



Maine CAERS Before & After Use Case

2023 International Emission
Inventory Conference
Seattle, WA

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MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

Protecting Maine's Air, Land and Water

Before CAERS

- MAIRIS Since 2010
- Maine has been actively involved in the development of CAERS since 2017
- Stopped use of MAIRIS in 2023 and switched to CAERS



Services			Manage
Status	Program Service Name	Role	
	CAER: Combined Air Emissions Reporting	NEI Certifier	
	CAER: Combined Air Emissions Reporting	Preparer	
	CAER: Combined Air Emissions Reporting	Reviewer	

Alerts

CDX: Password expires in 1 day! [Reset your password](#)

CDX Service Availability

[See the status for all program services](#)

News and Updates

No news/updates.

Add Program Service Manage Your Program Services



Report Facility & Emissions
Information

Perform Quality Checks

Submit to SLT Authority

Approved by SLT Authority

Agency ID: 9999999999
 Facility Inc.
 123 Main Street
 Camptown, ME 04999
 2022 Emissions Report
 Agency: MEDEP

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- ▶ 010
- ▶ 011
- ▶ 012

Data Bulk Entry

Process Information

Emission Information

Unit ID	Process ID	Throughput Material	Throughput Value		Previously Reported Throughput Value	% Change in Throughput
001 	001-1	Hot Mix Asphalt	<input type="text" value="190567.3"/>	TON	206977 TON	-7.928
001 	001-2	Distillate Oil (No. 2)	<input type="text" value="307.401"/>	E3GAL	327.15 E3GAL	-6.037
002 	002-1	Distillate Oil	<input type="text" value="22.0165"/>	E3GAL	24.261 E3GAL	-9.251
003 	003-1	Distillate Oil (No. 1 & 2)	<input type="text" value="4.882"/>	E3GAL	26.84 E3GAL	-81.811
004 	004-1	Distillate Oil (Diesel)	<input type="text" value="12.257"/>	E3GAL	13.058 E3GAL	-6.134
005 	005-1	Distillate Oil (Diesel)	<input type="text" value="0.463"/>	E3GAL	0.545 E3GAL	-15.046
007 	007-1	Concrete	<input type="text" value="51326.5"/>	YD3	47914.8 YD3	7.120
008 	008-1	Product	<input type="text" value="261000"/>	TON	322487 TON	-19.067



Data Bulk Entry

Process Information

Emission Information

Unit ID	Process ID	Pollutant	Calculation Method	Emission Factor	Total Emissions	Previously Reported Total Emissions	% Change in Emissions
		Ammonia	Engineering Judgment		0 TON	N/A	N/A
		Carbon Dioxide	Site-Specific Emission Factor (no Control Efficiency used)	37 LB/TON	3525.5 TON	3830 TON	-7.950
		Carbon Monoxide	Site-Specific Emission Factor (no Control Efficiency used)	0.4 LB/TON	38.1135 TON	40 TON	-4.716
001	001-1	Lead	Site-Specific Emission Factor (no Control Efficiency used)	8.9e-7 LB/TON	0.00008480 TON	0.000092 TON	-7.823
		Methane	Trade Group Emission Factor (no Control Efficiency used)	0.0074 LB/TON	0.705099 TON	0.77 TON	-8.429
		Nitrogen Oxides	Trade Group Emission Factor (pre-control) plus Control Efficiency	0.12 LB/TON	11.434 TON	12 TON	-4.717
		Nitrous Oxide	Trade Group Emission Factor (pre-control) plus Control Efficiency	0.12 LB/TON	11.434 TON	12 TON	-4.717
		PM10 Filterable	Trade Group Emission Factor (pre-control) plus Control Efficiency	0.0098 LB/TON	0.93378 TON	1 TON	-6.622
		PM2.5 Filterable	Trade Group Emission Factor (pre-control) plus Control Efficiency	0.0083 LB/TON	0.790854 TON	0.86 TON	-8.040
		Sulfur Dioxide	Trade Group Emission Factor (pre-control) plus Control Efficiency	0.088 LB/TON	8.38496 TON	9.1 TON	-7.858
		Volatile Organic Compounds	Trade Group Emission Factor (pre-control) plus Control Efficiency	0.0082 LB/TON	0.781326 TON	0.85 TON	-8.079



