

Facility ID: 75-0912
 Permit: 981922
 Date: 4/17/2024
 JMRh

Facility: Sazerac of Tennessee, LLC

75-0912-00: Potential Emissions Summary

Note: Sazerac of Tennessee, LLC doesn't intend to pursue a construction permit for the Charcoal Production process (communication dated Feb. 20, 2024)

Source	Point Description	Fugitive Emission?	One of the 25 Major Source Categories?	Potential Emissions (lbs/hr)						Potential Emissions (tpy)						Federal Applicability	Insignificant Activity?
				PM	SO2	CO	VOC	NO _x	Total HAP	PM	SO2	CO	VOC	NO _x	Total HAP		
75-0912-01	Aging Warehouse #1	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		No
	Aging Warehouse #2	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		No
	Aging Warehouse #3	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		No
	Aging Warehouse #4	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		No
75-0912-02	Charcoal Production, Open Burning*	Yes	Yes, Charcoal Production	7.650	0.197	63.000	8.550	1.800	0.304	33.507	0.861	275.940	37.449	7.884	1.330		No
75-0912-03	Emergency Fire Pump Engine	No	No	0.052	0.003	0.311	0.057	1.870	--	0.013	0.001	0.078	0.014	0.468	--	NSPS, Subpart IIII NESHAP, Subpart ZZZZ	Yes
	250gal Diesel Tank	Yes	No	--	--	--	--	--	--	--	--	--	0.000	--	--		
75-0912-04	Water Heater #1	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		Yes
	Water Heater #2	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		
	Water Heater #3	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		
	Water Heater #4	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		
75-0912-05	500gal Gasoline Dispensing	Yes	No	--	--	--	--	--	--	--	--	--	0.112	--	--	NESHAP, Subpart CCCCCC	Yes
Totals:				7.851	0.212	64.958	90.633	5.631	0.341	34.173	0.914	283.232	396.847	16.940	1.493		

*Sazerac will not be pursuing a charcoal production permit at this time

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75-0912-00: Allowable Emissions Summary

Source	Point Description	Fugitive Emission?	One of the 25 Major Source Categories?	Allowable Emissions (lbs/hr)						Allowable Emissions (tpy)						Federal Applicability	Insignificant Activity?
				PM	SO2	CO	VOC	NO _x	Total HAP	PM	SO2	CO	VOC	NO _x	Total HAP		
75-0912-00*	Entire Facility	N/A	N/A	--	--	--	--	--	--	--	--	XX	--	--	--	N/A	N/A
75-0912-01	Aging Warehouse #1	Yes	No	--	--	--	--	--	--	--	--	--	89.700	--	--		No
	Aging Warehouse #2	Yes	No	--	--	--	--	--	--	--	--	--	89.700	--	--		
	Aging Warehouse #3	Yes	No	--	--	--	--	--	--	--	--	--	89.700	--	--		
	Aging Warehouse #4	Yes	No	--	--	--	--	--	--	--	--	--	89.700	--	--		
75-0912-02	Charcoal Production, Open Burning*	Yes	Yes, Charcoal Production	7.650	0.197	63.000	--	1.800	0.304	1.377	0.035	11.340	1.539	0.324	0.055		No
75-0912-03	Emergency Fire Pump Engine	No	No	--	--	--	--	--	--	--	--	--	--	--	--	NSPS, Subpart IIII NESHAP, Subpart ZZZZ	Yes
	250gal Diesel Tank	Yes	No	--	--	--	--	--	--	--	--	--	--	--	--		
75-0912-04	Water Heater #1	No	No	--	--	--	--	--	--	--	--	--	--	--	--		Yes
	Water Heater #2	No	No	--	--	--	--	--	--	--	--	--	--	--	--		
	Water Heater #3	No	No	--	--	--	--	--	--	--	--	--	--	--	--		
	Water Heater #4	No	No	--	--	--	--	--	--	--	--	--	--	--	--		
75-0912-05	500gal Gasoline Dispensing	Yes	No	--	--	--	--	--	--	--	--	--	--	--	--	NESHAP, Subpart CCCCCC	Yes
Totals:				7.650	0.197	63.000	0.000	1.800	0.304	1.377	0.035	11.340	360.339	0.324	0.055		

* Since the facility is not pursuing a permit for the charcoal production process at this time, the facility will be considered True Minor.

