F	6 actor Units	Source of Emission	Ash or Sulfur %	Potential Hourly Uncontrolled	Combined Control	Transfer Efficiency	Contr	l Hourly olled	En	ntial Annual
	PM-2.5	0.31	L	в/мм	зти	Factor		Emissions (Lbs/Hr)	Efficiency	-	Emission	s (LDS/Hr)	1.29	'ons/Yr)
	PM-10	0.31		B/MME		RE AP-42		5.18					1.29	
<u> </u>	SO ₂	0.29		B/MME		AP-42		4.84					1.2	
<u> </u>		4.41		B/MM		AP-42		73.65					1.2	
<u> </u>	NOx													
	VOC	0.35		B/MME	BTU	AP-42		5.85					1.46	
	СО	0.95	LI	B/MME	BTU	AP-42		15.87					3.97	,
	Lead													
A	mmonia													
PO	TENTIAL E	EMISSIONS -	– Indivic	dual HA	Ps and a	dditional re	egulated ai	r pollutants – list	each indi	vidual polluta	int name	in Colu	ımn 14	,
<u> </u>														
<u> </u>														

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed

Form	INV-4 EMI	SSIO	N UNIT DE	SCRI	PTION – AC	TUAL E	EMIS	SION	S			ate this ion UN	s form for EAC	H
1) Company/Faci	lity Name	AC	ME HOSPI	TAL					1a) Fo	rm IN	/-4 Page	2	of	5
2) Emission Year		201	4	3) Em	ission Point Num	ber			EP5					-
				ISSION	UNIT – ACTUAL	OPERAT	IONS A		ISSIONS	3				
4) Emission Unit	Number	EU					5) S(CC Nun	nber	202	200102			
6) Description of	Process	DIE	SEL COM	BUS	TION < 600									
		1			ACTUAL	THROUGH	IPUT							
7) Raw Material			DIESEL FU	JEL						<u> </u>	•			
8) Actual Throug	hput – Yearly To	otal	140		9) Actual Operating		aw Mat	erial	MM	BIC)			
	10) Perc	ent of	Total Operating	Time	11) Hou		lieuule		12) Da	ays/W	ek		13) Weeks/Qu	arter
JAN – MAR			23.5		1					1			2	
APR – JUN			23.5		1					1			2	
JUL – SEP			23.5		1					1			2	
OCT - DEC			29.4		1.:	25				1			2	
14)	L			AIF	POLLUTION CO	NTROL E	QUIPM	ENT (C	E)					
Control Equi	pment Number													
Control Equi	pment Descripti	on												
Control Equi	pment Number													
Control Equi	pment Descripti	on												
		-			ACTUAL E				20					
15 Air Pollutant	16 Emission Facto	En	17 nission Factor Unit	s So	urce of Emission Factor	19 Ash or Si			pined Col		21 Transfer Effi	ciency	22 Actual Emissio	
PM-2.5	0.31	LE	B/MMBTU	We	bFIRE								0.02	
PM-10	0.31	LE	B/MMBTU	AP	-42								0.02	
SO2	0.29	LE	B/MMBTU	AP	-42								0.02	
NOX	4.41	LE	B/MMBTU	AP	-42								0.31	
voc	0.35	LE	B/MMBTU	AP	-42								0.02	
со	0.95	LE	B/MMBTU	AP	-42								0.07	
Lead														
Ammonia														
ACTUAL EMIS	SIONS – Indiv	idual	HAPs and add	litiona	l regulated air i	ollutant	ts – list	t each	indivio	dual p	ollutant na	ame in	Column 15	

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed

TYPE ALL INFORMATION

Form INV-2 EMISS		NT DESCRI	PTION	I				Duplicate Emission	this form POINT	for EACH	
1) Company/Facility Name	ACME	HOSPTIA	L				1a) Form IN		3	of	4
2) Emission Point Number	EP6										
3) Emission Point Description	DIESE		TOR	ST/	ACK						
4) Is this stack/vent used as an Emergency Bypass Stack?	No	Ye	s [
If YES, for which stack(s)? List Emis	sion Point N	los.:									
		El	MISSION	POIN	T INFORMATIC	N					
5) Emission Point Type											
Stack/Vent											
Fugitive (specify)											
Other (specify)											
6) Stack Shape and Dimensions: (i	nterior dime	nsions at exit poi	nt)								
Circular Diameter:	5	inche	s								
Rectangular Dimensions:		inche	s X			inches					
Other Dimensions		inche	s								
7) Stack Height Above Ground	67	feet									
8) Does the Emission Point have a	ain cap (or a	anything else) wh	ich obst	ructs	the flow of gase	es leaving th	e Emission Po	nt, or a ho	rizontal di	scharge?	
No YES (specify):											
		9) CO	MPOSTI	ON OF	EXHAUST ST	REAM					
Exhaust Stream Characteristics		nission Point on of Exhaust Str	eam	Units	of Measure						
a) Flow Rate	7,795				CFM 🗆 S	CFM					
b) Temperature	100			Degr	ee Fahrenheit						
			10) E	BYPAS	S STACKS						
Bypass Stack – Emission Point No.		Bypass Stack Description									
Bypass Stack – Emission Point No.		Bypass Stack Description									
	11) LI	ST OF EMISSION		/ENTII		THIS EMISS					
Emission Unit No.	Emissio	on Unit No			Emission Un	it No.		Emission	Unit No.		
EU6											