Errors

1. Emissions Unit: B101, Emissions Process: B101-1 - There must be at least one emissions recorded for the Reporting Period when Process Operating Status is "Operating".
2. Emissions Unit: B101, Emissions Process: B101-1 - Reporting Period - Fuel Material, Fuel Value, and Fuel UoM for the Process SCC 10200107 are required. If this process was created to use with an alternative throughput, check that all Process Information data, Reporting Period data, Operating Details data, and Release Point Apportionment are identical to the original process from which this one was created to avoid double counting fuel.
3. Emissions Unit: B101, Emissions Process: B101-1 - Reporting Period - Heat Content Ratio and Heat Content Ratio Numerator for the Process SCC 10200107 are required. If this process was created to use with an alternative throughput, check that all Process Information data, Reporting Period data, Operating Details data, and Release Point Apportionment are identical to the original process from which this one was created to avoid entering heat content data unnecessarily.
4. Release Point: Operating - Release point Stack Height Measure is required for Stack release point type.
5. Release Point: Operating - The Release Point has not been associated with any process. Please associate it with a process, remove it (if new), or mark it Temporarily or Permanently Shutdown as the case may be.
6. Release Point: Operating - Release Point Identifier must be unique within the facility.
7. Release Point: Operating - The Release Point has not been associated with any process. Please associate it with a process, remove it (if new), or mark it Temporarily or Permanently Shutdown as the case may be.
8. Release Point: Operating - Release Point Identifier must be unique within the facility.
9. Facility Contact - Facility Site Contact postal code must be entered as 5 digits (XXXXX) or 9 digits (XXXXX-XXXX).
10. Attachments - An attachment describing the calculation methods is required if your facility has at least one non-emission factor calculation method utilized, or when using an emission factor and choosing to perform the calculations yourself.

Facility Inventory Changes

1. Emissions Unit: B101, Emissions Process: B101-1 - You have added a process for your facility. Please ensure that you have checked with your SLT that the data entered is correct, before you certify this report, to avoid having the report returned to you.
2. Emissions Unit: B102 - You have added a unit for your facility. Please ensure that you have checked with your SLT that the data entered is correct, before you certify this report, to avoid having the report returned to you.
3. Emissions Unit: B102, Emissions Process: P102 - You have added a process for your facility. Please ensure that you have checked with your SLT that the data entered is correct, before you certify this report, to avoid having the report returned to you.
4. Release Point: Operating - You have added a release point for your facility. Please ensure that you have checked with your SLT that the data entered is correct, before you certify this report, to avoid having the report returned to you.
5. Release Point: Operating - You have added a release point for your facility. Please ensure that you have checked with your SLT that the data entered is correct, before you certify this report, to avoid having the report returned to you.



SLT Properties

Update Properties

? Allow CSV Report Attachment Uploads: Enabled

? Allow DOCX Report Attachment Uploads: Enabled

? Allow PDF Report Attachment Uploads: Enabled

? Allow TXT Report Attachment Uploads: Enabled

? Allow XLSX Report Attachment Uploads: Enabled

? SLT EIS Program System Code:

? SLT EIS User ID:

? SLT Email:

? Receive 'Ready for Certification' Email Notifications: Enabled

? SLT Announcement Banner: Enabled



Annual Reports

Report Status: Pending Review Report Year: 2022 Industry Sector: All Sectors Filter Table: Search

Select	Facility Name	Agency Facility ID	Operating Status	Industry Sector	Submittal Year	Last Submittal Year	Actions
<input type="checkbox"/>	CARROLL MATERIALS, LLC-LIMERICK	A-000478	Operating	Manufacturing	2022	2021	Summary View Report Download Process Emissions Summary Download as Template
<input type="checkbox"/>	HARRY C CROOKER & SONS INC-TOPSHAM	A-000187	Operating	Manufacturing	2022	2021	Summary View Report Download Process Emissions Summary Download as Template
<input type="checkbox"/>	KATAHDIN RAILCAR SERVICES LLC - MILO	A-001131	Operating	Transportation and Warehousing	2022	2021	Summary View Report Download Process Emissions Summary Download as Template
<input type="checkbox"/>	NEW ENGLAND WASTE SERVICES OF MAINE - PINE TREE LANDFILL	A-000850	Operating	Administrative and Support and Waste Management and Remediation Services	2022	2021	Summary View Report Download Process Emissions Summary Download as Template

< 1 >

Begin Advanced QA

Reject and Return to Facility

Accept Report

2022 Report Submission Statuses

- 128** All
- 0 Not Started
- 4 In Progress
- 11 Reviewed and Returned
- 4 Pending Review
- 19 Advanced QA
- 90 Approved

Facility Comment: 2021 had an increase in production rate and staffing.