* Sazerac is not pursuing a construction permit for the charcoal production process at this time.

358.800

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75-0912-00: Actual Emissions Summary

Source	Source Description	Fugitive Emission?	One of the 25 Major Source Categories?	Actual Emissions (lbs/hr)						Actual Emissions (tpy)						Federal Applicability	Insignificant Activity?
				PM	SO2	CO	VOC	NO _x	Total HAP	PM	SO2	CO	VOC	NO _x	Total HAP		
75-0912-01	Aging Warehouse #1	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		No
	Aging Warehouse #2	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		
	Aging Warehouse #3	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		
	Aging Warehouse #4	Yes	No	--	--	--	20.479	--	--	--	--	--	89.700	--	--		
75-0912-02	Charcoal Production, Open Burning	Yes	Yes, Charcoal Production	7.650	0.197	63.000	8.550	1.800	0.304	1.377	0.035	11.340	1.539	0.324	0.055		No
75-0912-03	Emergency Fire Pump Engine	No	No	0.052	0.003	0.311	0.057	1.870	--	0.013	0.001	0.078	0.014	0.468	--	NSPS, Subpart IIII NESHAP, Subpart ZZZZ	Yes
	250gal Diesel Tank	Yes	No	--	--	--	--	--	--	--	--	--	0.000	--	--		
75-0912-04	Water Heater #1	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		Yes
	Water Heater #2	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		
	Water Heater #3	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		
	Water Heater #4	No	No	0.037	0.003	0.412	0.027	0.490	0.009	0.163	0.013	1.804	0.118	2.147	0.041		
75-0912-05	500gal Gasoline Dispensing	Yes	No	--	--	--	--	--	--	--	--	--	0.112	--	--	NESHAP, Subpart CCCCCC	Yes
Totals:				7.851	0.212	64.958	90.633	5.631	0.341	2.043	0.088	18.632	360.937	9.380	0.217		

* SoT decided not to proceed with charcoal production (see communication dated Feb. 20, 2024)

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Facility: Sazerac of Tennessee, LLC

75-0912-01: Four Barrel Aging Warehouses (EU01)

Warehouses: 4 Qty
Storage Style: Traditional Rickhouse
Barrel Capacity: 26,000 bbls
53 gal/bbl
Ethanol Evaporation Losses: 6.9 lbs/bbl/yr

Emission factor from AP-42, Table 9.12.3-1. Assumes barrel capacity of approximately 53 gal. and does not include losses due to soakage

Warehouse ID	Warehouse Type	Barrel Capacity (bbls)	Potential Fugitive VOC Emissions (tpy)
01	Rickhouse	26000	89.7
02	Rickhouse	26000	89.7
03	Rickhouse	26000	89.7
04	Rickhouse	26000	89.7

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75-0912-02: Charcoal Production, Open Burning [EU02]
**SoT decided not to proceed with permitting the charcoal production process (see communication dated Feb. 20, 2024)

Input Material: Maplewood
Batch Time: 1 batch/day
Max. Batches: 15 batch/yr
Max Input Rate: 21,600 lbs/day
10.8 tons/day
162 tpy
Wood Heating Value: 17.48 MMBtu/ton Assuming 15 Batches per year
Per 40 CFR 98 Table C-1, HHV for wood and wood residuals (dry basis)