TYPE ALL INFORMATION

Form INV-5 CALCULATIONS

Duplicate this form for each Form it will

		CALCULATIONS					accompany	/ in the C		aire	
1)	Company/Facility Name	ACME HOSPITAL					1a) Form INV-5	Page	3	of	7
2)	Emission Point No.	EP6	3)	Emission Uni	t No.	EU	6				
4)	Calculations are provide	d in support of information reported on Form	m INV -	3 🖂	4 🖂]	for the Emissior	n Point a	Ind Emiss	ion Unit I	isted above.
5)	Emissions Calculations										
Fu M	uel:Diesaximum rate:226.9	tor > 600 BHP SCC No. 20200401 el Fuel 9 gallons/hr, 0.140 MMBtu/gallon = 1t - Yearly Total: 1,900 gallons, 0.1	31.7			66 M	MBtu				
		ssion Factor from WebFIRE (SCC N lb/1,000 gallons or 0.05 lb/MMBtu	o. 20	200401)							
	M ₁₀ perfo	sion Factors from DNR Memo. This rmed in the state. An emission facto lb per MMBtu burned						or. It i	s based	on stacl	tests
SC N	D2 1.01 Ox 3.21 OC 0.08	sion Factors from AP-42 (SCC No. 2 S) lb per MMBtu burned S = p p per MMBtu burned 19 lb per MMBtu burned lb per MMBtu burned)401) t sulfur in f	uel						
P Na	finition of potential to Fo follow	nit for most generators can be calculated mit from 567 IAC 22.100: • the purposes of calculating potential to	emit j the ge if the s	for emergen enerator has generator ha	cy gen actual s actu	erator Ily bee ally be	s, "maximum co en operated less een operated mo	apacity' than 5	" means c 00 hours	one of th per yea	e r
	otential PM _{2.5} tons/yr 1.77 MMBtu/hr) x	0.05 lb/MMBtu) = 1.59 lb/hr x (50)	0 hou	rs/year) x ((1 ton/	2,000	(1b) = 0.40 to	ns/yr			
	otential SO ₂ tons/yr 1.77 MMBtu/hr) x	1.01 (0.5 % sulfur) lb/MMBtu] x (5	500 ho	ours/year) .	x (1 to	on/2,(000 lb) = 4.01	tons/y	r		
Po Po	otential PM ₁₀ tons/yr otential NOx tons/yr otential VOC tons/yr otential CO tons/yr =	= 25.42 = 0.65									
A	CTUAL ANNUAL $\frac{1}{2.5}$ tons 66 MMBtu) x (0.05	EMISSIONS: lb/MMBtu) x (1 ton/2000 lb) = 0.0	1 tons	5							
Ao Ao Ao	ctual PM_{10} tons = 0.0 ctual SO_2 tons = 0.07 ctual NOx tons = 0.4 ctual VOC tons = 0.0 ctual CO tons = 0.11	3									

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH Emission UNIT

1)	Company/F	acility Name	AC	ME	HOSF	PITAL			1a)	Form INV-3 Pag	ge <mark>3</mark>		of	4
2)	Emission P	oint Number	EF	6										
					EMIS	SION UNIT	(PROCESS)	IDENTIFICATION &	DESCRIPT	ΓΙΟΝ				
3)	Emission U	nit Number	EL	J6										
4)	SCC Numbe	er	20	2004	401									
5)	Description	of Process	DI	ESE	L FUE	L COME	BUSTIO	N > 600 BHP						
,	Date of Cor		6/1/85		7)	Date of In	stallation	6/1/85	8)	Date of Modifica	tion			
		al – OR Fuels U ase for EACH p			DIESI	EL FUEL	-							
10)	Federally E	nforceable Limi	t		500 H	OURS/	(EAR							
11)	Permit or R	ule Establishing	g Limit		567 I <i>A</i>	AC 22.10	00							
12)	Maximum H	lourly Design R	ate		31.77			MMBTU				Per H	lour	
13)				1		AIR POL	LUTION CO	NTROL EQUIPMEN	T (CE)					
<u> </u>	Control Equ	uipment Numbe	r											
	Control Equ	uipment Descrip	otion											
	Control Equ	uipment Numbe	r											
<u> </u>	Control Equ	uipment Descrip	otion											
		15				17	POTENTIAL 18	EMISSIONS 19	20	. 21		22		23
Air	14 r Pollutant	Emission Factor	Emis	16 sion Fa	6 actor Units	Source of Emission Factor	Ash or Sulfur %	Potential Hourly Uncontrolled Emissions (Lbs/Hr)	Combined Control Efficiency	Transfer	Con	ial Hourly trolled ns (Lbs/Hr)	Er	ntial Annual nissions rons/Yr)
I	PM-2.5	0.05	LB/	мме	вти	WebFI RE		1.59					0.40)
	PM-10	0.14	LB/	MME	BTU	DNR Memo		4.45					1.1	1
	SO2	1.01	LB/	MME	BTU	AP-42	0.5	16.04					4.0	1
	NOx	3.2	LB/	MME	BTU	AP-42		101.66					25.4	12
	voc	0.0819	LB/	MME	BTU	AP-42		2.60					0.6	5
	со	0.85	LB/	MME	BTU	AP-42		27.00					6.7	5
	Lead													
Ai	mmonia													
PO	TENTIAL E	EMISSIONS -	Individua	al HAI	Ps and a	dditional re	egulated ai	r pollutants – list	each ind	ividual polluta	nt nam	e in Col	umn 14	ŀ