North Boiler (previously Boiler #2) (001)

Unit Status: Operating

Unit Comment:

Unit Operating Details

Hours/Day:
Days/Week:
Weeks/Year:
Summer Days:
Hours/Year: 1,280

Emission Unit Controls

% Time Operational

Capture %

Comment:

Pollutant Reduction Efficiency

%

North Boiler (previously Boiler #2)

Natural Gas (001-2)

SCC: 10200602

2021 Throughput: 27.08 E6FT3

2020 Throughput: 31.92 E6FT3

Natural Gas Burned

Natural Gas Burned

Sulfur %:

Ash%:

	<u>2021 Emission Calc Method</u>	<u>2021 Emission Factor</u>	<u>2020 Emission Factor</u>	<u>Emission Factor Source/Comment</u>	<u>2021 Tons</u>	<u>2020 Ton</u>
CAPs						
Ammonia	EPA Emission Factor (no Control Efficiency used)	3.2 LB/E6FT3	3.2 LB/E6FT3	AP-42	0.043	0.0510
Carbon Monoxide	EPA Emission Factor (no Control Efficiency used)	84 LB/E6FT3	84 LB/E6FT3	AP-42 Chapter 1, Section 1.4	1.140000	1.34
Lead	EPA Emission Factor (no Control Efficiency used)	0.0005 LB/E6FT3	0.0005 LB/E6FT3	AP-42 Chapter 1, Section 1.4	0.0000068	0.000008
Nitrogen Oxides	EPA Emission Factor (no Control Efficiency used)	100 LB/E6FT3	100 LB/E6FT3	AP-42 Chapter 1, Section 1.4/Expressed as NO2.	1.354	1.596
PM-10 Filterable	EPA Emission Factor (no Control Efficiency used)	1.9 LB/E6FT3	1.9 LB/E6FT3	AP-42 Table 1.4-2/AP-42 Table 1.4-2	0.026	0.03
PM-2.5 Filterable	EPA Emission Factor (no Control Efficiency used)	1.9 LB/E6FT3	1.9 LB/E6FT3	AP-42, Table 1.4-2/AP-42, Table 1.4-2	0.026	0.03
Sulfur Dioxide	EPA Emission Factor (no Control Efficiency used)	0.6 LB/E6FT3	0.6 LB/E6FT3	AP-42 Chapter 1, Section 1.4/Based on 100% conversion of fuel sulphur to SO2.	0.008	0.01
VOCs	EPA Emission Factor (no Control Efficiency used)	5.5 LB/E6FT3	5.5 LB/E6FT3	AP-42, Table 1.4-2/AP-42, Table 1.4-2	0.074	0.088000



North Boiler (previously Boiler #2)		001	OP			CAERS Sulfur Content				MAIRIS Sulfur Content	
Natural Gas		001-2	OP								
CAERS SCC	10200602			2022 THROUGHPUT		28.42	E6FT3SD	Throughgput % Change		4.941	
MAIRIS SCC	10200602			2021 THROUGHPUT		27.082	E6FT3				
	2022 EF	NUM/ DEN	2021 EF	NUM/ DEN	CALC METHOD	DESC	EMISSIONS_FACTOR_TEXT	2022 Tons		2021 Tons	% Change
Ammonia	3.2	LB E6FT3SD	3.2	LB E6FT3	USEPA Emission Factor (no Control Efficiency used)	Development and Selection of Ammonia Emission Factors - Final Report. R. Battye, W. Battye, C. Ov...	.045472	F	0.043	5.749	
Carbon Monoxide	84	LB E6FT3SD	84	LB E6FT3	USEPA Emission Factor (no Control Efficiency used)	EPA. March, 1998. Section 1.4, Natural Gas Combustion. In: Compilation of Air Pollutant Emissi...	1.19364	F	1.14	4.705	
Lead	0.0005	LB E6FT3SD	0.0005	LB E6FT3	Other Emission Factor (no Control Efficiency used)	WebFIRE FACTORID 5908; External Combustion Boilers, Industrial, Natural Gas, 10-100 Million Btu/hr	.0000071	F	0.0000068	4.412	
Nitrogen Oxides	100	LB E6FT3SD	100	LB E6FT3	USEPA Emission Factor (no Control Efficiency used)	EPA. 1995. Section 1.4, Natural Gas Combustion. In: Compilation of Air Pollutant Emission Fact...	1.421	F	1.354	4.948	
PM10 Filterable	1.9	LB E6FT3SD	1.9	LB E6FT3	USEPA Emission Factor (no Control Efficiency used)	EPA. March, 1998. Section 1.4, Natural Gas Combustion. In: Compilation of Air Pollutant Emissi...	.026999	F	0.026	3.842	



