

REVIEW REPORT

Forrest Paint Company
 1011/990 McKinley Street
 Eugene, Oregon 97402
www.forrestpaint.com

Permit No. 202805

Source Information:

SIC	2851
NAICS	325510

Source Categories (LRAPA Title 37, Table 1)	B – 81: Paint and Allied Products Manufacturing C – 3: Source electing to maintain baseline emission rate C – 7: PTE>10 ton/yr single HAP
Public Notice Category	II

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	y
Emission credits	n
Compliance schedule	n
Source test [date(s)]	See permit

COMS	n
CEMS	n
Ambient monitoring	n

Reporting Requirements:

Annual report (due date)	February 15
SACC (due date)	n
Quarterly report (due dates)	n

Monthly report (due dates)	n
Excess emissions report	y
Other reports	February 15

Air Programs:

NSPS (list subparts)	n
NESHAP (list subparts)	A, CCCCCC
CAM	n
Regional Haze (RH)	n
Synthetic Minor (SM)	HAP
Part 68 Risk Management	n
Title V	Prior to Sept. 16, 2003
ACDP (SIP)	n
New Source Review (NSR)	n
Prevention of Significant Deterioration (PSD)	n
Acid Rain	n
Clean Air Mercury Rule (CAMR)	n
TACT	y

1. General Background Information

Forrest Paint Company manufactures solvent-based paint, latex coatings, aerosols, powder coatings and related products at 1011 and 990 McKinley Street in Eugene, Oregon. Solvent-based paint manufacturing accounts for approximately three-quarters of the total paint production. The facility produces high temperature coatings, cleaners, polishes, gaskets and sealants, as well as, wood restoration products and skid-resistant epoxy paint. Low-VOC coatings produced at the facility include ultraviolet (UV) cured coatings, water reducible paint, high solids paint and water-based paint. Aerosol paint, which contains a high proportion of solvent, is a specialty product manufactured at the facility. The facility also has a powder coating manufacturing process. The facility operates as much as 4,160 hours per year (16 hours/day, 5 days/week and 52 weeks/year). The emission units at the facility are the following:

Emission Unit ¹	Emission Unit Description	Pollution Control Devices
EU1	Storage Tanks	NA
EU2	Fugitive Valves & Pumps	NA
EU3	81T0000 Solvent Canning	NA
EU4	Tank Wash	NA
EU5	Laboratory (Categorically Insignificant Activity)	NA
EU6	Tinter's Spray Booth	NA
EU7	Solvent Still	NA
EU8	Aerosol Fill Room, Gassing Room and Waste Can Puncturing (Vents 11 & 12)	Carbon Filter (controls waste from can puncturing)
EU9	Solvent-based Paint Manufacturing	Shaker Baghouses (SB-A, SB-B and NB) and Biofilter
EU10	Paint Making Department Clean-Up	Biofilter
EU11	Stainless Steel Twins Cleaning	Biofilter
EU12	Water-based Paint Manufacturing	Jet Pulse Baghouse (JP-4)
EU13	Air Classifying Grinders	Jet Pulse Baghouses (JP-1, JP-2, JP-3 and JP-5)
EU14	Columbia Steam Boiler, Gas-fired Max Design Rate = 0.7 MMBTU/hr (Categorically Insignificant Activity)	NA
EU15	Extruder and Grinder	Jet Pulse Baghouse (JP-6)
EU16	Powder Production Extruder and Grinder	Jet Pulse Baghouse (JP-7)
EU17	Powder Lab Extruder and Grinder	Jet Pulse Baghouse (JP-8)

¹Note: Emission units have been renamed in this permitting action from PM, paint making, to EU, emission unit, to avoid confusion with criteria pollutant PM, particulate matter, and because not all processes are directly involved with the paint making process.

2. Reasons for Permit Action

The primary reason for this action is to issue the renewed permit as a Standard ACDP. This facility operates a process listed in Table 1, Part B.81, of LRAPA Title 37 and is, therefore, required to obtain a permit. The facility's primary permitted activity has been changed in this renewal from B.68 – Surface Coating Manufacturing to B.81 – Paint and Allied Products Manufacturing subject to an Area Source NESHAP, which more accurately reflects the facility's source category. Due to the facility's potential to emit above the Hazardous Air Pollutant (HAP) major source thresholds, the facility is required by Table 1, Part C.7 of LRAPA Title 37 to obtain a Standard ACDP.