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Duplicate this form as needed

Form I	INV-4 EMIS	SSIO	N UNIT DE	SCRI	PTION – AC	TUAL E	EMIS	SION	S		Duplic Emiss		s form for EACI IT	н
1) Company/Facilit	y Name	ACI	ME HOSPI	TAL					1a) Fo	rm IN\	/-4 Page	3	of	5
2) Emission Year		20 1	4	3) Emi	ission Point Num	ber			EP6				·	
				ISSION	UNIT – ACTUAL	OPERAT								
4) Emission Unit N	umber	EUe					5) S(CC Nun	nber	202	200401			
6) Description of P	rocess	DIE	SEL COM	BUS	FION > 600									
7) Raw Material				IEI	ACTUAL 1	IHROUGH	IPUT							
8) Actual Throughp	out – Yearly To		266		9)	Units R	aw Mat	erial	мм	BTI	1			
			200		Actual Operating					ыс	•			
	10) Perce	ent of	Total Operating		11) Hou				12) Da	iys/We	ek		13) Weeks/Qua	arter
JAN – MAR		2	23.5		1					1			2	
APR – JUN		2	23.5		1					1			2	
JUL – SEP		2	23.5		1					1			2	
OCT - DEC		:	29.4		1.2					1			2	
14)				AIR	POLLUTION CO	NTROL E	QUIPM	ENT (C	E)					
Control Equips														
Control Equipn	•	n												
Control Equipn	nent Descriptio	211			ACTUAL E	MISSION	S							
15 Air Pollutant	16 Emission Factor	Em	17 hission Factor Unit	So	18 urce of Emission	19 Ash or Si		Comb	20 Dined Cor	ntrol	21 Transfer Effi	alanay	22 Actual Emission	o (Tono/Vr)
	0.05		B/MMBTU	3		ASITOTS	unur 76	E	fficiency			ciency	0.01	15 (1015/11)
).14	LE	B/MMBTU	DN	IR MEMO								0.02	
SO₂1	.01	LE	B/MMBTU	AP	-42	0.5							0.07	
NOX 3	3.2	LE	B/MMBTU	AP	-42								0.43	
voc O	0.0819	LE	B/MMBTU	AP	-42								0.01	
co O).85	LE	3/MMBTU	AP	-42								0.11	
Lead														
Ammonia														
ACTUAL EMISSI	IONS – Indivi	dual	HAPs and add	itional	regulated air p	oollutant	s – lis	t each	indivic	lual p	ollutant na	ame in	Column 15	

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed

TYPE ALL INFORMATION

Form INV-2 EMIS	SION POI	NT DESCRI	ΝΟΙΤΟ	1				Duplicate Emission		for EACH	I
1) Company/Facility Name	ACME	HOSPITAL	-				1a) Form IN	/-2 Page	4	of	4
2) Emission Point Number	EP7										
3) Emission Point Description	DUAL	FUEL GEN	ERA	τοι	R STACK						
4) Is this stack/vent used as an Emergency Bypass Stack?	No	Yes	; [
If YES, for which stack(s)? List Emis	sion Point N	los.:									
		EN	IISSION		NT INFORMATIO	N					
5) Emission Point Type											
Stack/Vent											
Fugitive (specify)											
Other (specify)											
6) Stack Shape and Dimensions: (i	nterior dime	nsions at exit poir	nt)								
Circular Diameter:	15	inche	6								
Rectangular Dimensions:		inche	s X			inches					
Other Dimensions		inches	5								
7) Stack Height Above Ground	30	feet									
8) Does the Emission Point have a	ain cap (or a	nything else) wh	ch obs	tructs	the flow of gase	s leaving th	e Emission Po	int, or a ho	izontal d	ischarge?	?
No YES (specify):											
		9) COI	IPOST	ON O	F EXHAUST STR	EAM					
Exhaust Stream Characteristics		nission Point on of Exhaust Stre	eam	Unit	s of Measure						
a) Flow Rate	1,000				ACFM 🛛 S	CFM					
b) Temperature	500			Deg	ree Fahrenheit						
			10)	вүра	SS STACKS						
Bypass Stack – Emission Point No.		Bypass Stack Description									
Bypass Stack – Emission Point No.		Bypass Stack Description									
	11) LI	ST OF EMISSION	UNITS	VENT	ING THROUGH T	HIS EMISSI	ON POINT				
Emission Unit No.	Emissio	on Unit No			Emission Unit	t No.		Emission	Unit No.		
EU7											

