Notice of Construction (NOC) Worksheet

pscleanair.org
Puget Sound Clean Air Agency

Applicant: Puget Paving	**NOC Number**: 11613
Project Location: 5625 189th St E, Puyallup, WA 98373	**Registration Number**: 10130
Applicant Name and Phone: Josh Nobles, (253) 240-1306	**NAICS:** 324121
Engineer: Courtney O'Gorman	**Inspector**: Wellington Troncosco

A. DESCRIPTION

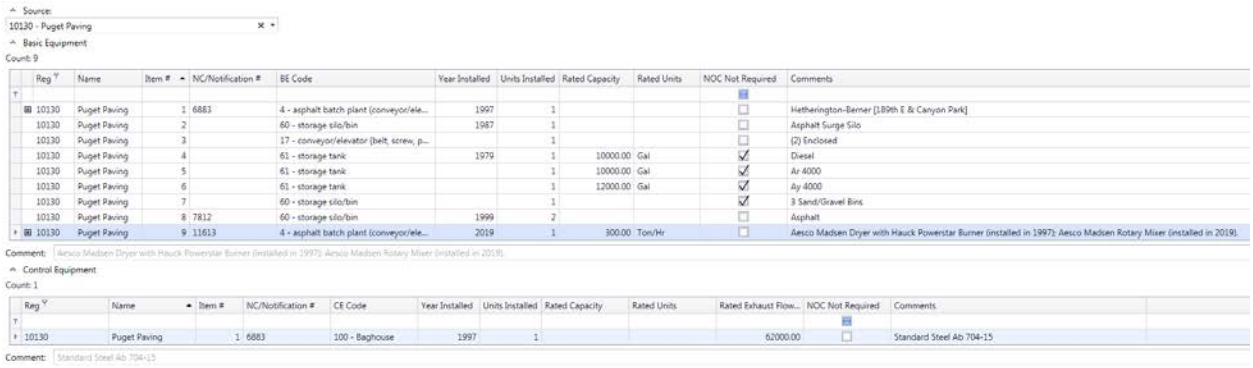
For the Order of Approval:
Replacement of equipment at an existing Asphalt Plant consisting of: one (1) existing Aesco Madsen rotary aggregate dryer rated at 55,000 cfm (300 tons/hr; 96.8 MMBtu/hr); one (1) new Aesco Madsen rotary drum mixer rated at up to 300 tons/hr connected to an existing Standard Steel AB-704-15 baghouse rated at 62,000 cfm; and new recycled asphalt pavement (RAP) feeder bin (120 tons/hr).

Additional Information (if needed):

Project: At the existing facility, virgin aggregate is fed to a rotary dryer and heated. From the dryer, the aggregate is transferred to a batch tower via a bucket elevator and is mixed with RAP. The aggregate/RAP mixture is dropped into a pug mill mixer, and liquid asphalt is also added to the pug mill mixer. The hot mix asphalt from the mixer is either transferred directly to a truck or to a storage silo. This project consists of removing the existing batch tower and pug mill mixer and replacing them with a continuous rotary drum mixer. Upon completion of the project, all aspects of the plant operation will remain the same, except the rotary mixer will be directly fed by the bucket elevator and will continuously mix aggregate, RAP, and liquid asphalt. Additional parts of the project include replacing the shell of the rotary dryer with a new shell (including trunnions) and replacing the existing RAP feeder bin with a larger feeder bin. The shell replacement does not trigger NSR. This Order of Approval cancels and supersedes Order of Approval No. 6883, dated April 30, 1997.

Facility: It was determined that the existing facility's potential emissions were greater than the major source threshold (100 tpy of a criteria pollutant, in this case CO). The AP-42 Chapter 11.1 emission factor for CO emissions from batch mix hot mix asphalt plants has been updated since Order of Approval No. 6883 was issued for the dryer. The emission factor for CO emissions from natural gas combustion increased from 0.056 lb/ton to 0.40 lb/ton, resulting in potential CO emissions for the existing facility greater than the major source threshold. Because of this, a federally enforceable synthetic minor limit was requested by the facility. The synthetic minor limit for CO is unrelated to the dryer shell replacement, which does not trigger NSR. The federally enforceable synthetic minor limit requires a Public Notice.

B. DATABASE INFORMATION


Source:
10130 - Puget Paving
Basic Equipment
Count: 9

Reg	Name	Item #	NC/Notification #	BE Code	Year Installed	Units Installed	Rated Capacity	Rated Units	NOC Not Required	Comments
10130	Puget Paving	1	6883	4 - asphalt batch plant (conveyor/ele...	1997	1			☐	Hetherington-Berner (189th E & Canyon Park)
10130	Puget Paving	2		60 - storage silo/bin	1987	1			☐	Asphalt Surge Silo
10130	Puget Paving	3		17 - conveyor/elevator (belt, screw, p...		1			☐	(2) Enclosed
10130	Puget Paving	4		61 - storage tank	1979	1	10000.00	Gal	☑	Diesel
10130	Puget Paving	5		61 - storage tank		1	10000.00	Gal	☑	Ar 4000
10130	Puget Paving	6		61 - storage tank		1	12000.00	Gal	☑	Ay 4000
10130	Puget Paving	7		60 - storage silo/bin		1			☑	3 Sand/Gravel Bins
10130	Puget Paving	8	7812	60 - storage silo/bin	1999	2			☐	Asphalt
10130	Puget Paving	9	11613	4 - asphalt batch plant (conveyor/ele...	2019	1	300.00	Ton/Hr	☐	Aesco Madsen Dryer with Hauck Powerstar Burner (installed in 1997); Aesco Madsen Rotary Mixer (installed in 2019).

Comment: Aesco Madsen Dryer with Hauck Powerstar Burner (installed in 1997); Aesco Madsen Rotary Mixer (installed in 2019).

Control Equipment
Count: 1

Reg	Name	Item #	NC/Notification #	CE Code	Year Installed	Units Installed	Rated Capacity	Rated Units	Rated Exhaust Flow...	NOC Not Required	Comments
10130	Puget Paving	1	6883	100 - Baghouse	1997	1			62000.00	☐	Standard Steel Ab 704-15

Comment: Standard Steel Ab 704-15

New NSPS due to this NOCOA?	**No**	**Applicable NSPS: None**	**Delegated? N/A**
New NESHAP due to this NOCOA?	**No**	**Applicable NESHAP: None**	**Delegated? N/A**
New Synthetic Minor due to this NOCOA?	**Yes**		

Note: The source was already subject to NSPS Subpart I prior to this Order.

C. NOC FEES AND ANNUAL REGISTRATION FEES

NOC Fees:

Fees have been assessed in accordance with the fee schedule in Regulation I, Section 6.04. All fees must be paid prior to issuance of the final Order of Approval.

Fee Description	Cost	Amount Received (Date)
Filing Fee	$ 1,150	
Equipment (drum mixer, RAP feeder bin)	$ 1,200	
NSPS	$ 1,000	
Public Notice	$ 700 (plus publication costs to be invoiced separately)	
Federally Enforceable Emission Limit	$ 2,000	
SEPA (DNS)	$ 800	
Filing received		$ 1,150 (6/6/2018)
Additional fee received		$ 5,700 (8/1/2018)
Total Remaining	$ 0	

Registration Fees:

Registration fees are assessed to the facility on an annual basis. Fees are assessed in accordance with Regulation I, Section 5.07.