During the permit renewal process, the facility submitted a Notice of Intent to Construct to add a powder production extruder and grinder (EU16), a powder lab extruder and grinder (EU17) and two baghouses (JP-7 and JP-8). This project constituted a Type 1 permit modification, which has been incorporated via this permit renewal. LRAPA also received a Notice of Completion for the extruder and grinder (EU15) on January 16, 2017, indicating that the baghouse for the emission unit was installed in December 2015 and then removed in November 2016 in anticipation of the onsite relocation of this emission unit. To provide consistent numbering of the baghouses, the pollution control device for EU12 has been reassigned as JP-4 to align with the Notice of Intent to Construct application for the new emission units EU16 and EU17.

3. Enforcement History

Notice of Non-Compliance No. 3645 was issued July 11, 2016 for failing to perform source testing of the facility's Biofilter during the permit term of July 13, 2010 to July 13, 2015. The facility completed the source tests, outside of the previous permitting term, during the weeks of February 2, 2016 and July 25, 2016. The appropriate documentation of the source test plan and report were received in timely manner. Utilizing the results from aforementioned source test, the HAP emission factors for the Biofilter were verified and no HAP emission violation was identified. Notice of Violation No.16-3645 was issued to the facility on August 30, 2016 for failure to perform the Biofilter source tests during the permit term and included a total civil penalty of \$6,000. On September 8, 2016, LRAPA received the payment of the full amount of the civil penalty and the case was closed.

Notice of Non-Compliance No. 3270 was issued February 25, 2011 for failing to comply with the Monitoring, Record-Keeping and Reporting requirements detailed in the permit. The facility failed to conduct leak inspections of solvent storage and transfer, as well as, failing to conduct and record baghouse inspections and failing to operate baghouses within parameter action levels detailed in the O&M Plan. The facility was also notified of a failure to submit both the O&M Plan and the National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart CCCCCC "Initial Notification of Applicability" in a timely manner. Notice of Violation No. 11-3270 was issued to the facility on March 14, 2011 and included a total civil penalty in the amount of \$2,400. The facility requested a reduction of civil penalty on April 1, 2011. On April 11, 2011, LRAPA reduced the civil penalty to \$1,500, the penalty was paid by the facility on April 19, 2011, and the case was closed.

Notice of Non-Compliance No. 2886 was issued September 14, 2006 for exceeding 9 tons per year single Hazardous Air Pollutant (HAP) emission limit for the 12-month periods of May 2005 to April 2006, June 2005 to May 2006, and July 2005 to June 2006. Toluene was the single HAP for which the exceedance occurred. Notice of Violation No. 06-2886 was issued to the facility on January 18, 2007 including a total civil penalty in the amount of \$6,000. On February 8, 2007, the facility paid the full amount of the civil penalty and the case was closed.

Notice of Non-Compliance No. 1079 was issued June 22, 1995. The permit violation was for installing and operating a new powder coating emission unit and baghouse control device without first notifying LRAPA in writing and obtaining approval. The facility was required to complete and submit a "Request for Construction Review of an Air Pollution Control Facility in Lane County" as the prescribed corrective active. The construction review was received on June 23, 1995 and no further enforcement action was taken.

4. Performance Testing

The facility is required to perform source testing on the Biofilter to assure compliance with the HAP and VOC PSELS established in the permit. Two (2) Biofilter source tests are required during the permit term, including one within the months of June, July or August and the other within the months of December, January or February. Results from Biofilter source tests from 2004 to 2016 are included in the attachment to this review report. One (1) source test is required within the permit term to verify the Stack Capture Efficiency Factor established from one source test conducted on May 12, 2004, and is a factor used to establish compliance with the VOC and HAP PSELS.

