

TECHNICAL SUPPORT DOCUMENT

TECHNICAL INFORMATION PRESENTED IN REVIEW OF AN
APPLICATION FOR A
MINOR REVISION TO A PART 70 PERMIT

SUBMITTED BY

Aggregate Industries SWR, Inc.

Source: 372

SIC Code 1442: Construction Sand and Gravel
SIC Code 2951: Hot Mix Asphalt
SIC Code 3272: Ready Mix Concrete



Clark County
Department of Air Quality
Permitting Division

October 2016

EXECUTIVE SUMMARY

Aggregate Industries SWR, Inc., is a major source for particulate matter equal to or less than 10 microns in aerodynamic diameter (PM₁₀) and a minor source for PM_{2.5}, NO_x, CO, SO₂, and VOC, located in the Las Vegas Valley airshed, hydrographic basin 212. Emission of regulated air pollutants at the source results from operations of the mining, blasting, and processing equipment. The Construction Sand and Gravel processes are grouped under SIC 1442 and NAICS 212321. The Hot Mix Asphalt process is under SIC 2951 and NAICS 324121. The Ready Mix Concrete process is under SIC 3727 and NAICS 327390.

The facility potential to emit (PTE) has been calculated as follows:

PM₁₀	PM_{2.5}	NO_x	CO	SO₂	VOC	HAP	H₂S	Pb
86.24	32.72	39.04	65.90	19.34	12.34	2.98	0	0

On April 15, 2016, the source submitted an application requesting to update the operator for the ready mix plant (EUs: F001 through F019 and F023), reduce the throughput of these units, and add a new concrete batch plant and hot water heater.

This Technical Support Document (TSD) accompanies the proposed PART 70 OPERATING Permit for AGGREGATE INDUSTRIES SWR.

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I. ACRONYMS

Table I-1: Acronyms and Abbreviations

Acronym	Term
Air Quality	Clark County Department of Air Quality
AQR	Clark County Air Quality Regulations
CO	Carbon Monoxide
EF	Emission Factor
EPA	United States Environmental Protection Agency
EU	Emission Unit
HAP	Hazardous Air Pollutant
HP	Horse Power
MMBtu	Millions of British Thermal Units
NAICS	North American Industry Classification System
NO _x	Nitrogen Oxides
NSR	New Source Review
PM _{2.5}	Particulate Matter less than 2.5 microns
PM ₁₀	Particulate Matter less than 10 microns
ppm	Parts per Million
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
SIC	Standard Industrial Classification
SO _x	Sulfur Oxides
TSD	Technical Support Document
VOC	Volatile Organic Compound

II. SOURCE INFORMATION

A. General

Permittee	Aggregate Industries SWR, Inc.
Mailing Address	3101 E Craig Road, North Las Vegas, NV 89030
Contact	Kevin Stoehr, General Manager
Phone Number	(702) 649-6250
Fax Number	(702) 649-9275
Source Location	5300 Sloan Road, Las Vegas, NV 89124
Hydrographic Area	212 – Las Vegas Valley
Township, Range, Section	T23S, R60E, Sections 12 & 13
SIC Codes	1442: Construction Sand and Gravel 2951: Hot Mix Asphalt 3272: Ready Mix Concrete
NAICS Codes	212321: Construction Sand and Gravel Mining 32732: Ready Mix Concrete Manufacturing 342121: Asphalt Paving Mixture and Block Manufacturing

B. Description of Process

Aggregate Industries SWR produces aggregate products, asphalt, and concrete. Air emissions at the source result from the mining operations and the processing of the aggregate, asphalt, and concrete. Emissions also result from the operation of fuel burning equipment located on site. The emissions can be broken into source categories: point and fugitive source emissions. The point source emissions include emissions from the conveyor belts, baghouses, and other equipment stacks. The fugitive emissions include emissions from the storage piles and haul roads.

C. Permitting Action

The source is requesting the following:

- Update the plant operator and name for the existing ready mix plant (EUs: F001 through F019 and F023) from Southern Nevada Ready Mix to Silver Star Ready Mix.
- Reduce the annual operating limits for the existing ready mix plant (EUs: F001 through F019) from 411,625 tons per year to 185,000 tons per year. This includes reducing the hauling for the portion of EU H06 labeled as “Southern Nevada Ready Mix” and “Southern Nevada Ready Mix Aggregate” in the current Title V Operating Permit.
- Reduce the operating hours for an existing water heater (EU: F023) from 1,200 hours per year to 600 hours per year.
- Add a new concrete batch plant and hot water heater operated by American Eagle Ready Mix (EUs: AE01 through AE14).