Applicability		
Regulation I	Description	Note
5.03(a)(1)	Facilities subject to federal emission standards (Title 40 CFR)	
5.03(a)(2)	Federally enforceable emission limit	
5.03(a)(6)	Facilities with particulate control equipment (>= 2,000 cfm)	
5.03(a)(8)(A)	Facilities with asphalt batch operations	
Annual Registration Fee		
Regulation I	Description	Fee
5.07(c)	Base Registration Fee	$ 1,150
5.07(c)(1)	40 CFR 60 Subpart I	$ 2,100
5.07(c)(2)	Federally Enforceable Emission Limit	$ 2,300
	Total =	$ 5,550

D. STATE ENVIRONMENTAL POLICY ACT (SEPA) REVIEW

State Environmental Policy Act (SEPA) review was conducted in accordance with Regulation I, Article 2. The SEPA review is undertaken to identify and help government decision-makers, applicants, and the public to understand how a project will affect the environment. A review under SEPA is required for projects that are not categorically exempt in WAC 197-11-800 through WAC 197-11-890. A new source review action which requires a NOC application submittal to the Agency is not categorically exempt.

The applicant submitted a completed Environmental checklist that is included below.

11613 Puget Paving SEPA Checklist.pdf

I requested input from Kathleen Larrabee with Pierce County. Kathleen responded on 7/9/18 and indicated that there are no pending permits with Pierce County and agreed that the Agency would take the lead. Kathleen did not provide any comments on the project.

RE Request for Input on SEPA - Puge

I recommend the issuance of a Determination of Nonsignificance with no public comment.

E. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REVIEW

Best Available Control Technology (BACT)

New stationary sources of air pollution are required to use BACT to control all pollutants not previously emitted, or those for which emissions would increase as a result of the new source or modification. BACT is defined in WAC 173-400-030 as, "an emission limitation based on the maximum degree of reduction for each air pollutant subject to regulation under Chapter 70.94 RCW emitted from or which results from any new or modified stationary source, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each pollutant."

An emissions standard or emissions limitation means "a requirement established under the Federal Clean Air Act or Chapter 70.94 RCW which limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction and any design, equipment, work practice, or operational standard adopted under the Federal Clean Air Act or Chapter 70.94 RCW."

Best Available Control Technology for Toxics (tBACT)

New or modified sources are required to use tBACT for emissions control for TAP. Best available control technology for toxics (tBACT) is defined in WAC 173-460-020 as, "the term defined in WAC 173-400-030, as applied to TAP."

Project Review

The new drum mixer requires a BACT determination for particulate matter, opacity, and volatile organic compounds (VOC). The new RAP feeder bin requires a BACT determination for particulate matter.

Mixer Particulate Matter:

Similar Permits or Other Regulatory Agencies BACT for PM:

Source	Description	PM BACT
PSCAA Order No. 10462 (December 2012)	New hot mix asphalt plant including: Astec Counter Flow, Double Barrel Dryer (400 TPH)	0.02 gr/dscf (total)
PSCAA Order No. 10852 (April 2015)	New hot mix asphalt (HMA) plant (325 TPH)	0.02 gr/dscf (total)
PSCAA Order No. 11175 (November 2016)	New hot mix asphalt (HMA) plant (300 TPH)	0.02 gr/dscf (total)
PSCAA Order No. 11274 (May 2017)	Replacement of an existing pug mill with a rotary mixer (350 TPH)	0.02 gr/dscf (total)
PSCAA Order No. 11328 (January 2018)	Replacement of the drum dryer at an existing continuous/batch Asphalt Plant.	0.027 gr/dscf (total), corrected to 7% O_2 0.014 gr/dscf (filterable), corrected to 7% O_2
Southwest Clean Air Agency 11-2982ADP	Hot Mix Asphalt Plant – dryer and mixer (CMI-325 TPH)	0.010 gr/dscf (filterable), corrected to 15% O_2
Southwest Clean Air Agency 16-3199ADP	Replacement of parallel flow dryer/mixer with counterflow dryer/mixer (400 TPH)	0.010 gr/dscf (filterable), corrected to 15% O_2
Bay Area Air Quality Management District BACT/TBACT Workbook	Hot Mix Asphalt, Drum and Batch Mix Facilities	0.01 gr/dscf (filterable)

Analysis:

The Agency historically established a total particulate BACT limit of 0.02 gr/dscf for asphalt plants, until Order No. 11328 was issued in January 2018. The Agency's historic 0.02 gr/dscf limit did not include an oxygen correction, nor, apparently, does the BAAQMD limit shown in the table above. However, there is some concern that adding dilution air during an emission test could be used to demonstrate compliance with a limit; therefore, the Agency is setting future particulate limits using an oxygen correction factor, as first established in Order No. 11328. For consistency with Agency Regulation I, Section 9.09, the standard for correction chosen is seven percent oxygen.

The same approach that was used for Order No. 11328 is being used for this analysis. The Agency reviewed thirty-two asphalt plant particulate test results to determine what current BACT for particulate should be. This data was available from the Agency, SWCAA, and Northwest Clean Air Agency (NWCAA).

Corrected to seven percent oxygen, the SWCAA 0.010 gr/dscf at 15 percent oxygen filterable limit is 0.024 gr/dscf. Reviewing asphalt plant burner manufacturer recommendations, it appears that ten to twelve percent oxygen is expected to be exiting the drum. Picking the middle of this range (eleven percent oxygen), the Agency's 0.02 gr/dscf limit is 0.028 gr/dscf corrected to seven percent oxygen.

To determine a new demonstrated BACT limit for particulate, the following tests were eliminated from the sample.

- Test results that were greater than 0.0240 gr/dscf filterable particulate corrected to seven percent oxygen.
- Test results that were greater than 0.028 gr/dscf total particulate corrected to seven percent oxygen.
- Test results greater than the AP-42 Chapter 11.1 emission factor of 0.025 lb/ton.
- Tests with missing data such that it wasn't possible to determine if the emissions met the other criteria.

The basis for choosing the first two criteria for elimination was to narrow the sample to those tests that would show compliance with the limits being set on facilities today (SWCAA 0.010 gr/dscf @15% O2, and PSCAA 0.020 gr/dscf). The AP-42 criterion was chosen because this is the maximum expected basis that a plant absent any other data could use to estimate emissions. The remaining tests were then averaged, and the mean plus two standard deviations was calculated to determine a value 95 percent of the plants could pass for filterable and total particulate.

After eliminating the tests that did not meet the criteria set, there was a sample of eighteen test results. As can be seen from Table 1, all the data sets included in the sample pass the mean plus two standard deviations for the filterable and total particulate. The calculated value and recommended BACT limit for filterable particulate matches the maximum test result in the sample: 0.014 gr/dscf corrected to 7% oxygen. The calculated value and recommended BACT limit for total particulate is roughly eight percent greater than the maximum test result in the sample: 0.027 gr/dscf corrected to 7% oxygen.