5. Emissions

Pollutant	Baseline Emission Rate ¹		Netting Basis Proposed (tons/yr)	Plant Site Emission Limit (PSEL)			Increase over netting basis (tons/yr)	Unassigned Emissions (tons/yr)	SER (tons/yr)
	Previous (tons/yr)	Proposed (tons/yr)		Previous PSEL (tons/yr)	Proposed PSEL (tons/yr) ²	PSEL Increase (tons/yr)			
PM	3.3	3.3	3.3	24	removed	N/A	N/A	N/A	25
PM ₁₀	3.3	3.3	3.3	14	removed	N/A	N/A	N/A	15
PM _{2.5}	N/A	N/A	3.3	N/A	removed	N/A	N/A	N/A	10
VOC ³	17.1	60.4	60.4	56	58	2	-2	2	40
GHG	N/A	163	163	N/A	N/A	N/A	N/A	N/A	75,000
Single HAP ⁴	N/A	N/A	N/A	9	9	0	N/A	N/A	10
Total HAP ⁴	N/A	N/A	N/A	24	24	0	N/A	N/A	25

¹The 1978 Baseline Emission Rate for PM and PM₁₀ were determined in previous permitting actions and no changes have been made. A baseline emission rate is not required for PM_{2.5} in accordance with the definition of "baseline emission rate" in LRAPA Title 12. The PM_{2.5} Netting Basis is established with this permitting action as 100% of the PM₁₀ Netting Basis. The 1978 VOC Baseline Emission Rate was originally established from information provided in the facility's LRAPA Title V application received on February 11, 1999, but was reduced to the facility's

potential-to-emit, at the time of the permit action, in the Synthetic Minor ACDP issued September 16, 2003. This permitting action has restored the VOC Baseline Emission Rate to actual emissions during the 1978 operating year at the facility. The baseline for GHG is based upon actual emissions from the 2007 calendar year.

²No PSELS for PM, PM₁₀, PM_{2.5}, SO₂, NO_x, CO, and GHG are being set because the potential to emit is less than the de minimis level of one ton per year for PM, PM₁₀, PM_{2.5}, SO₂, NO_x, and CO, and 2,756 tons per year for GHG. This permit action removes the previously assigned PSELS for PM and PM₁₀.

³In accordance with LRAPA Title 42, the VOC PSEL has been set to the potential-to-emit for the facility, which is based on the highest throughput from the last permit term and has been adjusted for the updated Biofilter VOC control efficiency and a 14% projected production growth. The emissions calculation sheet is attached to this review report.

6. ⁴The Proposed HAP PSELS have been set at LRAPA's Generic PSEL levels in accordance the 42-0041(1), since the projected emission levels are less than Generic PSEL level but greater than the de minimis emission levels for these pollutants.Other Emission Limitations

The facility is subject to the visible emissions standards in OAR 340-208-0110(4) and the particulate grain-loading standard in OAR 340-226-0210(b)(B) because DEQ adopted versions of these rules on April 16, 2015 that were determined to be more stringent than the existing LRAPA versions of these rules (LRAPA 32-010 and 32-015, respectively). The facility is subject to the highest and best requirement of LRAPA 32-005. Operation of well-maintained baghouses should assure compliance with the grain loading and visible emissions limits. The facility is also required to conduct inspections and maintenance of the equipment to assure compliance with the highest and best requirements.

The facility is subject to the PSEL rules in LRAPA 42-0040 and 42-0060. To assure compliance with the PSELS, detailed records must be maintained which demonstrate that the emissions of VOC and HAP(s) are below the established limits. Emission factors for HAP emission calculations have been updated in this permitting action to reflect the average of all acceptable performance tests.

7. Hazardous Air Pollutants (HAPs)

A major source is a facility that has the potential to emit 10 tons/yr or more of any single HAP or 25 tons/yr or more of combined HAPs. This source is not a major source of hazardous air pollutants because the facility does not currently emit HAPs above the major source levels and the facility has accepted PSELS for HAPs which limit its potential to emit to less than the major source levels, which are federally enforceable operational limits. The current potential to emit for HAPs were calculated by the facility in the permit renewal application and are provided in the table below:

HAP	Emissions (tons/year)
Ethyl Benzene	1.32
Methyl isobutyl ketone	0.03

HAP	Emissions (tons/year)
Naphthalene	0.01
Toluene	6.71
Xylenes	4.90
Total HAPS	12.98

8. Typically Achievable Control Technology (TACT)

LRAPA 32-008 requires an existing emission unit at a facility to meet TACT if the emission unit meets the following criteria: the emissions of criteria pollutants are greater than five (5) tons per year of particulate or ten (10) tons per year of any gaseous pollutant, the emission unit is not subject to the emissions standards under LRAPA Title 30, Title 32, Title 33, Title 38, Title 39, or Title 46 for the pollutants emitted, and the facility is required to have a permit. Several of this facility's paint manufacturing emission units emit more than ten (10) tons per year of gaseous pollutants and are, therefore, required to meet TACT. While a formal TACT determination has not been conducted, LRAPA has determined that the Biofilter control device likely meets the TACT requirement for this facility.