TYPE ALL INFORMATION

		ALCULATIONS					accompany				_
1)	Company/Facility Name	ACME HOSPIT					1a) Form INV-5	Page	4	of	7
2)	Emission Point No.	EP7	3)	Emission Unit	t No.	EU	7				
4)	Calculations are provided in	n support of information	reported on Form INV	- 3 🖂	4]	for the Emissior	n Point a	nd Emiss	ion Unit li	sted abov
5)	Emissions Calculations										
Pr	ocess: Internal Diesel C	Combustion > 600 B	HP SCC No. 2020	0401							
-											
	<u>uel:</u> Diesel Fuel			(D) 1							
	aximum rate: 75 gallon		•		6.6	1	. 10		0.0.1	c	
	ermit Limits: Diesel fue 2 months, 2.50 lbs/hr PM				of fue	l ma	y not exceed 0).5%, 5	00 hour	s of ope	ration pe
12	2.50 105/11 1 1	1 10, 5.50 105/11 50 ²	, and 50 105/11 100,	[•							
	Applicable pollutants: P	M_{10} , SO ₂ , and NO _x	(these emission fac	tors are high	ner for	inte	rnal diesel con	nbustio	n when	compar	ed to
	al fuel combustion)										
	Pollutants attributed to t ctors are higher for dual							e, and T	oluene	(these e	mission
	Pollutants exempt from :		-					ra who	n aamh	ined wit	h tha 50
	ours of operation per 12							is, whe	II COIIIO	ineu wit	ii the 50
	1 1	Ĩ	, 				,				
PN	<u>M₁₀:</u>										
75	5 gal/hr x 0.140 MMBtu	u/gal x .14 lbs/MME	tu = 1.47 lbs/hr (he	ourly-uncont	trolled	emi	ssions)				
Tł	ne permit limit allows for	or 2.50 lbs/hr of PM	and the second s	ed emissions	5)						
2.:	50 lbs/hr x 500 hrs/yr x	1 ton/2,000 lbs = .6	3 tons/yr (potential	annual emis	ssions)						
	<u>D₂:</u>										
	5 gal/hr x 0.140 MMBtu					hr (h	ourly-uncontro	olled ei	nission	s)	
Tł	ne permit limit allows for	or 5.50 lbs/hr of SO	2 (hourly-controlled	d emissions)							
5.5	50 lbs/hr x 500 hrs/yr x	1 ton/2,000lbs = 1.3	38 tons/yr (potentia	il annual em	ission	s)					
	<u>O_x:</u>										
	5 gal/hr x 0.140 MMBtu	•		•		d en	issions)				
	ne permit limit allows for										
50	0.00 lbs/hr x 500 hrs/yr :	x 1 ton/2,000lbs = 1	2.50 tons/yr (poter	itial annual e	emissio	ons)					
50	7.00 105/111 A 300 1118/91 .	x = 100/2,000108 - 1	2.50 tons/ yr (poter	inal annual t	1115510	5115)					

1)	Company/Facility Name	ACME HOSPITAL					1a) Form INV-5 Page	5		ire of	7
2)	Emission Point No.	EP7	3) E	mission Unit	No.	EU	7				
4)	Calculations are provided i	in support of information reported on F	Form INV -	3 🖂	4]	for the Emission Poin	t and E	Emissio	on Unit li	sted abov
5)	Emissions Calculations										
Pr	ocess: Dual Fuel Comb	oustion > 600 BHP SCC No. 202	200402								
Fı	iel: Dual Fuel (95% Na	tural Gas and 5% Diesel Fuel)									
		$^{3}/hr \ge 0.00105 \text{ MMBtu}/\text{ ft}^{3}) + (3.7)^{10}/hr \ge 0.00105 \text{ MMBtu}/\text{ ft}^{3}$	75 gal/hr	x 0.140 M	MBtu/	(gal)	= 10.5 MMBtu/hr				
Pe	ermit Limits: Diesel fue	el or dual fuel usage only, maxin M_{10} , 5.50 lbs/hr SO ₂ , and 50 lbs/	num Sulf			U /		500	hours	of ope	ration pe
12	2 monuis, 2.30 ios/iii Fr	v_{10} , 5.50 lbs/iii SO ₂ , and 50 lbs/	$\lim NO_x$.								
		PM _{2.5} , VOC, CO, Benzene, Form		e, and Tolu	iene (t	hese	emission factors an	e hig	her fo	or dual	fuel
	1	red to internal diesel combustion the internal diesel combustion pr	·	M10. SO2. 8	and N	O., (ti	hese emission facto	ors are	e high	er for i	nternal
di	esel combustion when c	compared to dual fuel combustion	on)						-		
	1	reporting for this process: Xyler on per 12 months permit limit, le	· •				·	tors,	when	combi	ned with
		n per 12 montais permit mint, re	uu to em	15510115 01 1	000 110		1 (0116, 51)				
	alculations										
	<u>M_{2.5}:</u>			(1)]							
	9,500 ft ³ /hr x .00105 M nissions)	$MBtu/ ft^3$) + (3.75 gal/hr x 0.14)	0 MMBt	u/gal)] x .0	556 lb	os/M	MBtu = .58 lbs/hr (hourl	ly-unc	controll	ed
	· · · · · · · · · · · · · · · · · · ·	1MBtu/ ft ³) + (3.75 gal/hr x 0.14	0 MMBt	u/gal)] x .0	556 lb	os/M	MBtu x 500 hrs/yr	x 1 to	on/2,0	00 lbs :	= .15
to	ns/yr (potential annual o	emissions)									
v	<u>OC:</u>										
		1MBtu/ ft ³) + (3.75 gal/hr x 0.14	0 MMBt	u/gal)] <i>x</i> 0.	2 lbs/l	MMI	Btu = 2.10 lbs/hr (h	ourly	-unco	ontrolle	d
er	nissions) x 500 hrs/yr x	1 ton/2,000 lbs = 0.53 tons/yr (potential	annual em	ission	s)					
C) :										
[(9,500 ft ³ /hr x .00105 M	(MBtu/ ft ³) + (3.75 gal/hr x 0.14					1Btu = 12.18 lbs/hr	(hou	rly-ur	ncontro	lled
er	nissions) x 500 hrs/yr x	1 ton/2,000 lbs = 3.05 tons/yr ()	potential	annual em	ission	s)					
Be	enzene:										
[(9,500 ft ³ /hr x .00105 M	(MBtu/ ft ³) + (3.75 gal/hr x 0.14	0 MMBt	u/gal)] x .0	0445	lbs/N	/IMBtu = .05 lbs/hr	(hou	rly-ur	ncontro	lled
er	nissions) x 500 hrs/yr x	1 ton/2,000 lbs = .01 tons/yr (p)	otential a	innual emis	ssions))					
Fo	ormaldehyde:										
[(9,500 ft ³ /hr x .00105 M	(MBtu/ ft ³) + (3.75 gal/hr x 0.14					MBtu = .06 lbs/hr (hourl	ly-unc	ontroll	ed
er	nissions) x 500 hrs/yr x	1 ton/2,000 lbs = .01 tons/yr (p)	otential a	annual emis	ssions))					
Т	oluene:										
	9,500 ft ³ /hr x .00105 M	$(MD_{tu}/ft^3) + (2.75 \text{ col/hr v} 0.14)$	0 MMRt	u/aal) r 0	05221	ha/A	MBtu = 05 lbs/br	(hou	rlv-ur	contro	lled
		$1 \tan(2,000) = .01 \tan(2,000)$					$\sin \theta = .05 103 / 11$	(110 4	iij ui	contro	neu