Puget Paving
NOC Worksheet No. 11613

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Table 1 -- Particulate Test Result Data

Facility	Test Date	O2	CO2	Filterable PM	Filterable PM Corrected to 7 percent Oxygen	Condensable PM	Condensable PM Corrected to 7 percent Oxygen	Total PM	Total PM Corrected to 7 Percent Oxygen	Flow	Production	PM
		%	%	gr/dscf	gr/dscf	gr/dscf	gr/dscf	gr/dscf	gr/dscf	dcfm	TPH	lb/ton
Associated Asphalt, Ferndale	3/24/2009	17.45	2.03	0.0029	0.012	0.0014	0.006	0.0042	0.017	19,006	125	0.0055
Cemex, Woodinville	10/1/2014	12.1	5	0.003	0.005	0.012	0.019	0.016	0.025	21,500	383	0.0077
Granite, Everett	8/30/2016	13.3	4.3	0.001	0.002	0.004	0.007	0.0055	0.010	27,990	300	0.0044
Granite, Everett	8/2/2005	11.7	5.1	0.0039	0.006	0.0087	0.013	0.0126	0.019	25,280	313	0.0087
Granite, Everett	6/10/2003	9.5	6.3	0.002	0.002	0.002	0.002	0.004	0.005	18,255	300	0.0021
Granite, Vancouver	10/13/2011	13.64	4.118	0.004	0.008	0.008	0.015	0.011	0.021	27,017	275	0.0093
Granite, Vancouver	8/1/2006	16.441	2.43	0.0043	0.013	0.0020	0.006	0.0063	0.020	36,383	275	0.0071
Icon, Seattle	5/22/2014	13.7	4.3	0.001	0.002	0.007	0.014	0.008	0.015	35,700	298	0.0082
Lakeside, Burlington	8/16/2011	9.3	7.9	0.0016	0.002	0.0016	0.002	0.0031	0.004	13,758	283	0.0013
Lakeside, Centralia	9/9/2014	12.3	4.7	0.0032	0.005	0.0041	0.007	0.0073	0.012	23,600	464	0.0032
Lakeside, Longview	5/15/1997	13.8	3.7	0.003	0.006	0.002	0.004	0.005	0.010	43,469	320	0.0058
Lakeside, Maple Valley	8/4/2004	17	2.3	0.003	0.011	0.001	0.004	0.004	0.014	37,207	165	0.0077
Lakeside, Maple Valley	4/8/1996	14.0	3.5	0.0015	0.003	0.0051	0.010	0.0066	0.013	26,861	180	0.0084
Lakeside, Monroe	7/30/2014	12.5	4.6	0.002	0.003	0.000	0.000	0.002	0.003	20,700	290	0.0012
Lakeside, Monroe	5/13/2009	12.4	4.9	0.0021	0.003	0.012	0.020	0.0141	0.023	32,721	325	0.0122
Lakeside, Vancouver	7/16/2015	13.4	4.1	0.0016	0.003	0.0017	0.003	0.0033	0.006	22,200	250	0.0025
Lakeside, Vancouver	7/14/2010	12.6	4.7	0.00018	0.0003	0.0022	0.004	0.0024	0.004	27,500	267	0.0021
Miles Resources, Sumner	6/10/2003	13.2	4.3	0.008	0.014	0.002	0.004	0.009	0.016	25,041	300	0.0064
Average:		13.2	4.3	0.003	0.006	0.004	0.008	0.007	0.013	26,899	284	0.006
Standard Deviation:		2.2	1.4	0.002	0.004	0.004	0.006	0.004	0.007	7,670	76	0.003
Average plus two Standard Deviations:		17.6	7.1	0.006	0.014	0.012	0.020	0.015	0.027	42,239	437	0.012

As on operational practice the Agency has also routinely set limits on the use of recycled asphalt pavement (RAP) and the use of recycled asphalt shingles (RAS) to the percentage of recycled material used for passing tests of particulate matter and visible emissions. The reason for this is that use of recycled materials has contributed to increased visible emissions and elevated particulate matter emissions when the recycled materials have impinged upon the burner flame. The design of the proposed plant is intended to keep materials separate from the burner flame, so this effect is expected to be minimized.

Mixer Opacity:

Every new asphalt mixer reviewed by the Agency since 2008 has had a 5 percent opacity limit, including most recently, Order No. 11328 (issued January 23, 2018). SWCAA has also issued a permit with a 5% opacity limit for asphalt plants. BACT for visible emissions from the mixer baghouse is emissions no greater than 5% opacity for three minutes in an hour per a Washington Department of Ecology Method 9A visual emissions test.

Mixer VOC:

Similar Permits or Other Regulatory Agencies BACT for VOC:

SWCAA issued 16-3199ADP in 2016 for the replacement of an existing parallel flow aggregate drum dryer/mixer with a counterflow drum dryer/mixer. The BACT determination for the dryer/mixer includes a maximum product temperature of 315°F (mixing drum outlet) and establishes a numerical limit for VOC equal to the potential to emit for the dryer/mixer. The BAAQMD BACT Guideline lists a numerical VOC emission limit of 0.03 lb/ton for batch mix hot mix asphalt plants, and TCEQ's BACT guideline for hot mix asphalt plants lists a limit of 0.032 lb/ton.

Analysis:

The Agency first set a limit on emissions of VOC from asphalt plant mixers with Order No. 11328. Order No. 11328 includes a VOC limit of 0.032 lb/ton, which is based on the AP-42 Chapter 11.1 VOC emission factor for drum mix hot mix asphalt plants, found in Table 11.1-8. As described in Section F of this worksheet, the rotary drum mixer being installed at the Puget Paving facility is not the same design as the drum mix plants described in AP-42 Chapter 11.1. The drum mix plants described in AP-42 Chapter 11.1 have an aggregate dryer integrated with mixing of the aggregate with the asphalt cement that has a burner, rather than a standalone mixer which is merely mixing hot ingredients, but does not have a burner. The asphalt plant permitted under Order No. 11328 has a dryer integrated with mixing, and I would expect the VOC emissions from this type of dryer/mixer to be higher than the emissions from a standalone mixer, since in the integrated dryer/mixer, the mixing of asphalt cement occurs in the drum that is also drying the aggregate and has a burner, presumably creating a hotter environment that could generate more VOC. The AP-42 Chapter 11.1, Table 11.1-6, VOC emission factor for combined VOC emissions from a natural gas-fired dryer, hot screens, and mixer at a batch mix plant is 0.0082 lb/ton, which is substantially lower than the 0.032 lb/ton emission factor for drum mix plants, as expected. However, since other agencies have established a numerical limit for VOC emissions from hot mix asphalt plants (including both batch and drum mix plants), the Agency is setting 0.032 lb/ton as the BACT emission rate.

In addition, Order No. 11328 and SWCAA establish maximum mix temperature operating conditions, since mix temperature has been tied to VOC emissions. The issue with limiting the maximum product temperature to 315°F, as used by SWCAA, is that this restricts the type of products able to be produced by the plant, which limits the market the plant could serve. Not only does a temperature limit reduce the number of products available, it also limits the area able to be served by the plant due to cooling of the asphaltic concrete while transporting it to the site of application. Consistent with Order No. 11328, maximum mix temperature will be limited to the maximum recommended temperature for the mix as set by the manufacturer of the asphaltic cement used in the mix specification produced plus a 25°F buffer. Mix temperature will be required to be monitored hourly in a manner similar to that specified in the State of Washington Department of Ecology General Order for Portable and Stationary Hot Mix Asphalt Plants No. 10AQ-GO-01.

RAP Feeder Bin Particulate Matter:

Since RAP is coated with asphalt cement, PM emissions from handling RAP are expected to be negligible. Crushed RAP material is actually used as a technique for controlling fugitive dust emissions at hot mix asphalt plants.[1] Therefore, I am proposing a BACT limit of no visible emissions from the RAP feeder bin.

F. EMISSION ESTIMATES

Because the emissions from both batch plants (with pug mill mixers) and drum mixers combine the emissions from mixing dried aggregate with the combustion emissions used for drying the aggregate, emissions tests conducted at baghouse stacks do not differentiate these two subsets of emissions. Because of this, it is not possible to quantify the emissions due solely to the act of mixing hot aggregate with hot asphaltic cement. However, given that the only difference in this project is the method of mixing and not the types of materials being mixed, it is reasonable to assume that emissions from mixing in a pug mill mixer are similar to emissions from mixing in a continuous, standalone drum mixer.