1. There is more than one process for this Emissions Unit using SCC 30500251. If this is a duplicate process for an Alternative Throughput, only report Fuel data for one of these Processes.



Emissions Unit Information

Unit ID:	001	Unit Type Code:	Other process equipment	Operating Status:	Operating
Unit Description:	HOT MIX ASPHALT BATCH PLANT			Operating Status Year:	2020
Unit Design Capacity:	75	Unit Design Capacity UoM:	E6BTU/HR		
Comments:	Hot Mixed Asphalt Plant is a newly permitted plant and started producing product in August 2019				

Processes Associated with this Emissions Unit

Process ID	SCC
001-1	30500251
001-3	30500251

Controls Associated with this Emissions Unit

Control	Description	Control Path
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022 ?	022-1 ?	Carbon Monoxide	S/L/T Emission Factor (no Control Efficiency used)	130 LB/E3GAL	<input type="text" value="0.00039"/>	TON	0.00521 TON	-92.514
		Lead	Engineering Judgment		<input type="text" value="0"/>	TON	N/A	N/A
		Methane	S/L/T Emission Factor (no Control Efficiency used)	0.913 LB/E3GAL	<input type="text" value="0.000002739"/>	TON	0.000036 TON	-92.392
		Nitrogen Oxides	S/L/T Emission Factor (no Control Efficiency used)	604 LB/E3GAL	<input type="text" value="0.001812"/>	TON	0.0242 TON	-92.512
		Nitrous Oxide	S/L/T Emission Factor (no Control Efficiency used)	0.18 LB/E3GAL	<input type="text" value="5.4e-7"/>	TON	0.0000072 TON	-92.500
		PM10 Filterable	Site-Specific Emission Factor (no Control Efficiency used)	16.44 LB/E3GAL	<input type="text" value="0.00004932"/>	TON	0.000658 TON	-92.505
		PM2.5 Filterable	Site-Specific Emission Factor (no Control Efficiency used)	16.44 LB/E3GAL	<input type="text" value="0.00004932"/>	TON	0.000658 TON	-92.505
		Sulfur Dioxide	Site-Specific Emission Factor (no Control Efficiency used)	141 LB/E3GAL	<input type="text" value="0.000423"/>	TON	0.0000085 TON	4876.471
		Volatile Organic Compounds	Site-Specific Emission Factor (no Control Efficiency used)	48.3 LB/E3GAL	<input type="text" value="0.0001449"/>	TON	0.00193 TON	-92.492



Emission Information

Pollutant Name: Sulfur Dioxide **Pollutant Code:** SO2 **CAS ID:** 7446-09-5

Calculation Method: Site-Specific Emission Factor (no Control Efficiency used)

Emission Factor: 141

Emission Factor Description: Site-specific

Emission Factor Numerator LB

UoM:

Emission Factor Note:

Emission Factor Denominator E3GAL

UoM:

Overall Control %:

Total Emissions: 0.000423

Emissions UoM: TON

Comments:

Reviewer Comment:

Add Reviewer Comment

Back



CAERS Wish List

- Pollutants allowed to be dormant when not reported that year
- Sidebar Enhancements (collapse, ID)
- Enhanced Bulk data entry screen (EF)
- GHG Part 98 EF



Key features facilities love:

- Easy to use user interface
- Data Bulk entry screen
- Attachment upload
- Column Sort for report summary
- Web-fire emission factor search



Cost Comparison

- \$15,000 per year (minimum) to maintain MAIRIS
 - Routine maintenance and a few very small improvements each year.
 - Technical support
- No noticeable change in staff time



What We Will Do For Next Year:

- Encourage facilities to use bulk data entry option
- Send checklist to facilities on CAERS steps
- Send report with HAPs and previous EF for them to use
 - Next year is a required HAP reporting year for Maine
- Update HAP list





Contact:

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