) Company/Facility Name	ACME HOSPITAL					1a) Form INV-5	Page	6	of	7
) Emission Point No.	EP7	3) E	Emission Unit	No.	EU	7				
) Calculations are provided in	n support of information reported on Form	n INV -	3	4 🖂]	for the Emissio	n Point a	and Emiss	sion Unit li	sted abo
) Emissions Calculations										
Process: Internal Diesel C	Combustion > 600 BHP SCC No. 2	0200	401							
Fuel: Diesel Fuel		0.10								
Actual Throughput: 15,00	00 gallons x 0.140 MMBtu/gallon =	= 2,10	JO MMBtu							
*Applicable pollutants: P	PM _{2.5} , PM ₁₀ , SO ₂ , NO _x , VOC, CO, I	Benze	ene, Formal	dehvd	le, ar	nd Toluene (th	lese po	llutants	have por	tential
	.01 tons/yr for this generator)		,		ŕ	, ,	1		1	
4D 11				. 11			4.1		6	
	reporting for this process: Xylene, ours of operation per 12 months per								on factor	rs, whe
								5 /		
<u>PM_{2.5}:</u>										
15,000 gal x 0.140 MMB	tu/gal x .05 lbs/MMBtu x 1ton/2,00	00 lbs	s = .05 tons							
<u>PM₁₀:</u>										
	tu/gal x .14 lbs/MMBtu x 1ton/2,00	00 lbs	s = .15 tons							
	C ,									
<u>SO₂:</u>										
15,000 gal x 0.140 MMB	tu/gal x 1.01 lbs/MMBtu x 0.5 (Sul	lfur c	ontent) x 1t	on/2,(000 1	bs = .53 tons				
<u>NO_x:</u>										
-	tu/gal x 3.2 lbs/MMBtu x 1ton/2,00	00 lbs	s = 3.36 ton	5						
VOC:										
15,000 gal x 0.140 MMB	tu/gal x .0819 lbs/MMBtu x 1ton/2	,000	lbs = .09 to	ns						
<u>CO:</u>										
	tu/gal x .85 lbs/MMBtu x 1ton/2,00	00 lbs	s = .89 tons							
Benzene:										
15,000 gal x 0.140 MMB	tu/gal x .000776 lbs/MMBtu x 1tor	n/2,00	00 lbs = .00	tons						
Formaldehyde:										
-	tu/gal x .0000789 lbs/MMBtu x 1to	on/2,0	0. = .00) tons	5					
Toluene:		10								
15,000 gal x 0.140 MMB	(1, 1, 1, 1, 0, 0, 0, 0, 1, 1, 1, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	- 12 00	$101h_{c} = 00$							