AP-42 Chapter 11.1 establishes two emission factors sets: one for batch mix hot mix asphalt plants and one for drum mix hot mix asphalt plants, where mixing takes places in the dryer drum. With the proposed mixer replacement, the process at Puget Paving will be considered a “continuous mix (mix outside dryer drum) plant”. This type of plant does not have emission factors established in AP-42 Chapter 11.1. I determined that the batch mix emission factors are more representative than the drum mix factors, since the asphalt cement is still being added directly to a standalone mixer rather than the dryer, and the dryer operation is not being changed as part of this project.

The emission estimates in the tables below are made using EPA’s AP-42 Chapter 11.1 emission factors for batch mix asphalt plants and include drying of aggregate and mixing asphaltic cement with the aggregate to make asphaltic concrete.

I also estimated potential emissions from the new RAP feeder bin. Since RAP is coated with asphalt cement, PM emissions from handling RAP are expected to be negligible. I conservatively calculated PM

[1] “Preferred and Alternative Methods for Estimating Air Emissions from Hot-Mix Asphalt Plants”, EPA Emission Inventory Improvement Program, July 1996.

emissions from transferring material to the new RAP feeder bin using the drop equation in AP-42 Chapter 13.2.4. The RAP feeder bin emission calculations are included in the workbook below.

Puget Paving Asphalt Emissions.xlsx

Actual Emissions

Actual emissions are calculated assuming 150,000 tons of asphalt produced per year and 1,250 hours of operation per year (5 hours per day, 5 days per week, 50 weeks per year).

Emissions Source: AP-42 Chapter 11.1: Dryer, Hot Screens, Mixer-Batch Plant Configuration

Plant Throughput:	300	tph
	150,000	tons/year
	1,250	hrs/year (5 hrs/day, 5 days/week, 50 weeks/yr)
	62,000	cfm at 250F
	34,875	dscfm
% RAP	40%	
Fuel:	Natural Gas	

Criteria Pollutant	Emission Factor	Unit	References	Emissions (lb/hr)	Emissions (tons/yr)
PM	0.027	gr/dscf	BACT	8.07	5.04
PM-10	0.027	gr/dscf	BACT	8.07	5.04
PM-2.5	0.027	gr/dscf	BACT	8.07	5.04
CO	0.40	lb/ton	Table 11.1-5	120.00	30.00
NOx	0.025	lb/ton	Table 11.1-5	7.50	1.88
SO_2	0.0046	lb/ton	Table 11.1-5	1.38	0.35
VOC	0.032	lb/ton	BACT	9.60	2.40
CO2	37	lb/ton	Table 11.1-5	11,100	2,775

Hazardous Air Pollutants, Metals, Toxic Materials	Emission Factor	Unit	References	Emissions (lb/hr)	Emissions (tons/yr)
NOx	2.50E-02	lb/ton	Table 11.1-5	7.5	2
CO	4.00E-01	lb/ton	Table 11.1-5	120	30
SO_2	4.60E-03	lb/ton	Table 11.1-5	1.38	3.45E-01
2-Methylnaphthalene	7.10E-05	lb/ton	Table 11.1-9	2.13E-02	5.33E-03
Acenaphthene	9.00E-07	lb/ton	Table 11.1-9	2.70E-04	6.75E-05
Acenaphthylene	5.80E-07	lb/ton	Table 11.1-9	1.74E-04	4.35E-05
Anthracene	2.10E-07	lb/ton	Table 11.1-9	6.30E-05	1.58E-05
Benzo(a)anthracene	4.60E-09	lb/ton	Table 11.1-9	1.38E-06	3.45E-07
Benzo(a)pyrene	3.10E-10	lb/ton	Table 11.1-9	9.30E-08	2.33E-08
Benzo(b)fluoranthene	9.40E-09	lb/ton	Table 11.1-9	2.82E-06	7.05E-07
Benzo(g,h,i)perylene	5.00E-10	lb/ton	Table 11.1-9	1.50E-07	3.75E-08
Benzo(k)fluoranthene	1.30E-08	lb/ton	Table 11.1-9	3.90E-06	9.75E-07
Chrysene	3.80E-09	lb/ton	Table 11.1-9	1.14E-06	2.85E-07
Fluoranthene	1.60E-07	lb/ton	Table 11.1-9	4.80E-05	1.20E-05
Fluorene	1.60E-06	lb/ton	Table 11.1-9	4.80E-04	1.20E-04
Indeno(1,2,3-cd)pyrene	3.00E-10	lb/ton	Table 11.1-9	9.00E-08	2.25E-08
Naphthalene	3.60E-05	lb/ton	Table 11.1-9	1.08E-02	2.70E-03
Phenanthrene	2.60E-06	lb/ton	Table 11.1-9	7.80E-04	1.95E-04
Pyrene	6.20E-08	lb/ton	Table 11.1-9	1.86E-05	4.65E-06
Lead	8.90E-07	lb/ton	Table 11.1-11	2.67E-04	6.68E-05
Acetaldehyde	3.20E-04	lb/ton	Table 11.1-9	9.60E-02	2.40E-02
Benzene	2.80E-04	lb/ton	Table 11.1-9	8.40E-02	2.10E-02

Hazardous Air Pollutants, Metals, Toxic Materials	Emission Factor	Unit	References	Emissions (lb/hr)	Emissions (tons/yr)
Ethylbenzene	2.20E-03	lb/ton	Table 11.1-9	6.60E-01	1.65E-01
Formaldehyde	7.40E-04	lb/ton	Table 11.1-9	2.22E-01	5.55E-02
Quinone	2.70E-04	lb/ton	Table 11.1-9	8.10E-02	2.03E-02
Toluene	1.00E-03	lb/ton	Table 11.1-9	3.00E-01	7.50E-02
m-Xylene	2.70E-03	lb/ton	Table 11.1-9	8.10E-01	2.03E-01
Arsenic	4.60E-07	lb/ton	Table 11.1-11	1.38E-04	3.45E-05
Cadmium	6.10E-07	lb/ton	Table 11.1-11	1.83E-04	4.58E-05
Beryllium	1.50E-07	lb/ton	Table 11.1-11	4.50E-05	1.13E-05
Copper	2.80E-06	lb/ton	Table 11.1-11	8.40E-04	2.10E-04
Hexavalent Chromium	4.80E-08	lb/ton	Table 11.1-11	1.44E-05	3.60E-06
Manganese	6.90E-06	lb/ton	Table 11.1-11	2.07E-03	5.18E-04
Mercury	4.10E-07	lb/ton	Table 11.1-11	1.23E-04	3.08E-05
Nickel	3.00E-06	lb/ton	Table 11.1-11	9.00E-04	2.25E-04
Selenium	4.90E-07	lb/ton	Table 11.1-11	1.47E-04	3.68E-05

Potential Emissions

The permitted potential to emit calculations are based on operating 1,650 hours per year (producing up to 495,000 tons per year). This federally enforceable limit is established by this Order.