Air Quality has removed the requirement to keep sulfur records of diesel fuel. The engines at this source are subject to 40 CFR 60 Subpart IIII or 40 CFR 63 Subpart ZZZZ and so must meet the fuel requirements referenced therein from 40 CFR Subpart I, §80.510(b) for nonroad diesel fuel. The source must purchase diesel fuel that meets the per-gallon standard of 15 ppm maximum sulfur content, a minimum cetane index of 40 or a maximum aromatic content of 35 volume

percent. As all refiners and importers of non-road diesel fuel are also subject to these federal standards pursuant to 40 CFR §80.510, it is reasonable to assume the operators of the engines do not have the opportunity to acquire fuel that violates these standards. Therefore, the Permittee is not being required by the operating permit to monitor or keep records of the sulfur content, cetane index, or aromatic content of the diesel fuel used in their engines. The citation for this condition has been updated to the 40 CFR 60 Subpart IIII or 40 CFR 63 Subpart ZZZZ, as applicable.

The citation for this condition has been updated to the 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ. This also results in a decrease in SO_x emissions from the five diesel engines. This decrease is not included in the net emissions increase for this permitting action as it is not a decrease resulting from a voluntary action from the source.

D. Operating Scenario

The operating scenario for Aggregate Industries is to continue operations as they have been conducted for the past several years and under the current Operating Permit to produce aggregate products, asphalt, and concrete, and with the above-mentioned changes. Air emissions at the source result from the mining operations and the processing of the aggregate, asphalt, and concrete. Emissions also result from the operation of fuel burning equipment located on site.

III. EMISSIONS INFORMATION

A. Source-wide Potential to Emit

Aggregate Industries is a major source for PM₁₀ and a minor source for PM_{2.5}, NO_x, CO, SO₂, and VOC, as summarized in Table III-A-1:

Table III-A-1: Source-wide PTE (tons per year)

Pollutant	PM₁₀	PM_{2.5}	NO_x	CO	SO₂	VOC	HAP
PTE Totals	86.24	32.72	39.04	65.90	19.34	12.34	2.98

B. Emission Units and PTE

Only the PTE for existing and new ready mix plants, along with their respective hot water heaters (EUs: F001 through F019, F023, and AE01 through AE14) are discussed in this document.

The source proposed to use AP-42 and Air Quality emission factors for the new units. These emission factors are used throughout the current Operating Permit.

Operational limits used to establish the PTE were requested by the source.

Table III-B-1: Silver Star Ready Mix Plant Emission Units and Calculated PTE for PM₁₀

EU	Description	Process tons/hr	Process tons/yr	PM _{2.5} Controlled EF lbs/ton	PM ₁₀ Controlled EF lbs/ton	PM _{2.5} PTE lbs/hr	PM ₁₀ PTE lbs/hr	PM _{2.5} tons/yr	PM ₁₀ PTE tons/yr
F001	Aggregate Unloading to Hopper 1	494	185,000	0.000013	0.000046	0.01	0.02	0.01	0.01
F002	Belt 2 to Stacker 3	494	185,000	0.000013	0.000046	0.01	0.02	0.01	0.01
F003	Stacker 3 to Stockpile	494	185,000	0.000013	0.000046	0.01	0.02	0.01	0.01
F004	Loader to 4 Comp Agg Ground Hoppers (rock/sand)	494	92,500	0.000013	0.000046	0.01	0.02	0.01	0.01
F005	Belt 5 to Belt 7	247	92,500	0.000013	0.000046	0.01	0.01	0.01	0.01
F006	Belt 6 to Belt 7	247	92,500	0.000013	0.000046	0.01	0.01	0.01	0.01
F007	Belt 7 to 4-Comp Agg. Bin 10	247	92,500	0.000013	0.000046	0.01	0.01	0.01	0.01
F009	Belt 8 to 4-Comp Agg. Bin 10	247	92,500	0.000013	0.000046	0.01	0.01	0.01	0.01
F011	Belt 9 to 4-Comp Agg. Bin 10	247	92,500	0.000013	0.000046	0.01	0.01	0.01	0.01
F012	Agg Bin 10 to Hopper 11	79	29,588	Enclosed	Enclosed	0.00	0.00	0.00	0.00
F008	Loader to Agg. Hopper 8a	247	92,500	0.000013	0.000046	0.01	0.01	0.01	0.01
F010	Loader to Agg. Hopper 9a	247	92,500	0.000013	0.000046	0.01	0.01	0.01	0.01
F013	Belt 12 to Belt 13	494	185,000	0.000013	0.000046	0.01	0.02	0.01	0.01
F014a	Loading Station Central Mix (BH) ¹	90	33,708	0.0011	0.0011	0.03	0.03	0.01	0.01
F019	Batcher 18 to Truck (BH) ¹	90	33,708	0.0011	0.0011	0.03	0.03	0.01	0.01
F015	Fly Ash 15 Loading (Bin vent) ¹	16	5,899	0.0049	0.0049	0.02	0.02	0.01	0.01
F017	Cement Silo 14 Loading (Bin vent) ¹	74	27,809	0.00034	0.00034	0.01	0.01	0.01	0.01
F017a	Cement Silo 14a Loading (Bin vent) ₁	74	27,809	0.00034	0.00034	0.01	0.01	0.01	0.01
F018	Weigh Batcher Loading 18 (Bin vent) ¹	90	33,708	0.0049	0.0049	0.11	0.11	0.02	0.02
F016	Ash Silo to Weigh Hopper 18	16	5,899	0.000735	0.0049	0.01	0.08	0.01	0.01
F023	Fire Storm Propane-Fired Water Heater, 4.0 MMBtu/hr	See Table III-B-2				0.03	0.03	0.01	0.01
PM₁₀ Subtotals						0.33	0.47	0.21	0.22