1) Company/Facility Name	ALCULATIONS					accompany in 1a) Form INV-5 Pa		uestionn 7	aire of	7
2) Emission Point No.	EP7	3) E	mission Unit	No	EU7		age	1		1
-	in support of information reported of			ļ.		for the Emission Pe		nd Emico		interlahava
-			3	4 🖂			Jint a			
5) Emissions Calculations		20200402								
Process: Dual Fuel Com	oustion > 600 BHP SCC No. 2	20200402								
Fuel: Dual Fuel (95% Na	atural Gas and 5% Diesel Fuel	1)								
	00,000 ft^3 x .00105 MMBtu/	·	0 gal x 0.14	40 MN	/IBtu	(gal) = 2,100 MM	MBtu	1		
	$PM_{2.5}$, PM_{10} , SO_2 , NO_x , VOC ,		ene, Formal	dehyd	le, an	d Toluene (these	e pol	lutants	have po	tential
emissions of greater than	.01 tons/yr for this generator)								
	reporting for this process: Xy						actor	rs, wher	n combi	ned with
the 500 hours of operation	on per 12 months permit limit,	, lead to em	issions of l	ess tha	an .0	1 tons/yr)				
Colculations										
<u>Calculations</u> <u>PM_{2.5}:</u>										
	MMBtu/ft ³) + (750 gal x 0.14	0 MMBtu/g	gal)] x .055	6 lbs/l	MMI	3tu x 1 ton/2,000) lbs	= .06 to	ons	
<u>PM₁₀:</u>	2									
[(1,900,000 ft ³ x .00105	$MMBtu/ft^{3}$) + (750 gal x 0.14	0 MMBtu/g	gal)] x .057	3 lbs/l	MMI	3tu x 1 ton/2,000) lbs	= .06 tc	ons	
<u>SO₂:</u>										
	MMBtu/ft ³) + (750 gal x 0.14	0 MMBtu/g	gal)] x .05 [bs/MN	MBtu	x 0.5 (Sulfur co	onten	t) x 1 to	on/2,000	0 lbs = .03
tons										
<u>NO_x:</u>										
-	MMBtu/ft ³) + (750 gal x 0.14	0 MMBtu/s	gal)] x 2.7]	bs/MN	MBtu	ı x 1 ton/2,000 lb	$\mathbf{s} = 2$	2.84 ton	S	
	, , ,	· · · ·				,				
<u>VOC:</u>										
[(1,900,000 ft ³ x .00105	MMBtu/ft ³) + (750 gal x 0.14	0 MMBtu/g	gal)] x 0.2	bs/MN	MBtu	1 x 1 ton/2,000 lt	$\mathbf{s} = 0$	0.21 ton	IS	
<u>CO:</u>										
	MMBtu/ft ³) + (750 gal x 0.14	0 MMBtu/g	gal)] x 1.16	lbs/M	IMB	tu x 1 ton/2,000	lbs =	= 1.22 to	ons	
	, , , C									
Benzene:										
[(1,900,000 ft ³ x .00105	MMBtu/ft ³) + (750 gal x 0.14	0 MMBtu/g	gal)] x .004	45 lbs	/MN	IBtu x 1 ton/2,00	00 lbs	s = .00	tons	
Formaldehyde:										
	MMBtu/ft ³) + (750 gal x 0.14	0 MMBtu/9	gal)] x .005	4 lbs/1	MMI	3tu x 1 ton/2.000) lbs	= .01 to	ons	
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			_,000	2.0			
Toluene:										
$[(1,000,000,ft^3 \times 0.0105)]$	MMBtu/ft ³) + (750 gal x 0.14	OMAD to /	1)1 005	0.0.11	00		0.11	0.1		

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH

1)	Company/F	acility Name	Α	СМЕ	HOSI	PITAL			1a) F	orm INV-3 Pa	ge <mark>4</mark>		of	5				
2)	Emission P	oint Number	E	P7					•		·							
					EMI	SSION UNIT ((PROCESS)	IDENTIFICATION &	DESCRIPTI	N								
3)	Emission U	nit Number	E	U7														
4)	SCC Numbe	er	2	02004	401													
5)	Description	of Process	IN	ITER	NAL [DIESEL (COMBU	STION										
6)	Date of Con		6-15-9	4	7)	Date of In	stallation	6-30-94	8) D	ate of Modifica	ation							
9)		al – OR Fuels ase for EACH			DIES	EL FUEL	-											
10)	Federally E	nforceable Lir	mit		Diese	el/dual fu	uel use o	only, 0.5% maximum Sulfur content, 500 hrs/yr										
11)	11) Permit or Rule Establishing Limit 85-A-000																	
12)	Maximum H	lourly Design	Rate		10.5				MMB	TU		Per H	our					
13)																		
	Control Equipment Number																	
	Control Equipment Description																	
	Control Equipment Number																	
	Control Equipment Description																	
		45				17	1	EMISSIONS 19	20		2	2	I	23				
A	14 ir Pollutant	15 Emission Factor	Emis	16 sion Fac	tor Units	Source of Emission Factor	18 Ash or Sulfur %	Potential Hourly Uncontrolled Emissions (Lbs/Hr)	Combined Control Efficiency	21 Transfer Efficiency	Transfer Control		En	ntial Annual nissions Tons/Yr)				
	PM-2.5																	
	PM-10	.14	LB	/MME	BTU	TU DNR MEMO		1.47			2.50		0.63	3				
	SO ₂	1.01	LB	/MME	BTU	AP-42	0.5	5.30			5.50		1.38	3				
	NOx	3.2	LB	/MME	BTU	AP-42		33.60			50.00		12.5	50				
	voc																	
	со																	
	Lead																	
4	Ammonia																	
PC	DTENTIAL E	EMISSIONS -	– Individu	ial HAI	Ps and a	additional re	egulated ai	r pollutants – list	each indiv	vidual polluta	int name	in Colu	ımn 14	ŀ				