Emissions Source: AP-42 Chapter 11.1: Dryer, Hot Screens, Mixer-Batch Plant Configuration

Plant Throughput:	300	tph
	495,000	tons/year
	1,650	hrs/year
	62,000	cfm at 250F
	34,875	dscfm
% RAP	40%	
Fuel:	Natural Gas	

Criteria Pollutant	Emission Factor	Unit	References	Emissions (lb/hr)	Emissions (tons/yr)
PM	0.027	gr/dscf	BACT	8.07	6.66
PM-10	0.027	gr/dscf	BACT	8.07	6.66
PM-2.5	0.027	gr/dscf	BACT	8.07	6.66
CO	0.40	lb/ton	Table 11.1-5	120.00	99.00
NOx	0.025	lb/ton	Table 11.1-5	7.50	6.19
SO_2	0.0046	lb/ton	Table 11.1-5	1.38	1.14
VOC	0.032	lb/ton	BACT	9.60	7.92
CO2	37	lb/ton	Table 11.1-5	11,100	9,158

Hazardous Air Pollutants, Metals, Toxic Materials	Emission Factor	Unit	References	Emissions (lb/hr)	Emissions (tons/yr)
NOx	2.50E-02	lb/ton	Table 11.1-5	7.5	6
CO	4.00E-01	lb/ton	Table 11.1-5	120	99.00
SO_2	4.60E-03	lb/ton	Table 11.1-5	1.38	1.14
2-Methylnaphthalene	7.10E-05	lb/ton	Table 11.1-9	2.13E-02	1.76E-02
Acenaphthene	9.00E-07	lb/ton	Table 11.1-9	2.70E-04	2.23E-04
Acenaphthylene	5.80E-07	lb/ton	Table 11.1-9	1.74E-04	1.44E-04
Anthracene	2.10E-07	lb/ton	Table 11.1-9	6.30E-05	5.20E-05
Benzo(a)anthracene	4.60E-09	lb/ton	Table 11.1-9	1.38E-06	1.14E-06
Benzo(a)pyrene	3.10E-10	lb/ton	Table 11.1-9	9.30E-08	7.67E-08
Benzo(b)fluoranthene	9.40E-09	lb/ton	Table 11.1-9	2.82E-06	2.33E-06
Benzo(g,h,i)perylene	5.00E-10	lb/ton	Table 11.1-9	1.50E-07	1.24E-07
Benzo(k)fluoranthene	1.30E-08	lb/ton	Table 11.1-9	3.90E-06	3.22E-06
Chrysene	3.80E-09	lb/ton	Table 11.1-9	1.14E-06	9.41E-07
Fluoranthene	1.60E-07	lb/ton	Table 11.1-9	4.80E-05	3.96E-05
Fluorene	1.60E-06	lb/ton	Table 11.1-9	4.80E-04	3.96E-04
Indeno(1,2,3-cd)pyrene	3.00E-10	lb/ton	Table 11.1-9	9.00E-08	7.43E-08
Naphthalene	3.60E-05	lb/ton	Table 11.1-9	1.08E-02	8.91E-03
Phenanthrene	2.60E-06	lb/ton	Table 11.1-9	7.80E-04	6.44E-04
Pyrene	6.20E-08	lb/ton	Table 11.1-9	1.86E-05	1.53E-05
Lead	8.90E-07	lb/ton	Table 11.1-11	2.67E-04	2.20E-04
Acetaldehyde	3.20E-04	lb/ton	Table 11.1-9	9.60E-02	7.92E-02

Hazardous Air Pollutants, Metals, Toxic Materials	Emission Factor	Unit	References	Emissions (lb/hr)	Emissions (tons/yr)
Benzene	2.80E-04	lb/ton	Table 11.1-9	8.40E-02	6.93E-02
Ethylbenzene	2.20E-03	lb/ton	Table 11.1-9	6.60E-01	5.45E-01
Formaldehyde	7.40E-04	lb/ton	Table 11.1-9	2.22E-01	1.83E-01
Quinone	2.70E-04	lb/ton	Table 11.1-9	8.10E-02	6.68E-02
Toluene	1.00E-03	lb/ton	Table 11.1-9	3.00E-01	2.48E-01
m-Xylene	2.70E-03	lb/ton	Table 11.1-9	8.10E-01	6.68E-01
Arsenic	4.60E-07	lb/ton	Table 11.1-11	1.38E-04	1.14E-04
Cadmium	6.10E-07	lb/ton	Table 11.1-11	1.83E-04	1.51E-04
Beryllium	1.50E-07	lb/ton	Table 11.1-11	4.50E-05	3.71E-05
Copper	2.80E-06	lb/ton	Table 11.1-11	8.40E-04	6.93E-04
Hexavalent Chromium	4.80E-08	lb/ton	Table 11.1-11	1.44E-05	1.19E-05
Manganese	6.90E-06	lb/ton	Table 11.1-11	2.07E-03	1.71E-03
Mercury	4.10E-07	lb/ton	Table 11.1-11	1.23E-04	1.01E-04
Nickel	3.00E-06	lb/ton	Table 11.1-11	9.00E-04	7.43E-04
Selenium	4.90E-07	lb/ton	Table 11.1-11	1.47E-04	1.21E-04

Facility-wide Emissions

Reporting Source? This source has not reported emissions in the past. However, it appears the actual emissions of CO could likely be above the reporting threshold, they will likely need to report emissions in the future.

G. OPERATING PERMIT or PSD

As limited, the facility emissions are both less than the 100 tons-per-year threshold to be an Air Operating Permit facility and less than the 250 tons-per-year threshold to be a Prevention of Significant Deterioration (PSD) facility. For carbon monoxide, there will be established a 99 tons per year emission limit to avoid major source status.

H. AMBIENT TOXICS IMPACT ANALYSIS

As discussed in Section F, the emissions of toxic air pollutants (TAPs) from operation of the drum mixer, while difficult to quantify, are not expected to be any different from the TAP emissions due to operating the pug mill. Since the pug mill is to be removed and not operated, the emission reduction from removing the pug mill offsets the increase of TAPs from operating the drum mixer resulting in no increase of TAPs greater than the Small Quantity Emission Rates (SQERs) and no requirement to model ambient concentrations of TAPs. This Order will require the removal of the existing pug mill mixer prior to the first operation of the new drum mixer.

I. APPLICABLE RULES & REGULATIONS

1. PUGET SOUND CLEAN AIR AGENCY REGULATIONS

SECTION 5.05 (c): The owner or operator of a registered source shall develop and implement an operation and maintenance plan to ensure continuous compliance with Regulations I, II, and III. A copy of the plan shall be filed with the Control Officer upon request. The plan shall reflect good industrial practice and shall include, but not be limited to, the following:
(1) Periodic inspection of all equipment and control equipment;
(2) Monitoring and recording of equipment and control equipment performance;
(3) Prompt repair of any defective equipment or control equipment;
(4) Procedures for startup, shut down, and normal operation;
(5) The control measures to be employed to ensure compliance with Section 9.15 of this regulation; and
(6) A record of all actions required by the plan.
The plan shall be reviewed by the source owner or operator at least annually and updated to reflect any changes in good industrial practice.

SECTION 6.09: Within 30 days of completion of the installation or modification of a stationary source subject to the provisions of Article 6 of this regulation, the owner or operator or applicant shall file a Notice of Completion with the Agency. Each Notice of Completion shall be submitted on a form provided by the Agency, and shall specify the date upon which operation of the stationary source has commenced or will commence.

SECTION 9.03: (a) It shall be unlawful for any person to cause or allow the emission of any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour, which is:
(1) Darker in shade than that designated as No. 1 (20% density) on the Ringelmann Chart, as published by the United States Bureau of Mines; or
(2) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Section 9.03(a)(1).
(b) The density or opacity of an air contaminant shall be measured at the point of its emission, except when the point of emission cannot be readily observed, it may be measured at an observable point of the plume nearest the point of emission.
(c) This section shall not apply when the presence of uncombined water is the only reason for the failure of the emission to meet the requirements of this section.