9. New Source Review and Prevention of Significant Deterioration

Since the proposed PSEs for all regulated pollutants are below the Significant Emission Rates (SERs) in LRAPA Title 12, the facility is not subject to LRAPA's New Source Review (NSR) requirements for PM₁₀ nor the Prevention of Significant Deterioration (PSD) requirements for SO_x, NO_x, CO and VOC.

10. New Source Performance Standards (NSPSs)

There are no NSPSs that are currently applicable to this facility. 40 CFR Part 60, Subpart Dc is not applicable to the source because the heat input rating of the boiler in EU14 is each less than 10 million Btu/hour.

11. National Emission Standards for Hazardous Air Pollutants (NSPSs)

As an area source of HAPs, the facility is subject to the National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Paints and Allied Products Manufacturing [40 CFR Part 63 Subpart CCCCCC]. The permit contains the applicable requirements for Subpart CCCCCC.

12. General Recordkeeping Requirements

A record of the following data is required to be maintained for a period of at least five (5) years at the facility: [LRAPA 35-0160 and 42-0080]

Parameter	Minimum Recording Frequency
Estimation of total VOC, total HAPs and single HAP on a rolling 12-month emissions basis (tons)	Monthly
Inspections of the coverage of process and storage vessels, and storage and transport containers	Bimonthly
Visual inspections of Solvent Storage and Transfer	Monthly
Pressure drop reading on baghouses	Monthly
Inspections of baghouses for wear, plugging, abrasion and integrity of mechanical and ancillary systems	Monthly
Upset log of all planned and unplanned excess emissions	Upon Occurrence

13. General Reporting Requirements

By **February 15th** of each year, the facility is required to submit an annual report containing the information required in Condition 22 and 23 of the permit. The Annual Compliance Certification under 40 CFR 63 Subpart CCCCCC must be prepared by **January 31st** of each year and, if required by Condition 12 of the permit, must be submitted by **February 15th** of each year.

14. Public Notice

The draft permit will be on public notice from November 16, 2017 to December 21, 2017. Written comments may be submitted during the 35-day comment period. If requested by ten (10) or more individuals or an individual representing a group of more than ten (10) individuals, there will be a public hearing following the comment period.

After the comment period and hearing (if requested), LRAPA will respond to comments received and then take final action to issue or deny the permit within 45 days of the close of the public comment or hearing period.

Biofilter Source Test Summary

Average Removal Efficiencies from All Source Tests

HAP	% Removal Efficiency
MIBK	30.2%
Toluene	44.6%
Ethylbenzene	56.1%
Xylenes	44.6%
Total Target Compounds	44.8%

EMISSION CALCULATIONS - Forrest Paint Source Test July 2016												
HAP	Mole Wt	Units	INLET				OUTLET				% Removal Efficiency	
			Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average		
MIBK	100.16	ppmv	0	0	0.26		0	0	0			
		#/hr	0.000	0.000	0.006	0.002	0.000	0.000	0.000	0.000	100.0	
Toluene	92.14	ppmv	150	32	49		78	25	25			
		#/hr	3.319	0.565	1.056	1.647	1.726	0.441	0.539	0.902	45.2	
Ethylbenzene	106.17	ppmv	31	5.9	18		18	4.8	11			
		#/hr	0.790	0.120	0.447	0.452	0.459	0.098	0.273	0.277	38.9	
Xylenes	106.16	ppmv	111	14.3	86		66	13	55			
		#/hr	2.830	0.291	2.136	1.752	1.683	0.264	1.366	1.104	37.0	
Total Target Compounds		#/hr	3.853	3.853	3.853	3.853	2.283	2.283	2.283	2.283	40.8	