¹BH and Bin vent denote units vented to baghouses and bin vents. Emissions from baghouse and bin vent points are computed based on 75% capture efficiency and 99.5% control efficiency.

Table III-B-2: Silver Star Ready Mix Plant Hot Water Heater PTE (tons/year)

EU	Production Limit	PM _{2.5} /PM ₁₀		NO _x		CO		SO _x		VOC		HAP	
		lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
F023	1,200 hrs/yr	0.03	0.01	0.15	0.04	0.30	0.09	0.01	0.02	0.02	0.01	0.01	0.01

Table III-B-3: PTE for American Eagle Ready Mix (tons/year)

EU	Description	SCC	Process tons/hr	Process tons/yr	PM _{2.5} Controlled EF lbs/ton	PM ₁₀ Controlled EF lbs/ton	PM _{2.5} PTE lbs/hr	PM ₁₀ PTE lbs/hr	PM _{2.5} tons/yr	PM ₁₀ PTE tons/yr
AE01	Loader to Ground Hopper	30501106	320	624,000	0.000013	0.000046	0.01	0.01	0.01	0.01
	Ground Hopper to Conveyor	30501114	320	624,000	0.000013	0.000046	0.01	0.01	0.01	0.01
AE02	Loader to Ground Hopper	30501106	75	146,250	0.000013	0.000046	0.01	0.01	0.01	0.01
	Ground Hopper to Conveyor	30501114	75	146,250	0.000013	0.000046	0.01	0.01	0.01	0.01
AE03	Conveyor to 4-Compartment Bin	30501114	320	624,000	0.000013	0.000046	0.01	0.01	0.01	0.01
AE04	4-Compartment Bin to Weigh Hopper	30501108	395	770,250	0.000013	0.000046	0.01	0.02	0.01	0.02
AE05	Weigh Hopper to Conveyor	30501114	395	770,250	0.000013	0.000046	0.01	0.02	0.01	0.02
AE06	Conveyor to Conveyor	30501114	395	770,250	0.000013	0.000046	0.01	0.02	0.01	0.02
	Conveyor to Collecting Cone	30501114	395	770,250	0.000013	0.000046	0.01	0.02	0.01	0.02
AE07	Cement Silo Loading (Bin Vent)	30501107	55	107,250	0.00034	0.00034	0.01	0.01	0.01	0.01
	Cement Silo to Weigh Batcher	30501108	55	107,250	Enclosed	Enclosed	0.00	0.00	0.00	0.00
AE08	Cement Guppy Silo to Weigh Batcher (Bin Vent)	30501114	110	214,500	0.00034	0.00034	0.01	0.01	0.01	0.01
AE09	Fly Ash Silo Loading (Bin Vent)	30501107	20	39,000	0.0049	0.0049	0.02	0.02	0.02	0.02
	Fly Ash Silo to Weigh Batcher	30501108	20	39,000	Enclosed	Enclosed	0.00	0.00	0.00	0.00
AE10	Cement/Fly Ash Weigh Batcher to Collecting Cone	30501108	75	146,250	0.0011	0.0011	0.08	0.08	0.08	0.08
AE11	Transit Truck Loading (BH)	30501199	75	146,250	0.0263	0.0263	0.50	0.50	0.49	0.49
AE14	Power Flame Burner, 0.90 MMBtu/hr	10300603	See Table III-B-4				0.01	0.01	0.03	0.01
PM₁₀ Subtotals							0.73	0.77	0.71	0.76