SECTION 9.09: General Particulate Matter (PM) Standard. It shall be unlawful for any person to cause or allow the emission of particulate matter in excess of the following concentrations:
Equipment Used in a Manufacturing Process: 0.05 gr/dscf

SECTION 9.11: It shall be unlawful for any person to cause or allow the emission of any air contaminant in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property.

SECTION 9.13: It shall be unlawful for any person to cause or allow the installation or use of any device or use of any means designed to mask the emission of an air contaminant which causes detriment to health, safety or welfare of any person.

SECTION 9.15: It shall be unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize the emissions. Reasonable precautions include, but are not limited to, the following:
(1) The use of control equipment, enclosures, and wet (or chemical) suppression techniques, as practical, and curtailment during high winds;
(2) Surfacing roadways and parking areas with asphalt, concrete, or gravel;
(3) Treating temporary, low-traffic areas (e.g., construction sites) with water or chemical stabilizers, reducing vehicle speeds, constructing pavement or rip rap exit aprons, and cleaning vehicle undercarriages before they exit to prevent the track-out of mud or dirt onto paved public roadways; or
(4) Covering or wetting truck loads or allowing adequate freeboard to prevent the escape of dust-bearing materials.

REGULATION I, SECTION 9.20(a): It shall be unlawful for any person to cause or allow the operation of any features, machines or devices constituting parts of or called for by plans, specifications, or other information submitted pursuant to Article 6 of Regulation I unless such features, machines or devices are maintained in good working order.

2. WASHINGTON STATE ADMINISTRATIVE CODE

WAC 173-400-040(3): Fallout. No person shall cause or allow the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner or operator of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

WAC 173-400-040(4): Fugitive emissions. The owner or operator of any emissions unit engaging in materials handling, construction, demolition or other operation which is a source of fugitive emission:

(a) If located in an attainment area and not impacting any nonattainment area, shall take reasonable precautions to prevent the release of air contaminants from the operation.

WAC173-400-111(7): Construction limitations.
(a) Approval to construct or modify a stationary source becomes invalid if construction is not commenced within eighteen months after receipt of the approval, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The permitting authority may extend the eighteen-month period upon a satisfactory showing by the permittee that an extension is justified.

3. FEDERAL

40 CFR 60 Subpart A and Subpart I apply to this facility.

Subpart A:

60.4(b) Delegation of authority to PSCAA to enforce NSPS.

60.7(a)(1, 3, 4) Notification & Record keeping.

60.7(b) Maintain records including malfunctions.

60.8 Requirements for source testing. (Stack test has already been completed for the affected facility.)

60.11(a, b, c, e) Compliance requirements for PM10 & opacity. Note: requires that Method 9 tests include three one-hour observations conducted concurrently with the Method 5 test runs.

60.11(d) Operate consistent with good engineering control practices.

Subpart I:

60.90 Defines the applicable sources

60.91 Contains definitions

60.92 Has the PM emissions standard of 0.04 gr/dscf measured by EPA method 5 which is only the "Front-Half". 20 percent opacity limit.

60.93 Test methods include collecting a min of 31.8 dscf of sample for PM, and EPA Method 9 for opacity. (Stack test has already been completed for the affected facility.)

J. PUBLIC NOTICE

A notice of application was posted on the Agency's website for 15 days. No requests or responses were received. A copy of the website posting is below:

Puget Paving	5625 189th St E, Puyallup, WA 98373	New application submitted to replace batch tower and pugmill mixer with a mini-drum rotary mixer, as well as replace dryer shell.	6/12/18	Courtney O'Gorman

This project meets the criteria for mandatory public notice under WAC 173-400-171(3)(k) for establishing a voluntary limit on emissions as well as WAC 173-460-071(2). This is due to requesting a voluntary limit on emissions for carbon monoxide and taking a limit on emissions for the existing pug mill mixer (i.e. removing the existing mixer from operation) to offset emissions of toxic air pollutants from the new mixer. A 30-day public comment period was held from August XX, 2018 through September XX, 2018. Notices that the draft materials were open to comment were published in the Tacoma News Tribune and the Daily Journal of Commerce on August XX, 2018. The Agency posted the application and the draft worksheet on the Agency's website during the comment period. No comments were received during the comment period.

K. RECOMMENDED APPROVAL CONDITIONS

Standard Conditions:

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the installation address in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.

2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.

Specific Conditions:

NSPS

3. Puget Paving shall comply with the requirements of 40 CFR Part 60, Subparts I and A.

BACT

4. Puget Paving shall vent the rotary drum mixer and storage silos to the Standard Steel Baghouse.

5. The Aesco Madsen Rotary Dryer shall be fired only on natural gas.

6. The existing H&B Pug Mill Mixer shall be removed from service prior to the first operation of the Aesco Madsen Rotary Mixer. A record of the date of the last operation of the existing H&B Pug Mill Mixer and the date of the first operation of the new Aesco Madsen Rotary Mixer shall be kept on file for Agency inspection.

7. The following emission limitations are set on the mixer stack:

   a) Total particulate matter emissions shall not exceed 0.027 gr/dscf (corrected to 7% O_2) as measured by U.S. EPA Method 5 as modified by Puget Sound Clean Air Agency Board Resolution 540 dated August 11, 1983.

   b) Filterable particulate matter emissions shall not exceed 0.014 gr/dscf (corrected to 7% O_2) as measured by U.S. EPA Method 5 as modified by Puget Sound Clean Air Agency Board Resolution 540 dated August 11, 1983.

   c) Opacity shall not exceed 5% opacity for a period or periods aggregating more than 3 minutes during any one hour as measured by WDOE Method 9A.

   d) Emissions of Non-Methane/Non-Ethane VOC (NMNEVOC) shall not exceed 0.032 lb NMNEVOC per ton of hot mixed asphaltic concrete produced as determined in accordance with Section 3.07 of PSCAA Regulation 1 using EPA reference methods 1, 3A, 4, and 25A (using either an FID with a methane “cutter”, OR using EPA Method 320 or EPA Method 18 to analyze for methane and ethane, and subtracting the methane and ethane results from the total VOC measured by the FID analyzer) from Appendix A of 40 CFR Part 60 by the average of three 60-minute test

runs. NMNEVOC shall be expressed as propane. Other equivalent test methods may be used with the approval of the Agency. If other test methods are desired, the owner or operator must submit a test plan for Agency approval at least 30 days prior to the test which describes the test methods proposed for use

e) There shall be no visible emissions from the recycled asphalt pavement (RAP) feeder bin.

8. The temperature of the asphaltic concrete mix exiting the mixer shall not exceed the optimum mix temperature +25°F for each product specification as set out in the product's current WSDOT Mix Design Evaluation Report. Documentation of each product's WSDOT Mix Design Evaluation Report including optimum mix temperature shall be kept on file and incorporated into the Operations and Maintenance plan required by Agency Regulation I, Section 5.05(c).

9. The combined total recycled asphalt (RA), consisting of recycled asphalt pavement (RAP) and recycled asphalt shingles (RAS), added to the mixer shall not exceed on a 3-hour average hourly basis the greatest total RA percentage by weight used in a passing source test of Conditions 7.a, 7.b., 7.c, and 7.d until a new test is conducted.

10. Puget Paving shall not use RAS that contains asbestos, as defined in Agency Regulation III, Section 4.01(c). Puget Paving shall collect samples for every load of RAS received and have the samples analyzed using polarized light microscopy by an independent third party in accordance with 40 CFR 763, Subpart E, Appendix E, Section 1, to demonstrate that RAS is asbestos-free. The delivery log and all bulk sample analysis results shall be maintained on-site and available for inspection for a period of two years.