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH Emission UNIT

1)	Company/F	acility Name	A	СМЕ	HOSI	PITAL	1a) F	orm INV-3 Page	⇒ <mark>5</mark>		of	5		
2)	Emission P	oint Number	E	P7							•			
					EMI	SSION UNIT	(PROCESS)	IDENTIFICATION &	DESCRIPTI	ON				
3)	Emission U	nit Number	E	J7										
4)	SCC Numbe	er	20)2004	402									
5)	Description	of Process	D	UAL	FUEL	COMBL	JSTION							
6)	Date of Con	nstruction	6-15-9	4	7)	Date of In	stallation	6-30-94	8) D	ate of Modificati	on			
9)		al – OR Fuels I case for EACH			DUA	L FUEL (95% NA	TURAL GAS	6, 5% DI	ESEL FUE	L)			
10)	Federally E	nforceable Lin	nit		Diese	el/dual fu	uel use o	only, 0.5% m	aximun	n Sulfur co	ntent, 5	500 ł	nrs/y	/r
11)	Permit or R	ule Establishir	ng Limit		85-A-	-000								
12)	Maximum H	lourly Design I	Rate		10.5				MMB	TU		Per Ho	our	
13)	AIR POLLUTION CONTROL EQUIPMENT (CE)													
	Control Equipment Number													
	Control Equipment Description													
	Control Equipment Number													
	Control Equipment Description													
	POTENTIAL EMISSIONS													
Ai	14 r Pollutant	15 Emission Factor	Emis	16 sion Fac	tor Units	Source of Emission Factor	18 Ash or Sulfur %	Potential Hourly Uncontrolled Emissions (Lbs/Hr)	Combined Control Efficiency	21 Transfer Efficiency	Potential Ho Controlle missions (Lt	d	En	ntial Annual nissions 'ons/Yr)
	PM-2.5	.0556	LB	/MME	BTU	FIRE 6.25		.58					.15	
	PM-10													
	SO ₂													
	NOx													
	voc	0.2	LB	/MME	BTU	AP-42		2.10					.53	
	со	1.16	LB	/MME	BTU	AP-42		12.18					3.05	5
	Lead													
A	mmonia													
PO	TENTIAL E	EMISSIONS -	Individu	al HAI	Ps and a	additional re	egulated ai	r pollutants – list	each indiv	vidual pollutan	t name in	Colur	mn 14	ļ
E	Benzene	.00445	LB	/MME	BTU	AP-42		.05					.01	
For	Formaldehyde .0054 LB/MMBTU			BTU	AP-42		.06					.01		
1	Toluene .00523 LB/MMBTU				BTU	AP-42		.05					.01	

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Form	n INV-4 EMI	SSIC	N UNIT DE	SCRII	PTION - AC	TUAL E	EMIS	SION	S		Duplic Emiss		s form for EAC IT	н			
1) Company/Fac	ility Name	AC	ME HOSPI	TAL					1a) Fo	rm IN\	/-4 Page	4	of	5			
2) Emission Yea	r	201	4	3) Emi	ssion Point Num	ber			EP7								
				ISSION	UNIT – ACTUAL	OPERAT	I										
4) Emission Unit	Number	EU					5) S(CC Nun	nber	202	200401						
6) Description of	f Process	INT	ERNAL DI	ESEI													
7) Raw Material			DIESEL FU	IFI	ACTUAL	THROUGH	1901										
	hput – Yearly To	otal	2,100		9)	Units R	aw Mat	erial	MM	RTI							
			2,100		Actual Operating												
	10) Perc	ent of	Total Operating	Time	11) Hou	urs/Day			12) Da	iys/We	ek	13) Weeks/Quarter					
JAN – MAR			10		1					4			5				
APR – JUN					4					4			5				
JUL – SEP			40 10		4	1				4			5				
OCT - DEC					1					4			5				
14) Control Equi	pment Number			AIR POLLUTION CONTROL EQUIPMENT (CE)													
· · ·	·	on															
· · ·	Control Equipment Description																
· · · ·	pment Descripti	on															
	p				ACTUAL E	MISSION	S										
15 Air Pollutant	16 Emission Facto	r Er	17 nission Factor Unit	s So	18 urce of Emission Factor	19 Ash or Si			20 bined Cor fficiency		21 Transfer Effi	ciency	22 Actual Emissio				
PM-2.5	.05	L	B/MMBTU	We	bFIRE			E	mciency				.05				
PM-10	.14	L	B/MMBTU	DN	R MEMO								.15				
SO ₂	1.01	L	B/MMBTU	AP	-42	0.5							.53				
NOX	3.2	LI	B/MMBTU	AP	-42							3.36					
voc	.0819	L	B/MMBTU	AP	-42								.09				
со	.85	L	B/MMBTU	AP	-42								.89				
Lead																	
Ammonia																	
ACTUAL EMIS	SIONS – Indiv	idual	HAPs and add	itional	regulated air	pollutant	s – lis	t each	indivio	lual p	ollutant na	ame in	Column 15				
Benzene	.000776	LI	B/MMBTU	AP	-42								.00				
Formaldehyde	.0000789	L	B/MMBTU	AP	-42								.00				
Toluene	.000281	LI	B/MMBTU	AP	-42								.00				