Table III-B-4: Maximum PTE for American Eagle Ready Mix Hot Water Heater (tons/year)

EU	Description	Emission Factor ¹	Pollutant	PTE lbs/hr	PTE ton/yr	
AE14	Power Flame Burner Water Heater 0.90 MMBtu/hr Natural Gas Fired M/N: C3-G-20 S/N: 031036894 1,200 hrs/yr	7.45E-03	lbs/MMBtu	PM _{2.5} /PM ₁₀	0.01	0.01
		4.90E-02		NO _x	0.04	0.03
		8.24E-02		CO	0.07	0.04
		5.88E-04		SO _x	0.01	0.01
		5.39E-03		VOC	0.01	0.01
		1.90E-03		Total HAP	0.01	0.01

¹Emission Factors are from AP-42 Table 1.4-1, 1.4-2 and 1.4-3.

The hauling emissions will be incorporated in the hauling emission unit (EU: H06) currently in the Title V Operating Permit.

Table III-B-5: PTE for Ready Mix Hauling (tons/year)¹

Process	Road Length	VMT/hr	VMT/yr	EF (lb/VMT)	Control	PM _{2.5} PTE lbs/hr	PM ₁₀ PTE lbs/hr	PM _{2.5} tons/yr	PM ₁₀ PTE ton/yr
Southern Nevada Ready Mix ²	1.0 mi.	28.6	11,236	7.57	98.00%	0.65	4.33	0.13	0.85
Southern Nevada Ready Aggregate ²	1.0 mi.	11.0	1,775	7.57	98.00%	0.25	1.66	0.02	0.13
American Eagle Ready Mix Aggregate ³	0.5 mi.	4.4	8,558	7.57	98.00%	0.10	0.66	0.10	0.65
American Eagle Ready Mix Concrete ³	0.5 mi.	10.0	19,118	7.57	98.00%	0.23	1.51	0.22	1.45

¹PM_{2.5} is estimated to be 15% of the PM₁₀ emissions, which is consistent with the current haul road emissions.

²Modified emission units.

³New emission units.

Table III-B-6: Emissions Increase (tons/year)

	PM ₁₀	PM _{2.5}	NO _x	CO	SO _x	VOC	HAP
New Emission Units (American Eagle Ready Mix)	2.87	1.04	0.03	0.04	0.01	0.01	0.01
Reduction in Existing Units (Silver Star Ready Mix)	1.31	0.24	0.04	0.09	0.02	0.00	0.00
Net Emissions Increase	1.56	0.80	-0.01	-0.05	-0.01	0.01	0.01
Minor NSR Significant Levels	7.5	5.0	20	50	20	20	N/A

The PTE for all pollutants from the new ready mix plant (EUs: AE01 through AE01) is below the minor NSR significant levels found in AQR 12.5.1(d) and therefore the source is not subject to a controls analysis and will be issued a revised Title V Operating Permit per AQR 12.4.3.2(b).

C. Monitoring

The source is required to monitor and record the throughput of the new ready mix plant and the hours of operation of the new hot water heater.

D. Testing

No new performance testing requirements are added in this permitting action. The new units are not subject to testing.

IV. REGULATORY REVIEW

The new units do not subject the source to any additions federal requirements.

V. CONTROL TECHNOLOGY

The PTE for the new emissions units (EUs: AE01 through AE14) does not exceed the minor NSR significant levels of AQR 12.5.1(d), therefore the source is not subject to a controls analysis.

VI. INCREMENT

Air Quality modeled the source using AERMOD to track the increment consumption. Stack data submitted by the applicant were supplemented with information available for similar emission units. Five years (1999 to 2003) of meteorological data from the McCarran Station and Desert Rock Station were used in the model. United States Geological Survey (USGS) National Elevation Dataset (NED) terrain data was used to calculate elevations. Table VI-1 presents the results of the modeling.

Table VI-1: PSD Increment Consumption

Pollutant	Averaging Period	PSD Increment Consumption by the Source ($\mu\text{g}/\text{m}^3$)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO ₂	3-hour	51.14 ¹	661662	3979155
SO ₂	24-hour	15.41 ¹	660968	3979037
SO ₂	Annual	2.92	660667	3979228
NO _x	Annual	1.39	660198	3979415

¹ Second High Concentration

Table VI-1 shows the location of the maximum impact and the potential PSD increment consumed by the source at that location. The impacts are below the PSD increment limits.

VII. PUBLIC NOTICE

This permitting action is a minor revision and therefore is not subject to public notice per AQR 12.5.2.10(a)(2).