11. Records of every delivery of RAS shall be maintained confirming the origin, supplier, and amount (mass) of RAS.

SOURCE TESTING

12. Puget Paving shall have emissions tested for compliance with Conditions 7.a, 7.b, 7.c, and 7.d of this Order within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup of this plant. The emission tests listed in this requirement shall be repeated at an interval no less than once every five years. Puget Paving shall submit a compliance test plan with the test notification submitted under Regulation I, Section 3.07(b) at least 21 days prior to the compliance test. The test plan shall detail the test methods used for each pollutant, the operational data that will be collected during the test, and any other relevant information about the test.

13. Puget Paving may conduct an emission test as set out in Condition 12 at any time (given notification as required in Regulation I, Section 3.07(b)) for the purposes of setting the RA limit in Condition 8. Puget Paving shall submit a compliance test plan with the test notification submitted under Regulation I, Section 3.07(b) at least 21 days prior to the compliance test.

14. During the emission tests required by Conditions 12 and 13, the following operation data shall be collected during each test run and reported in the source test report:

a) Hourly weight of RAP and RAS used, plus the hourly weight of asphalt produced;

b) hourly and 3-hour average RA (RAP plus RAS) total percent by weight usage

c) standard cubic feet of fuel combusted;

d) aggregate moisture percentage (as measured by the Quality Control lab for a representative sample taken the day of the test);

e) asphalt cement content percentage;

f) baghouse pressure drop;

g) baghouse fan speed (as a percentage of full speed);

h) baghouse pulse cycle time;

i) burner water injection nozzle pressure (psig);

j) flue gas damper setting (as a percentage of maximum opening);

k) maximum temperature of mix as it exits the mixer; and

l) product specification produced during the run, a copy of the specification, and maximum temperature allowed by the specification.

PLANT MAINTENANCE

15. The baghouse shall be equipped with a gauge measuring the pressure drop across the baghouse. The pressure gauge shall be in operation whenever the baghouse is in operation. The pressure gauge shall be marked with the acceptable pressure drop range. The maximum acceptable pressure drop shall be determined from manufacturer specifications for the bags used in the baghouse. The minimum acceptable pressure drop shall be determined from manufacturer specifications for the bags used in the baghouse. The pressure drop observed during the most recent compliance source test shall fall within the defined acceptable range of pressure drop. The acceptable range and the basis for the range shall be included in the facility Operations and Maintenance plan required by Agency Regulation I, Section 5.05(c).

OPERATION AND MAINTENANCE PLAN

16. When operating, Puget Paving shall monitor and record the following information:

a) one daily pressure drop across the baghouse;

b) one daily inspection for visible emissions and particulate fallout for the baghouse and RAP feeder;

c) hourly weight of RA (RAP plus RAS) used, plus the hourly weight of asphalt produced;

d) calculated 3-hour average RA (RAP plus RAS) total percent by weight usage;

e) annual (12 consecutive months rolling total) asphalt production;

f) monthly fuel use;

g) one mix temperature reading recorded for each hour in which the mixer operates;

h) the product specification produced and the hour it was produced; and

i) the time (in hours) the mixer operated.

ANNUAL PRODUCTION LIMITATION

17. Puget Paving shall record and limit the total production of asphalt to no more than 495,000 tons for any 12 consecutive months.

18. A notification of a violation of Condition 17 shall be sent to Puget Sound Clean Air Agency within 30 days following any month when the 12 consecutive months rolling total exceeds 495,000 tons per year of asphalt production.

EMISSION LIMITATION

19. Facility-wide emissions of carbon monoxide shall not exceed 99.0 tons during any during any 12 consecutive months after the date of this Order.

20. Within 30 days of the end of each month, Puget Paving shall calculate the facility-wide carbon monoxide emissions for the previous 12 months using the monthly production and the emission factor of 0.40 lbs/ton produced or the most recent carbon monoxide emission test result. If the most recent carbon monoxide test result is greater than 0.40 lbs per ton, then it must be used. If Puget Paving chooses to test CO, they shall submit a compliance test plan with the test notification submitted under Regulation I, Section 3.07(b).

21. Puget Paving shall notify the Puget Sound Clean Air Agency in writing, within 30 days after the end of each 12-month period if, during that period, emissions of CO exceed 90 tons. The report shall include emissions data for the time period for which these thresholds were exceeded.

COMPLAINTS

22. Puget Paving shall establish a complaint response program as part of the O&M Plan. The program shall include a complaint phone line, criteria and methods for establishing whether Puget Paving may be the source of emissions related to the complaint, and a format for communicating results of investigation and advising complainants of Puget Paving corrective actions.

    a) Puget Paving shall record and investigate complaints received regarding air quality as soon as possible, but no later than one working day after receipt.

    b) Puget Paving shall correct any problems identified by these complaint investigations within 24 hours of identification or cease operation of the equipment until the problem is resolved;

c) Records of all complaints received regarding air quality issues shall include information regarding date and time of complaint; name and address of complainant (if known); nature of the complaint; investigation efforts completed and basis for conclusion reached; and date, time, and nature of any corrective action taken.

RECORDS

22. Puget Paving shall maintain records required by this Order of Approval, as well as the records identified in the Operation and Maintenance Plan required by Regulation I, Section 5.05, for two years and make them available to Puget Sound Clean Air Agency personnel upon request.

23. Upon startup of the equipment reviewed under this Order of Approval, this Order supersedes and cancels Order of Approval No. 6883 dated April 30, 1997.

L. CORRESPONDENCE AND SUPPORTING DOCUMENTS

Email from Courtney O'Gorman, 6/20/2018:

From: Courtney O'Gorman
Sent: Wed 6/20/2018 11:26 AM
To: 'Josh Nobles'
Cc:
Subject: Puget Paving - NOC 11613 Incomplete

Hi Josh,

I have reviewed the Notice of Construction application you submitted for changes to your existing asphalt plant and have determined that the application is incomplete. Could you please provide the following information?

- Provide the maximum percent RAP in the feed to the mixer. Is the percent RAP changing as part of the project?
- Does the plant process reclaimed asphalt shingles (RAS) or plan to in the future?
- Provide the maximum hourly throughput of the new RAP feeder.
- Confirm that the facility is physically capable of firing No. 2 fuel oil in the dryer.
- Provide facility-wide potential-to-emit calculations in Excel format. Please note that the emissions provided in the application (from the NOC #6883 worksheet) are based on AP-42 emission factors that have since been updated. Please update the calculations to use the current AP-42 emission factors.
- Provide potential toxic air pollutant (TAP) and hazardous air pollutant (HAP) emission calculations for the new mini drum rotary mixer. If the emission increase of any TAP is greater than the Small Quantity Emission Rate (SQER) in WAC 173-460-150, then dispersion modeling showing whether estimated ambient concentrations of TAPs will be less than the Acceptable Source Impact Levels (ASILs) is required. You may take credit for the decrease in TAP from the removal of the existing mixer; however, this would require the permit to undergo public notice.
- Clarify that the dryer shell replacement does not replace the other parts of the dryer (supports, drives, internal elements such as conveyors, motors, etc.).
- Our understanding is that the existing baghouse will be unchanged. Please note that we will need to do a Best Available Control Technology (BACT) review for the new mixer, which may result in a more stringent emission limit than what is currently in the permit.

