Technical Support Document

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Date:	April 28, 2011
Company:	Aggregate Industries
Submitter:	Same
Source:	372
Action Received:	February 28, 2011
Address:	3101 E Craig Road, North Las Vegas, NV 89030
Hydrographic Area:	212
Subject:	Sloan Quarry 1.5 Miles West of 1-15 South, Clark County, Nevada T23S, R60E, Sections 12 and 13

Source Description

The source is an existing nonmetallic mineral processing source that is a major source for PM_{10}. The source includes aggregate processing (sand and gravel), concrete batch production, concrete paver production, and asphalt concrete production. The source currently operates multiple crushers, screens, stackers, and transfer belts. Mining, blasting, and hauling also occur in normal operations. An asphalt drum mixer, oil heater, water heater, diesel generators, and silos are other emission units associated with the operations at the source.

Permitting Action

The primary purpose of this permitting action is to update the facility-wide Potential to Emit (PTE) based on the application of AP-42 Section 11.19.2 emission factors for crushed stone processing and 90% control of PM_{10}, using moisture, for controlled processes where the emissions were based on DAQ default emission factors. Processes controlled by baghouses are updated to use the uncontrolled AP-42 Section 11.19.2 emission factors with a 75% capture efficiency and a 99.5% control efficiency.

A potential to emit for $PM_{2.5}$ emissions are also added to the permit. For emission units controlled by baghouses and binvents, the $PM_{2.5}$ is estimated to be equivalent to the PM_{10} emissions. For moisture-controlled processing points, AP-24 emission factors are used. All other $PM_{2.5}$ emissions are estimated to be 15% of the PM_{10} emissions.

The mined material at Sloan Quarry comes from chemical grade limestone or dolomite, which are recognized as major rock types applicable to the stone processing emission factors.

Proposed

Table 1: List of $PM_{2.5}$ and PM_{10} Emission Factors

Process	Controlled $PM_{2.5}$ EF (lb/ton)[1]	Controlled PM_{10} EF (lb/ton)[1]	Source of EF
Mining/Excavation	0.00120[2]	0.008	DAQ Default
Crushing Tertiary	0.00010	0.00054 (moisture control)	AP-42 Section 11.19.2
	0.00036[2]	0.0024 (uncontrolled)	AP-42 Section 11.19.2
Crushing Fines (VSI)	0.000070	0.0012	AP-42 Section 11.19.2
Screening	0.000050	0.00074 (moisture control)	AP-42 Section 11.19.2
	0.0087[3]	0.0087 (uncontrolled)	AP-42 Section 11.19.2
Stacker Point	0.000013	0.000046 (moisture control)	AP-42 Section 11.19.2
		0.00110 (uncontrolled)	AP-42 Section 11.19.2
Transfer Point	0.000013	0.000046	AP-42 Section 11.19.2
Haul Roads	1.14 (lbs/VMT) [2]	7.57 (lbs/VMT) (uncontrolled)	DAQ Default
Storage Pile	0.249 (lbs/acre-day) [2]	1.66 (lbs/acre-day)	DAQ Default
Cement/Lime Silo Loading	0.000051 [2]	0.00034	AP-42 Section 11.12
Silo Unloading	0.0024 (BH controlled units) 0.00036[2]	0.0024	AP-42 Section 11.12
Silo Loading	0.0049 (BH controlled units) 0.00074[2]	0.0049	AP-42 Section 11.12
Concrete Batch Truck Loading	0.0263[3]	0.0263	AP-42 Section 11.12
Asphalt Silo Loading	0.00006[3]	0.00006	AP-42 Section 11.1
Asphalt Silo Un-loading	0.0005[3]	0.0005	AP-42 Section 11.1

[1]DAQ default emission factors are based on a level of control that will result in the process not exceeding opacity standards under normal operations.
[2]$PM_{2.5}$ emission factors not listed in AP-42 are estimated at 15% of the PM_{10} emission factor as suggested by the EPA document "Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emissions Factors" (2/06).
[3]$PM_{2.5}$ is estimated as the PM_{10} emissions from these units as they are controlled by a baghouse or binvent.