Emissions from the Open Burning of Wood and Wood Residuals								
Pollutant	Emission Factor (lbs/ton)	Emission Factor (lbs/MMBtu)	PTE (lbs/hr)	PTE (tpy)	Actual Emissions (lbs/hr)	Actual Emissions (tpy)	Allowable Emissions (lbs/hr)	Allowable Emissions (tpy)
PM	17		7.65	33.507	7.65	1.377	7.65	1.377
SO2		0.025	0.197	0.861	0.197	0.035	0.197	0.035
CO	140		63	275.94	63	11.34	63	11.34
NMHC	19		8.55	37.449	8.55	1.539	8.55	1.539
NOx	4		1.8	7.884	1.8	0.324	1.8	0.324
Total HAP		3.86E-02	0.304	1.330	0.304	0.055	0.304	0.055

HAP Compound	CAS #	Emission Factor (lb/MMBtu)	1200-03-07 Allowable Particulate Matter Calculation		
Acenaphthene	83-32-9	9.10E-07	Units		
Acenaphthylene	208-96-8	5.00E-06	Material Input Rate ¹ :	900	lbs/hr
Acetaldehyde	75-07-0	8.30E-04	Exhaust Flow Rate:		CFM
Acetophenone	98-86-2	3.20E-09			
Acrolein	107-02-8	4.00E-03	Material Input Rate ¹ :	0.45	ton/hr
Anthracene	120-12-7	3.00E-06	Emission Flow Rate:	0	dscf/min
Benzene	71-43-2	4.20E-03	Factor (3.59 or 17.31):	3.59	
Benzo(a)anthracene	56-55-3	6.50E-08	Exponent (0.62 or 0.16):	0.62	
Benzo(a)pyrene	50-32-8	2.60E-06			
Benzo(b)fluoranthene	205-99-2	1.00E-07	Applicable Standard	PM Emission Rate	PM Emission Rate
Benzo(e)pyrene	192-97-2	2.60E-09	1200-03-07 [XXX]	(lbs/hr)	(tpy)
Benzo(g,h,i)perylene	191-24-2	9.30E-08	Table 2 [03(1)]	2.1882	9.5843
Benzo(k)fluoranthene	207-08-9	1.60E-07	0.02 gr/dcfm [04(1)]	0.0000	0.0000
Benzo(k)fluoranthene	207-08-9	3.60E-08	0.25 gr/dcfm [04(2)]	0.0000	0.0000
bis(2-Ethylhexyl)phthalate	117-81-7	4.70E-08			<---
Bromomethane	74-83-9	1.50E-05			
Carbazole	86-74-8	1.80E-06			
Carbon tetrachloride	56-23-5	4.50E-05			
Chlorine	7782-50-5	7.90E-04			
Chlorobenzene	108-90-7	3.30E-05			
Chloroform	67-66-3	2.80E-05			
Chloromethane	74-87-3	2.30E-05			
2-Chloronaphthalene	91-58-7	2.40E-09			
Chrysene	218-01-9	3.80E-08			
Decachlorobiphenyl	2051-24-3	2.70E-10			
Dibenzo(a,h)anthracene	53-70-3	9.10E-09			
1,2-Dichloroethane	107-06-2	2.90E-05			
Dichloromethane	75-09-2	2.90E-04			
1,2-Dichloropropane	78-87-5	3.30E-05			
2,4-Dinitrophenol	51-28-5	1.80E-07			
Formaldehyde	50-00-0	4.40E-03			
Heptachlorobiphenyl	74472-50-	6.60E-11			
Hexachlorobiphenyl	35065-28-	5.50E-10			
Hexanal	66-25-1	7.00E-06			
Heptachlorodibenzo-p-dioxins	35822-46-	2.00E-09			
Heptachlorodibenzo-p-furans	55673-89-	2.40E-10			
Hexachlorodibenzo-p-dioxins	57653-85-	1.60E-06			
Hexachlorodibenzo-p-furans	57117-44-	2.80E-10			
Hydrogen chloride	7647-01-0	1.90E-02			
Indeno(1,2,3-c,d)pyrene	193-39-5	8.70E-08			
2-Methylnaphthalene	91-57-6	1.60E-07			
Naphthalene	91-20-3	9.70E-05			
4-Nitrophenol	100-02-7	1.10E-07			
Octachlorodibenzo-p-furans	39001-02-	8.80E-11			
Pentachlorodibenzo-p-dioxins	40321-76-	1.50E-09			
Pentachlorodibenzo-p-furans	57117-31-	4.20E-10			
Pentachlorobiphenyl	37680-73-	1.20E-09			
Pentachlorophenol	87-86-5	5.10E-08			
Perylene	198-55-0	5.20E-10			
Phenanthrene	85-01-8	7.00E-06			
Phenol	108-95-2	5.10E-05			
Propanal (propionaldehyde)	123-38-6	3.20E-05			
Pyrene	129-00-0	3.70E-06			
Styrene	100-42-5	1.90E-03			
2,3,7,8-Tetrachlorodibenzo-p-dioxins	1746-01-6	8.60E-12			
Tetrachlorodibenzo-p-dioxins	1746-01-6	4.70E-10			
2,3,7,8-Tetrachlorodibenzo-p-furans	51207-31-	9.00E-11			
Tetrachlorodibenzo-p-furans	1746-01-6	7.50E-10			
Tetrachloroethene	127-18-4	3.80E-05			
Toluene	108-88-3	9.20E-04			
1,1,1-Trichloroethane	71-55-6	3.10E-05			
2,4,6-Trichlorophenol	88-06-2	2.20E-08			
Vinyl Chloride	75-01-4	1.80E-05			
o-Xylene	95-47-6	2.50E-05			
Antimony		7.90E-06			
Arsenic		2.20E-05			
Beryllium		1.10E-06			
Cadmium		4.10E-06			
Chromium, total		2.10E-05			
Chromium, hexavalent		3.50E-06			
Cobalt		6.50E-06			
Lead		4.80E-05			
Manganese		1.60E-03			
Mercury		3.50E-06			
Nickel		3.30E-05			
Selenium		2.80E-06			
Total HAP		3.86E-02			