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Duplicate this form as needed

	Forn	n INV-4 EN	IISSIC		SCRI	PTION - ACT		EMIS	SION	S		Duplic Emissi		s form for EAC IT	н			
1)	Company/Fac	ility Name	AC	ME HOSPI	TAL					1a) Fo	rm IN	V-4 Page	5	of	5			
2)	Emission Yea	r	<mark>20</mark>	14	3) Em	ission Point Num	ber			EP7				·				
					ISSION	UNIT – ACTUAL	OPERAT	IONS A	ND EM	ISSIONS								
4)	Emission Unit	Number	EU					5) S(CC Nur	nber	202	200402						
6)	Description of	f Process	DU	IAL FUEL C														
7)	Raw Material				-1 /0	ACTUAL T			<u>م /0</u>		EI							
7) 8)	Actual Throug	uhnut Voorlu	Total	2,100	JAL FUEL (95% NATURAL GAS, 5% DIESEL FUEL) 100 9) Units Raw Material MMBTU													
0)		Input – rearry	TOLAI	2,100	Actual Operating Rate/So													
		10) Pe	rcent of	f Total Operating	Time	11) Hou	-			12) Da	iys/W	eek	13) Weeks/Quarter					
	JAN – MAR			10		1					4			5				
	APR – JUN			40		4					4			5				
	JUL – SEP	40		4					4			5						
	OCT - DEC			10		1					4			5				
14)					AIR POLLUTION CONTROL EQUIPMENT (CE)													
	•	pment Numbe																
	•	pment Descri																
		pment Numbe																
	Control Equi	pment Descri	otion			ACTUAL EI		-										
	15	16		17		18	19		Com	20 himsed Com		21		22				
	Air Pollutant	Emission Fac		mission Factor Unit	.5	urce of Emission Factor	Ash or S	ulfur %		bined Cor		Transfer Effi	ciency	Actual Emission	ns (Tons/Yr)			
	PM-2.5	.0556		.B/MMBTU	We	bFIRE								.06				
	PM-10	.0573	L	.B/MMBTU	We	bFIRE								.06				
	SO ₂	.05	L	.B/MMBTU	AP	-42	0.5							.03				
	ΝΟΧ	2.7	L	.B/MMBTU	AP	-42							2.84					
	VOC	0.2	L	.B/MMBTU	AP	-42								.21				
	со	1.16	L	.B/MMBTU	AP	-42								1.22				
	Lead																	
	Ammonia																	
	ACTUAL EMIS	SIONS – Ind	ividua	I HAPs and add	litiona	l regulated air p	ollutant	s – lis	t each	indivic	lual p	ollutant na	ame in	Column 15				
	Benzene	.00445	L	.B/MMBTU	AP	-42								.00				
F	ormaldehyde	.0054	L	.B/MMBTU	AP	-42								.01				
	Toluene	.00523	L	.B/MMBTU	AP	-42								.01				
-											_							

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other - Specify

Duplicate this form as needed

Form INV-6 FACILITY-WIDE POTENTIAL & ACTUAL EMISSIONS

1) Facility Name		ACME HOSPITAL	2) Form INV-6 Page	1	of	1
3) Emission Year	I				20	14
The facility-wide por annual emissions" (otals for each air pollutant may be ca IV-3 forms	alculated by summing	g the "	potenti	al
The facility-wide act emissions" (box #22		ls for each air pollutant may be calc ms	ulated by summing th	ne "act	tual	
4) Facility-Wide Crit Tons/Yr Where App		and Ammonia Emissions (Use Faci	ity-Wide Permit Limit	For P	otentia	l
Air Pollutant		ID or CAS Number	Potential Tons/Y	r Ac	tual To	ns
PM-2.5		PM-2.5	2.31		0.23	6
PM-10		PM-10	3.50		0.34	
Sulfur Dioxide		7446-09-5	6.64		0.66	;
Nitrogen Oxides		NO _x	62.46		8.17	,
Volatile Organic Co	mpounds	VOC	2.98		0.40)
Carbon Monoxide		630-08-0	18.92		3.32	2
Lead		7439-92-1				
Ammonia		7664-41-7	0.20		0.04	ŀ
5) Facility-Wide Haz Limit For Potential 1		ant and Other Regulated Air Polluta plicable)	nt Emissions (Use Fa	cility-\	Wide Pe	ermit
Please duplicate the being emitted at the		ary to include all hazardous air poll	utants and other regu	lated a	air pollu	itants
Air Pollutant		ID or CAS Number	Potential Tons/Y	r Ac	tual To	ns
Hexane		110-54-3	0.11		0.02	2
Benzene		71-43-2	0.01		0.00)
Formaldehyde		50-00-0	0.01		0.01	
Toluene		108-88-3	0.01		0.01	