The emission factors for crushed stone processing points have been updated from DAQ default emission factors to AP-42 emission factors. All processing emission factors have been updated with moisture control, whether the 90% control used with the DAQ emission factors, or in the use of the controlled emission factors from AP-42. The emission factor for mining remains as the DAQ emission factor and has been updated with moisture control only.

New emission units from the application include a crusher (EU: A120), a wet screen (EU: B043), and an additional belt (EU: B011). The source also submitted an addendum to the application to add a new 30 hp diesel engine (EUs: MM08). Two additional revision applications are addressed in this permit, the addition of a media blasting unit (EU: MB01) and the addition of two gasoline tanks (EUs: FT01 and FT02).

Proposed

Acronyms

Table 2: List of Acronyms

Acronym	Term
AQR	Clark County Air Quality Regulations
ATC	Authority to Construct Certificate or Authority to Construct
ATC/OP	Authority to Construct/Operating Permit
BCC	Clark County Board of County Commissioners
BHP	Brake Horse Power
CAO	Field Corrective Action Order
CE	Control Efficiency
CF	Control Factor
CFR	United States Code of Federal Regulations
CO	Carbon Monoxide
CPI	Urban Consumer Price Index
DAQ	Clark County Department of Air Quality
DEM	Digital Elevation Model
EF	Emission Factor
EPA	United States Environmental Protection Agency
EU	Emission Unit
HAP	Hazardous Air Pollutant
HP	Horse Power
kW	kiloWatt
LON	Letter of Noncompliance
NAICS	North American Industry Classification System
NEI	Net Emission Increase
NO_X	Nitrogen Oxides
NOV	Notice of Violation
NRS	Nevada Revised Statutes
NSR	New Source Review
OP	Operating Permit
PM_{10}	Particulate Matter less than 10 microns
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RT	Roundtrip
SCC	Source Classification Codes
SIC	Standard Industrial Classification
SO_X	Sulfur Oxides
TCS	Toxic Chemical Substance
TSD	Technical Support Document
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

Proposed

Calculation of PTE

Table 3: Source PTE (tons per year)

Pollutant	$PM_{2.5}$	PM_{10}	NO_x	CO	SO_x	VOC	HAP	H_2S	Pb
Source Total	**30.77**	**83.79**	**47.04**	**67.16**	**21.10**	**12.75**	**3.34**	**0.00**	**0.00**
Major Source Threshold	100	70	100	100	100	100	10/25[1]	--	--

[1]Ten tons for any one HAP or 25 tons for combination of all HAPs.

Table 4: Primary Feed (Mountain Top) Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A001a	Blasting (PM_{10})	See Tables 7 and 8				7.15	47.67	0.64	4.26
A001	Mining	4,200	5.04	33.60	3.00	5.04	33.60	3.00	20.00
A02	Gyratory Crusher (crushing)[1]	2,100	0.21	1.13	0.13	0.21	1.13	0.13	0.68
A02a	Enddump to Gyratory Crusher	4,200	0.05	0.19	0.03	0.05	0.19	0.03	0.12
A02b	Gyr. Crusher to Stacker 3	4,200	0.05	0.19	0.03	0.05	0.19	0.03	0.12
A012	Stacker 3 to Surge pile	4,200	0.05	0.19	0.03	0.05	0.19	0.03	0.12
					Subtotals	**12.56**	**82.98**	**3.86**	**25.28**

[1]Approximately 50 percent of the five million ton throughput material is not processed/crushed by the gyratory crusher based on a close side setting of 6.0 inches.

Table 5: Secondary Aggregate Plant Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A013	Tunnel Belt BC-4a 3 to VGF 2a	2,600	5,000,000	0.000013	0.000046	0.03	0.12	0.03	0.12
A015	Jaw Crusher CR-1 (Nordberg) (BH) [1]	650	500,000	0.0024	0.0024	0.40	0.40	0.15	0.15
A014	VGF 2a to Jaw Crusher CR-1	650	500,000						
A016	VGF 2a drop to Belt 4 (BH) [1]	2,600	4,500,000	0.0011	0.0011	0.73	0.73	0.63	0.63
A018	Screen S-1 (Simplicity) (BH) [1]	2,600	5,000,000	0.0087	0.0087	5.74	5.74	5.52	5.52
A017	Belt 4 to Screen S-1 (BH) [1]	2,600	5,000,000						
A020	Crusher CR-2 (Hazemag) (BH) [1]	975	1,875,000	0.0024	0.0024	0.59	0.59	0.57	0.57