EMISSION CALCULATIONS - Forrest Paint Source Test February 2016												
HAP	Mole Wt	Units	INLET				OUTLET				% Removal Efficiency	
			Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average		
MIBK	100.16	ppmv	0	0.9	0		0	0.68	0			
		#/hr	0.00	0.02	0.00	0.01	0.000	0.016	0.000	0.01	24.4	
Toluene	92.14	ppmv	110	51	88		64	43	25			
		#/hr	2.38	1.08	1.95	1.81	1.384	0.914	0.555	0.95	47.3	
Ethylbenzene	106.17	ppmv	7.5	10	21		4.9	7.8	5.1			
		#/hr	0.19	0.24	0.54	0.32	0.122	0.191	0.130	0.15	54.2	
Xylenes	106.16	ppmv	31.3	36.4	75		20	30.3	18.2			
		#/hr	0.78	0.89	1.92	1.20	0.498	0.742	0.466	0.57	52.5	
Total Target Compounds		#/hr	3.33	3.33	3.33	3.33	1.67	1.67	1.67	1.67	49.8	

EMISSION CALCULATIONS - Forrest Paint Source Test March 2007												
HAP	Mole Wt	Units	INLET				OUTLET				% Removal Efficiency	
			Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average		
MIBK	100.16	ppmv	0.000	0.000	0.000		0.000	0.000	0.003			
		#/hr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	
Toluene	92.14	ppmv	0.037	0.08	0.054		0.034	0	0.048			
		#/hr	0.001	0.002	0.002	0.002	0.001	0.000	0.001	0.001	51.6	
Ethylbenzene	106.17	ppmv	0.004	0.014	0.006		0.002	0	0.005			
		#/hr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	70.8	
Xylenes	106.16	ppmv	0.021	0.065	0.027		0.014	0.032	0.025			
		#/hr	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	37.2	
Total Target Compounds		#/hr	0.002	0.005	0.003	0.003	0.002	0.001	0.002	0.002	47.5	

EMISSION CALCULATIONS - Forrest Paint Source Test August 2006												
HAP	Mole Wt	Units	INLET				OUTLET				% Removal Efficiency	
			Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average		
MIBK	100.16	ppmv	0	0	0		0.01	0	0			
		#/hr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	
Toluene	92.14	ppmv	26	28	23		0.16	12	19			
		#/hr	1.034	1.117	0.896	1.015	0.006	0.479	0.740	0.408	59.8	
Ethylbenzene	106.17	ppmv	2.8	2.3	3.9		0.05	0	0			
		#/hr	0.128	0.106	0.175	0.136	0.002	0.000	0.000	0.001	99.4	
Xylenes	106.16	ppmv	10.7	7.2	13		0.2	2.4	7.1			
		#/hr	0.490	0.331	0.583	0.468	0.009	0.110	0.319	0.146	68.8	
Total Target Compounds		#/hr	1.650	1.550	1.650	1.62	0.020	0.580	1.060	0.553	65.8	

EMISSION CALCULATIONS - Forrest Paint Source Test June 2005												
HAP	Mole Wt	Units	INLET				OUTLET				% Removal Efficiency	
			Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average		
MIBK	100.16	ppmv	0	9	0		0	6	2			
		#/hr	0.000	0.203	0.000	0.068	0.000	0.135	0.049	0.062	9.0	
Toluene	92.14	ppmv	210	180	140		130	140	86			
		#/hr	5.217	3.735	3.185	4.046	3.230	2.905	1.957	2.697	33.3	
Ethylbenzene	106.17	ppmv	5	6	20		2	5	10			
		#/hr	0.143	0.143	0.524	0.270	0.057	0.120	0.262	0.146	45.9	
Xylenes	106.16	ppmv	20	24	82		9	19	39			
		#/hr	0.572	0.574	2.150	1.099	0.258	0.454	1.022	0.578	47.4	
Total Target Compounds		#/hr	5.933	4.656	5.859	5.482	3.544	3.614	3.291	3.483	36.5	