HAP Emission Factors from AP-42 Table 1.6-3 and 1.6-4

Facility ID: 75-0912
Permit: E81999
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Facility: Sazerac of Tennessee, LLC

75-0912-03: Emergency Fire Pump Engine (EU02)

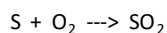
Engine: John Deere 6068HFC48A (4 Stroke Cycle, 6.8L, V6)
 Model Year: 2017
 Fuel Type: Diesel
 EPA Certification: Tier 3
 Operating Hours: 500 hr/yr
 Rated Power: 235 kW
 315 bhp
 Fuel Consumption: 16.1 gal/hr

Emergency Use Diesel-fired Fire Pump Engine Emissions

Pollutant	Manufacturer					
	Emission Factor (g/kW-hr)	Allowable Emissions (g/kW-hr)	PTE (lbs/hr)	PTE (tpy)	Allowable Emissions (lbs/hr)	Allowable Emissions (tpy)
PM	0.1	0.2	0.052	0.013	0.104	0.026
SO ₂			0.003	0.001	0.003	0.001
CO	0.6		0.311	0.078	0.311	0.078
HC	0.11		0.057	0.014	0.057	0.014
NO _x	3.61		1.870	0.468	1.870	0.468
NMHC + NO _x		4			2.072	0.518

For SO₂, 15 ppm maximum sulfur content of fuel. Assume all sulfur converted to SO₂

Every mole of sulfur will create one mole of sulfur dioxide



fuel use rate (gal)	7.05 lb	15 lb S	mol S	mol SO ₂	64.066 lb SO ₂	0.0034018 lb/hr SO ₂
hr	gal	10 ⁵ lb fuel	32.065 lb S	mol S	mol SO ₂	
	density	from NSPS	If sulfur converted to SO ₂			