Thank you,

Courtney O'Gorman
Engineer II
CourtneyO@pscleanair.org
206.689.4022
Puget Sound Clean Air Agency
1904 3rd Ave – Suite 105
Seattle, WA 98101

"Working together for clean air"

Email from Josh Nobles, 6/25/2018:

From: Josh Nobles <josh@pugetpaving.com> Sent: Mon 6/25/2018 5:07 PM
To: Courtney O'Gorman
Cc:
Subject: Puget Paving - NOC 11613 Incomplete

Sent: Monday, June 25, 2018 4:37 PM
To: 'Josh Nobles'
Subject: RE: Puget Paving - NOC 11613 Incomplete

Good Afternoon,

I have been talking with our manufacturer (AESCO Madsen), There was some confusion when I asked them for the TAP/ HAP emissions calculations for the new mixer. It is not something that they have ever been asked for. The mixer they are selling us is just a mixing drum, our process is still the exact same as with a pugmill mixer. The only difference between them is the pugmill mixes the rock and oil in 3.5 ton batches at a time and the mini drum rotary mixer is just a continuous flow of rock and oil. Still the same quantities of each.

I did some of the calculations as per the link you sent me, but I was troubled with the options to choose from. We wouldn't be a Batch Plant or a Drum Plant. In the drum plant the aggregate is dried in the same drum that the oil and RAP are injected to and would have different emissions than what we would be doing. In our application, aggregate is blended at the cold feeders (no hot screens) then dried and heated in the dryer, the heated agg., RAP and baghouse fines are deposited together in the hot stone elevator then sent to the pugmill mixer (or mini drum in the new design) to be combined with oil. I am afraid that if I pick one or the other (drum or batch) it may be more favorable in some areas but more detrimental in other areas.

My intentions are to get this right but I am having trouble getting our project to fit in properly. There are a couple other asphalt plants that have done the same conversion as we are hoping to do, so hopefully information exists that will help.

Josh Nobles
Puget Paving & Construction, Inc.
10910 26th Ave. S.
Lakewood, WA 98499
(253) 240-1306 P
(253) 474-5677 F
josh@pugetpaving.com

Email from Courtney O'Gorman, 6/27/2018:

From: Courtney O'Gorman Sent: Tue 6/26/2018 8:34 AM
To: 'Josh Nobles'
Cc:
Subject: RE: Puget Paving - NOC 11613 Incomplete

Hi Josh,

Thank you very much for your detailed email. I completely agree that estimating emissions from your type of plant is a challenge with the limited AP-42 emission data that are available. Based on your description below, it sounds like the batch plant emission factors are more representative than the drum plant emission factors, since the oil is still being added directly to the mixer rather than the dryer, and the dryer operation is not being changed from how you have historically operated as a batch plant. Would you agree?

If you agree, you can use the emission factors specific to batch plants in AP-42 Chapter 11.1 to calculate your facility-wide emissions. HAP/TAP emission factors for batch plants are provided in Tables 11.1-9 and 11.1-11. The list of Washington TAPs is provided here: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460-150. The TAP review poses another challenge, because TAP emissions only need to be quantified for the project (i.e., the new drum mixer), and the emission factors do not distinguish between the dryer and the mixer. If you are fine with having a public comment period for the Order of Approval, we can take a "netting" approach that takes credit for the decrease in TAP emissions from the replaced pugmill mixer, which would offset the TAP emissions from the new drum mixer. Otherwise, we will need to compare the TAP emission increase from the new drum mixer to the Small Quantity Emission Rates (SQERs) listed at the link above to determine if any TAPs require air dispersion modeling.

In the supporting document for the Order of Approval, I will be sure to document why the emission factors in AP-42 Chapter 11.1 are not completely representative of your facility configuration.

I hope this helps! Please let me know if you have any questions.

Thank you!
Courtney

Email from Josh Nobles, 6/27/2018:

From: Josh Nobles <Josh@pugetpaving.com> Sent: Wed 6/27/2018 3:19 PM
To: Courtney O'Gorman
Cc:
Subject: RE: Follow Up Items - Puget Paving
Message | PTE Existing.xlsx (81 KB) | PTE Proposed.xlsx (81 KB)

Courtney,

Thank You very much for your time and assistance. I have attached some excel files. One is our current installation, the second is our new mixer, all I was able to do was to basically calculate double everything, since there is only one category to pick from. In AP-42 I see an SCC code for just a mixer but when you search that code it will not appear and therefor no emissions factor. How frustrating..
Here are some answers to your previously asked questions:

- Provide the maximum percent RAP in the feed to the mixer. Is the percent RAP changing as part of the project?

40% is the maximum recommended rap and that is as high as we have tried. The rap percentages will not be changing as part of the project.

- Does the plant process reclaimed asphalt shingles (RAS) or plan to in the future?

We are not currently using RAS, although we have tested the idea. Our old RAP feeder will be left in place and modified for that purpose. Although we are not planning to incorporate RAS at this time just leaving the option to do so.

- Provide the maximum hourly throughput of the new RAP feeder.

The new RAP feeder is maxed out at 120 tons/hr

- Confirm that the facility is physically capable of firing No. 2 fuel oil in the dryer.

The burner is physically capable of burning no. 2 fuel oil but is not currently hooked up, It is missing a few components. We have no intentions of reconnecting the burner to no. 2 fuel oil.

- Clarify that the dryer shell replacement does not replace the other parts of the dryer (supports, drives, internal elements such as conveyors, motors, etc.).

The dryer shell replacement is an exact copy just remove and replace. The 4 trunions (bearings) that it rides on will be replaced as well. The drive system motor / gearbox and chains or supports will not be changed.

Thank You again for your time!
Please let me know if anything else is needed

Josh Nobles
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PUGET PAVING & CONSTRUCTION, INC.

Email from Courtney O'Gorman, 7/9/2018:

From: Courtney O'Gorman Sent: Mon 7/9/2018 10:25 AM
To: 'Josh Nobles'
Cc:
Subject: RE: Follow Up Items - Puget Paving

Hi Josh,

Thank you for sending this information. I wanted to let you know that with the current operating limit in the permit (3,019 hrs/yr firing natural gas), the facility's potential carbon monoxide (CO) emissions are greater than the Air Operating Permit major source threshold (100 tons per year). Therefore, I am planning to establish a "synthetic minor" limit in this permit, which will limit the facility-wide CO emissions to 99 tons per year. I will also update the limits on the operating hours per year and total annual production to correspond to 99 tons per year of CO. The synthetic minor limit will require an additional fee and will require the permit to go through public notice. Alternatively, you can choose to conduct a source test for CO emissions to demonstrate that the facility does not exceed the major source threshold at the current permitted limit (i.e., the facility is a "natural" minor source). Please let me know if this is your preferred approach or if I can move forward with the synthetic minor limit.

Also, could you describe what specific components are missing to hook up the dryer burner to No. 2 fuel oil? Are these components readily available at the facility or were they never purchased?

Thanks!
Courtney

Email from Josh Nobles, 7/17/2018:

From: Josh Nobles <josh@pugetpaving.com> Sent: Tue 7/17/2018 2:09 PM
To: Courtney O'Gorman
Cc:
Subject: RE: Follow Up Items - Puget Paving

Good Afternoon,

We would like to establish the synthetic minor limit and we are aware that that means a public comment period.. Let me know what you need from me to proceed.
Thank You!

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M. REVIEWS

Reviews	Name	Date
Engineer	Courtney O'Gorman	7/31/18
Inspector	Rick Hess	8/1/18
Second Review:	Carole Cenci	8/1/18
Applicant Name:	Josh Nobles	8/6/18