EMISSION CALCULATIONS - Forrest Paint October 2004												
HAP	Mole Wt	Units	INLET				OUTLET				% Removal Efficiency	
			Run 1	Run 2	Run 3	Average	Run 1	Run 2	Run 3	Average		
MIBK	100.16	ppmv	3.1	1.1	0		2.2	0	0			
		#/hr	0.119	0.042	0.000	0.054	0.084	0.000	0.000	0.028	47.6	
Toluene	92.14	ppmv	72.4	149.6	93.5		48.4	108.8	63			
		#/hr	2.555	5.280	3.300	3.712	1.708	3.840	2.224	2.591	30.2	
Ethylbenzene	106.17	ppmv	5.7	13.2	10.8		4	9.9	7.7			
		#/hr	0.232	0.537	0.439	0.403	0.163	0.403	0.313	0.293	27.3	
Xylenes	106.16	ppmv	32	73.3	58.4		23	57.2	43			
		#/hr	1.301	2.981	2.375	2.219	0.935	2.326	1.749	1.670	24.7	
Total Target Compounds		#/hr	4.208	8.840	6.114	6.388	2.891	6.569	4.286	4.582	28.3	

Emission Estimations from 2016 Annual Reporting

DESCRIPTION	CAS #	2-15 to 1-16	3-15 to 2-16	4-15 to 3-16	5-15 to 4-16	6-15 to 5-16	7-15 to 6-16	8-15 to 7-16	9-15 to 8-16	10-15 to 9-16	11-15 to 10-16	12-15 to 11-16	1-16 to 12-16
EMISSIONS													
VOC (Including HAPs)		97,956	91,942	88,610	87,226	82,450	86,329	84,888	83,488	61,803	62,493	62,758	71,373
2-BUTOXYETHANOL	111-76-2	1,267	1,084	1,039	1,024	990	1,040	1,032	990	876	873	855	959
2-PROPOXYETHANOL	2807-30-9	2	2	2	2	1	1	1	0	0	0	0	0
GLYCOL ETHER DB	112-34-5	33	33	32	33	24	34	34	34	23	23	23	32
GLYCOL ETHER-DEGHE	112-59-4	8	8	9	9	8	9	9	9	15	15	8	9
METHANOL	67-56-1	10	10	10	10	9	11	11	11	8	8	8	10
METHYL ISOBUTYL KETONE	108-10-1	242	202	202	205	178	213	220	219	197	197	184	210
METHYL METHACRYLATE	80-62-6	8	7	7	7	7	7	7	7	5	5	5	6
HEXAMETHYLENE DIISOCYANATE (HDI)	822-06-0	1	1	1	1	1	1	1	1	1	1	1	1
TOLUENE DIISOCYANATE (TDI)	584-84-9	0	0	0	0	0	0	0	0	0	0	0	0
2-PHENOXYETHANOL	122-99-6	4	4	4	4	3	4	4	4	2	2	2	3
GLYCOL ETHER DM	111-77-3	13	13	13	12	9	12	12	12	9	9	9	11
GLYCOL ETHER-PROPYLENE	34590-94-8	50	50	51	53	46	53	54	58	43	45	49	56
2-(2-ETHYLHEXYLOXY) ETHANOL	1559-35-9	0	0	0	0	0	0	0	0	0	0	0	0
2-(2-PHENOXYETHOXY) ETHANOL	104-68-7	0	0	0	0	0	0	0	0	0	0	0	0
FORMALDEHYDE	50-00-0	3	3	3	3	2	2	2	2	2	2	2	2
CUMENE	98-82-8	12	12	11	11	11	11	11	11	9	9	9	10
BENZENE	71-43-2	20	18	17	17	17	18	17	17	8	9	10	13
TOLUENE	108-88-3	14,404	13,122	12,295	12,199	11,824	12,728	12,637	12,695	10,738	10,397	10,378	11,252
XYLENE	1330-20-7	15,361	14,334	13,474	12,921	12,226	13,182	13,136	13,117	11,212	10,819	10,760	12,494
ETHYL BENZENE	100-41-4	2,285	2,148	2,027	1,951	1,850	1,993	1,995	1,995	1,766	1,721	1,718	1,913
STYRENE MONOMER	100-42-5	2	2	2	2	2	2	2	2	2	2	2	2
GLYCOL ETHER EM	111-15-9	0	0	0	0	0	0	0	0	0	0	0	0
POLYETHYLENE GLYCOL	25322-68-3	9	9	9	9	6	8	7	8	6	6	6	9
GLYCOL ETHER PM	107-98-2	28	28	28	28	21	24	21	22	7	6	6	9
ETHYLENE GLYCOL	107-21-1	25	24	24	24	24	30	30	30	23	23	22	29
CARBON TETRACHLORIDE	56-23-5	3	3	3	3	2	2	2	2	1	1	1	0
VINYL ACETATE	108-05-4	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HAPs		33,792	31,118	29,266	28,528	27,263	29,387	29,249	29,247	24,957	24,178	24,062	27,033