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A019	Screen S-1 to Crusher CR-2 (BH) [1]	975	1,875,000						
A021	Crusher CR-2 to Belt 6 (BH) [1]	975	1,875,000						
A036	Screen S-1 Underbelt to Belt 5	1,625	3,125,000	0.000013	0.000046	0.02	0.07	0.02	0.07
A022	Belt 6 Split to Belt 44 and 45	1,365	2,625,000	0.000013	0.000046	0.02	0.06	0.02	0.06
A025	Screen S-2 (JCI 8x20) (BH)	682	1,312,500	0.0087	0.0087	1.51	1.51	1.45	1.45
A023	Belt 44 to Screen S-2 (BH) [1]	682	1,312,500						
A027	Screen S-2 to Belt 46 (BH)	682	1,312,500						
A034	Screen S-2 underbelt to Belt 7	488	937,500	0.000013	0.000046	0.01	0.02	0.01	0.02
A026	Screen S-3 (JCI 8x20) (BH)	682	1,312,500	0.0087	0.0087	1.51	1.51	1.45	1.45
A024	Belt 45 to Screen S-3 (BH) [1]	682	1,312,500						
A028	Screen S-3 to Belt 47 (BH) [1]	682	1,312,500						
A035	Screen S-3 underbelt to Belt 7	488	937,500	0.000013	0.000046	0.01	0.02	0.01	0.02
A029	Belt 46 to Belt 8 (BH) [1]	228	437,500	0.0011	0.0011	0.06	0.06	0.06	0.06
A030	Belt 47 to Belt 8 (BH) [1]	228	437,500	0.0011	0.0011	0.06	0.06	0.06	0.06
A032	Crusher CR-3 (Canica VSI) (BH) [1]	420	875,000	0.0024	0.0024	0.26	0.26	0.27	0.27
A031	Belt 8 to Crusher CR-3 (BH) [1]	420	875,000						
A033	Crusher CR-3 to Belt 6 (BH) [1]	420	875,000						
A037	Belt 5 to Belt 43	1,625	3,125,000	0.000013	0.000046	0.02	0.07	0.02	0.07
A038	Belt 43 to Belt 7 or 62	1,625	3,125,000	0.000013	0.000046	0.02	0.07	0.02	0.07
A038a	Belt 62 to Belt 63	370	500,000	0.000013	0.000046	0.00	0.02	0.00	0.01
A038b	Belt 63 to Stockpile (Reject)	370	500,000	0.000013	0.000046	0.00	0.02	0.00	0.01
A038c	Belt 64 at H.S.I. oversize reject (alt ops) [2]	975	250,000	0.000013	0.000046	0.01	0.04	0.00	0.01
A038d	Stacker to Stockpile of Truck (alt ops) [2]	975	250,000	0.000013	0.000046	0.01	0.04	0.00	0.01
A040	Stacker 9 to Surge pile 2 (BH) [3]	2,600	5,000,000	0.0011	0.0011	0.73	0.73	0.70	0.70
A039	Belt 7 to Stacker 9	2,600	5,000,000	0.000013	0.000046	0.03	0.12	0.03	0.12

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
Subtotals						**11.77**	**12.27**	**11.02**	**11.44**

[1] BH denotes unit vented to baghouse. Emissions from baghouse points are computed based on 75% capture efficiency and 99.5% control efficiency.
[2] The emission unit is not included in the table subtotal. It is an alternate process that, if used, will decrease throughput from the remaining emission units.
[3] Baghouse on the Stacker has a collection efficiency of 25 percent and 99.5% control efficiency.