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Facility: Sazerac of Tennessee, LLC

75-0912-03: Diesel Storage Tank (IA01)

The storage tank will supply the emergency fire pump engine with fuel

Fuel Type:	Diesel
Tank Diameter:	2.8 ft
Tank Height:	5.3 ft
Tank Type:	Horizontal
Temperature:	Ambient
Tank Capacity:	250 gal
Fuel Consumption Rate:	16 gal/hr
Engine Operating Hours:	500 hr/yr
Annual Throughput:	8050 gal/yr

Standing Losses:	0.077 lbs/yr	Based on TankESP Software
Working Losses:	0.202 lbs/yr	Based on TankESP Software
Total Losses:	0.278 lbs/yr	Based on TankESP Software

Facility ID: 75-0912
Permit: E81999
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Facility: Sazerac of Tennessee, LLC

75-0912-04: Four Natural Gas Direct-fired Water Heaters (EU04)

Water heaters maintain a minimum temperature in each warehouse to prevent the fire suppression pipes from freezing

Heaters: 4 qty
Heater Model: Armstrong Flo-Direct Model AFD-5000
Heat Input Capacity: 5 MMBtu/hr each
Operating Hours: 8760 hr/yr

Potential Emissions from
Natural Gas Combustion (each
unit)

Pollutant	Emission Factor* (lb/10 ⁶ ft ³)	Heat Input (MMBTU/hr)	=	Emissions (lb/hr)	Op. Time (hr/yr)	=	Potential Emissions (ton/yr)
PM	7.6	5.00	=	0.037	8760	=	0.163
SO ₂	0.6	5.00	=	0.003	8760	=	0.013
CO	84	5.00	=	0.412	8760	=	1.804
VOC	5.5	5.00	=	0.027	8760	=	0.118
NO _x	100	5.00	=	0.490	8760	=	2.147
Total HAP	1.9	5.00	=	0.009	8760	=	0.041

* Emission Factors are from EPA AP-42, Chapter 1, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4

Potential Emissions from
Natural Gas Combustion (total)

Pollutant	Emission Factor* (lb/10 ⁶ ft ³)	Heat Input (MMBTU/hr)	=	Emissions (lb/hr)	Op. Time (hr/yr)	=	Potential Emissions (ton/yr)
PM	7.6	20.00	=	0.149	8760	=	0.653
SO ₂	0.6	20.00	=	0.012	8760	=	0.052
CO	84	20.00	=	1.647	8760	=	7.214
VOC	5.5	20.00	=	0.108	8760	=	0.472
NO _x	100	20.00	=	1.961	8760	=	8.588
Total HAP	1.9	20.00	=	0.037	8760	=	0.162

* Emission Factors are from EPA AP-42, Chapter 1, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4

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75-0912-05: Gasoline Storage Tank (IA02)

Fuel Type: Gasoline
Tank Diameter: 5.53 ft
Tank Height: 4.71 ft
Tank Type: Horizontal
Temperature: Ambient
Tank Capacity: 500 gal.
Maximum Turnover: 12 turnovers/yr
6000 gal/yr

Facility VOC Emission Calculations Based on AP-42 Chapter 7.1

Standing Losses: 173.22 lbs/yr
Working Losses: 49.83 lbs/yr
Total Losses: 223.05 lbs/yr

Emissions estimates based on EPA's AP-42 Chapter 7.1 (Post 2018) emission factors and equations

VOC Emission Estimates Based on AP-42 Section 5.2, Table 5.2-7

Process	Emission Factor (lb/10 ³ gal)	PTE VOC (tpy)
Splash Filling	11.5	69.0
Breathing and Emptying	1.0	6.0
Displacement Losses (Uncontrol)	11.0	66.0
Spillage	0.7	4.2
Total VOC Emissions:		145.2