LRARM USAGE (LBS)		10,725,166	10,314,805	9,920,563	9,541,397	8,786,230	9,523,672	9,300,466	9,198,301	9,130,353	8,879,195	8,486,917	8,486,917
PAINT PRODUCTION (HRS)		2,016	2,024	2,024	2,024	2,040	2,040	2,032	2,048	2,040	2,032	2,040	2,040
BIOFILTER OPERATION (HRS)		1,985	1,993	1,994	1,986	2,000	2,008	2,000	2,016	2,028	2,020	2,028	2,028
NUMBER OF WORK DAYS		252	253	253	253	255	255	254	256	255	254	255	255
NATURAL GAS USED (FT3)		44,234,000	42,250,000	41,845,000	40,082,000	38,435,000	38,200,000	38,294,000	38,967,000	38,884,000	39,149,000	40,611,000	43,590,000

Emission Estimations from 2016 Annual Reporting (Continued)

December 2016

	USAGE (LBS)	VOC (lbs)	S 103 2-Butoxyethanol	S 105 2-Propoxyethanol	S 114 Glycol Ether DB	S 130 Glycol Ether DEGHE	SA 41 Methanol	SK 83 Methyl Isobutyl Ketone	Y101 Methyl Methacrylate	Y12 Hexamethylene Diisocyanate	Y13 Toluene Diisocyanate	Y140 2-phenoxyethanol	Y145 Glycol Ether DM	Y154 Dipropylene Glycol Methyl Ether	Y169 2-(2-Ethylhexyloxy) Ethanol	Y174 2-(2-phenoxyethanoxyl) Ethanol	Y18 Formaldehyde	Y186 Cumene	Y186 Benzene	Y187 Toluene	Y241 Xylene	Y246 Ethyl Benzene	Y26 Styrene Monomer	Y271 Glycol Ether EM	Y404 Polyethylene Glycol	Y46 Glycol Ether PM	Y501 Ethylene Glycol	Y569 Carbon tetrachloride	Y73 Vinyl Acetate
LRARM Usage	1397503	620075	7574	0	536	41	119	1524	70	5	3	82	123	413	0	9	29	64	196	87773	112377	21991	13	0	174	192	373	0	0
Fugitive Emissions (0.6%)	3,720	45	0	3	0	1	9	0	0	0	0	1	2	0	0	0	0	0	1	527	674	132	0	0	1	1	2	0	0
Emissions to Biofilter (1.7%)	10,541	129	0	9	1	2	26	1	0	0	1	2	7	0	0	0	1	3	1,492	1,910	374	0	0	3	3	6	0	0	
A) Stack Emiss. (74.3%)	7,832	96	0	7	1	2	19	1	0	0	1	2	5	0	0	0	1	3	1,109	1,419	278	0	0	2	2	5	0	0	
B) Fugitive Emiss. (25.7%)	2,709	33	0	2	0	1	7	0	0	0	0	1	2	0	0	0	0	1	383	491	96	0	0	1	1	2	0	0	
% OPERATION BIOFILTER (FROM A)																													
C) Normal Operation (100.0%)	7,832	96	0	7	1	2	19	1	0	0	1	2	5	0	0	0	1	3	1,109	1,419	278	0	0	2	2	5	0	0	
D) Downtime (0.0%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIOFILTER (FROM C)																													
E) Controlled (46.6%)	3,650	45	0	3	0	1	9	0	0	0	0	1	2	0	0	0	0	1	572	527	196	0	0	1	1	2	0	0	
F) Pass thry (53.4%)	4,182	51	0	4	0	1	10	0	0	0	1	1	3	0	0	0	0	1	537	893	81	0	0	1	1	3	0	0	
EMITTED TO ATMOSPHERE (B + D + F)	10,612	130	0	9	1	2	26	1	0	0	1	2	7	0	0	0	1	3	1,447	2,058	309	0	0	3	3	6	0	0	

Potential to Emit Calculation

The table below details the highest VOC emission rate for the past permit term reported in the 2015 LRAPA Annual Report:

DESCRIPTION	1-15 to 12-15
EMISSIONS (LBS)	
VOC (Including HAPs)	99,015

The equation below details the calculation of the Potential to Emit, PTE, utilizing the highest reported throughput, updated biofilter VOC control efficiency, along with a maximum projected growth factor of 14%, which was utilized by the facility in their Cleaner Air Oregon Data Request reporting form to estimate maximum potential toxics emissions:

$$\text{PTE} = \left(\frac{99,015 \text{ lbs}}{(1 - 0.466)} \right) \times (1 - 0.448) \times 1.14 \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 58.3 \text{ tons}$$

(Total Emissions to Biofilter) X (Updated Biofilter Control Efficiency 44.8%) X Projected 14% Growth X Conversion Factor

Plant Site Particulate Matter Emission Calculations

Paint-making Emission Units				
Emission Units		lbs/yr ¹	tons/yr	Baghouse Controlled PM Emissions (tons/yr)
EU1-EU4, EU6-EU13	LRARM usage	11,127,660	5564	0.111

Total PM	0.111
Total PM₁₀	0.111
Total PM_{2.5}	0.110

Emission Factors	Value	Units	Source
PM Emission Rate	0.04	lb/ton	DEQ AQ-EF02 Estimated –Sanderdust Baghouse Emissions
PM ₁₀ Portion	99.5	%	DEQ AQ-EF03 Baghouse Emissions
PM _{2.5} Portion	99	%	DEQ AQ-EF03 Baghouse Emissions

Powder Coating Emission Units				
Emission Units		Hours/day ²	Hours/year	Production Rate (lbs/hr) ²
EU15	Extruder and grinder	8	2008	2.5
EU16	Powder Produciton	7	1750	35
EU17	Powder Lab	4	1000	5

Emission Units		Uncontrolled Emissions (lbs/yr)	Uncontrolled Emissions (tons/yr)	Baghouse Controlled PM Emissions (tons/yr) ²
EU15	Extruder and grinder	5020	2.51	0.0001
EU16	Powder Produciton	61250	30.625	0.0015
EU17	Powder Lab	5000	2.5	0.0001

Total PM	0.00178
Total PM₁₀	0.00177
Total PM_{2.5}	0.00176

Plant Site Total	tons/yr ³
PM	0.113
PM₁₀	0.112
PM_{2.5}	0.112

¹NOTE: Product throughput for paint-making emissions provided by the facility through the 2015 annual report, which was noted as the highest material throughput over the past permit term.

²NOTE: Operation hours, the 95% grinder efficiency, and baghouse control efficiency were provided by the facility in Notice of Intent to Construct 60720 for EU15 and Notice of Intent to Construct 62242 for EU16 and EU17.

³NOTE: Emissions are under the de minimis value of one (1) ton per year. No PSELs for particulate matter (PM), PM₁₀ or PM_{2.5} are required.

Baseline Emissions Calculations

Baseline VOC Emission - Details from Title V Permit No. 202805 (Expired September 16, 2003)

Solvent-based Paint Manufacturing			
1978 Solvent Usage	Emission Factor	Estimated Emissions	Estimated Emissions
(lbs)	(lb/lb)	(lb/yr)	(ton/yr)
1220000	0.030	36600	18.3

Waste Pond Discharge			
1978 Solvent Disposed	Emission Factor	Estimated Emissions	Estimated Emissions
(lbs)	(lb/lb)	(lb/yr)	(ton/yr)
86300	0.975	84143	42.1

Total Baseline VOC (ton/yr)
60.4

Baseline PM Emissions - Details from Title V Permit No. 202805 (Expired September 16, 2003)

Operating Schedule ¹	3500	hours/yr
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Emission Unit	Year Installed	Design Flow Rate (cfm)	Grain Loading Limit (gr/dscf)	Baseline Emissions (ton/yr)
CD-1 (South Baghouse - Left)	1975	1100	0.1	1.65
CD-2 (South Baghouse - Right)	1978	1100	0.1	1.65

Total Baseline PM (ton/yr)
3.3

¹NOTE: Title V Permit No. 202805 lists the operation hours for the baseline calculation as 3000, but the final baseline calculation listed used 3500 hours in order to caculate 3.3 tons/yr.