Assumes underground gasoline storage tank with splash filling

6. Gasoline Storage Tank (IA02) Emissions

Sample Calculation of Estimated Emissions - Fixed-Roof Tanks

The emissions estimates calculated below are based on EPA's AP-42 Chapter 7.1 (Post 2018) emission factors and equations,

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Company: Sazerac

Location: Murfreesboro

Calculations for Tank No.: IA02

Emission estimates per EPA's AP-42 Chapter 7.1 (Post 2018), for: annual 2019

Meteorological Data:

Avg Atmos Pressure, Pa: 14.62 psia

Avg Ambient Temp, Taa: 62.3371233 degrees F

Avg Daily Temp Range, ΔTa: 19.6046575 degrees F

Avg Daily Solar Insolation, I: 1434.35068 Btu / ft² day

Tank Data:

Tank Type: Horizontal

Average alpha: 0.64

Tank Diameter: 5.52791 ft

Tank Height: 4.71239 ft

Maximum Fill Height: 3.712388 ft

Minimum Liquid Level: 1 ft

Net Working Height: 2.712388 ft

Fixed Roof Type: horizontal tank

Average outage, Hvo: 2.35619498 ft

Max Vent Setting: 0.03 psig

Min Vent Setting: -0.03 psig

Service Data:

Service (stored liquid): Gasoline RVP, X

Product Factor, Kp: 1

Reid Vapor Pressure: 9 psi (if specified)

ASTM Distillation Slope: 3 (if specified)

Molecular Weight, Mw: 66 lb/lb-mol

Liquid Bulk Temp, Tb: 65.1 degrees F

Constant Temp Tank?: NO tank must be insulated for temperature to be constant

Liquid Bulk Temp Basis?: calculated from ambient, per AP-42 equation 1-31

Liquid Surface Temp, Tla: 67.9 degrees F per AP-42 equation 1-27, 1-28, 1-29

True Vapor Pressure, P: 5.3750 psia per AP-42 equation 1-24, 1-25, 1-26

Stock Vapor Density, Wv: 0.06233 lb/ft³ per AP-42 equation 1-22

Heating Cycles: Vapor Space Temp., Tv: 70.72133 degree F per AP-42 equation 1-32, 1-33, 1-34

Max Liquid Bulk Temp: degrees F

Min Liquid Bulk Temp: degrees F

Heating cycle frequency: days

Operational Data:

Throughput: 143 bbl per year

Days this Period: 365 days

Turnover Rate: 12.3 turnovers per year

Turnover Factor, Kv: 1.000

Calculated Values:

Vapor Space Expansion Factor, KE = {ΔTv / (T + 459.57)} + {(ΔPv - ΔPa) / (Pa - P)} AP-42 eqn 1-5

where:

ΔTv = 31.051825 deg F (deg R); daily temperature range in the vapor space AP-42 eqn 1-6, 1-7, 1-8

Tix = 75.67 deg F

Tln = 60.14 deg F

Pvx = 6.220 psia

Pvn = 4.624 psia

ΔPv = 1.5962715 psia

ΔPa = 0.06 psi; vent setting range

KE = 0.2250301

Vented Vapor Saturation Factor, KS = 1 / (1 + 0.053 P Hvo) AP-42 eqn 1-21

KS = 0.5983666

Vent Setting Correction Factor, KB: KB = 1; except when:

Kv [(PBP + PA) / (Pi + PA)] > 1 AP-42 eqn 1-40

KB = [(Pi + PA) / Kv - Pi] / [PBP + PA - Pi] AP-42 eqn 1-41

where:

PBP = 0.03 psig; vent pressure setting

Pi = 0 psig; initial gauge pressure (nominal operating pressure)

KB = 0.9967655

Emissions Estimate for: annual 2019

Standing Storage Loss: 173.22 lb per year AP-42 eqn 1-4

Working Loss: 49.83 lb per year AP-42 eqn 1-35

Total Emissions: 223.05 lb per year AP-42 eqn 1-1

0.112 tons per year