Table 6: Overland Feed System Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A041	Belt Feeds 1-3 to Tunnel Belt 10	1,500	3,500,000	0.000013	0.000046	0.02	0.07	0.02	0.08
A042	Belt 10 to Overland Belt 48 (BH) [1]	1,500	3,500,000	0.0011	0.0011	0.42	0.42	0.49	0.49
A043	Overland Belt 48 to Belts 11 and 50 (BH) [1]	1,500	3,500,000	0.0011	0.0011	0.42	0.42	0.49	0.49
A045	Belt 11 Stacker to Surge Pile (WP1)	750	2,250,000	0.000013	0.000046	0.01	0.03	0.01	0.05
A046	Belt 50 to Stacker 51	750	1,250,000	0.000013	0.000046	0.01	0.03	0.01	0.03
A046	Stacker 51 to WP2 Side Surge Pile	750	1,250,000	0.000013	0.000046	0.01	0.03	0.01	0.03
					Subtotals	**0.89**	**1.01**	**1.03**	**1.17**

[1]BH denotes unit vented to baghouse. Emissions from baghouse points are computed based on 75% capture efficiency and 99.5% control efficiency.

Table 7: PTE for $PM_{2.5}$ and PM_{10} Associated with Blasting[1]

EU	Description	Area ft^2/hr	Area ft^2/yr	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A001a	Blasting	35,000	1,109,836	7.15	47.67	0.64	4.26

[1]Emission values are based on the AP-42 formula for blasting overburden found in Section 11.9-1 dated July 1998: PM_{10} (lbs/yr) = 0.000014 $(A)^{1.5}$ x 0.52 scaling factor. Where A = area blasted in square feet.

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Table 8: PTE for NO_x and CO Associated with Blasting[1]

EU	Description	ANFO Usage		NO_x		CO	
		tons/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
A001a	Blasting	135	1,500	1,069.20	5.94	5,531.00	30.72

[1]Emission factors for NOx = 7.92 pounds per ton and CO = 40.97 pounds per ton based on 1997 National Institute of Safety and Health (NIOSH) contracted study "A Technique for Measuring Toxic Gases Produced by Blasting Agents."

Table 9: Wash Plant #1 Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A080	VGF 3a through 4 to Belt 25	700	2,000,000	0.000013	0.000046	0.01	0.03	0.013	0.046
A081	Belt 25 Tunnel to Belt 74	700	2,000,000	0.000013	0.000046	0.01	0.03	0.013	0.046
A082	Belt 73 (Spare)	700	2,000,000	0.000013	0.000046	0.01	0.03	0.013	0.046
A083	Belt 74 (mod) to Belts 54, 55, and 30 via Surge Bin	700	3,000,000	0.000013	0.000046	0.01	0.03	0.0195	0.069
A084[1]	Belt 54 to Wet Screen S-5	350	1,000,000	0.00	0.00	0.00	0.00	0.00	0.00
A085[1]	Belt 55 to Wet Screen S-6	350	1,000,000	0.00	0.00	0.00	0.00	0.00	0.00
A093[1]	Belt 30 to Wet Screen S-7	50	1,000,000	0.00	0.00	0.00	0.00	0.00	0.00
A093a[1]	Screens 5-7 to BC57	100	500,000	0.00	0.00	0.00	0.00	0.00	0.00
A093b[1]	Screens 5-7 to BC28	150	428,571	0.00	0.00	0.00	0.00	0.00	0.00
A086[1]	Screens 5-7 to BC56	100	500,000	0.00	0.00	0.00	0.00	0.00	0.00
A102a[1]	Wet Screen S-7	350	1,000,000	0.00	0.00	0.00	0.00	0.00	0.00
A108[1]	Screen S-7 to 44" Sand Screw	100	285,714	0.00	0.00	0.00	0.00	0.00	0.00
A086[1]	Belt to Dewater Screen S-9	100	307,692	0.00	0.00	0.00	0.00	0.00	0.00
A101[1]	DW Screen S-9 to Stacker BC29	100	307,692	0.00	0.00	0.00	0.00	0.00	0.00
A089[1]	Stacker BC29 to Stockpile 1/4" chips	250	307,692	0.00	0.00	0.00	0.00	0.00	0.00
A099[1]	Belts 56 and 57 to Belt BC31 or Belt 41	200	1,000,000	0.00	0.00	0.00	0.00	0.00	0.00
A091[1]	Belt 41 to Belt 36	200	1,000,000	0.00	0.00	0.00	0.00	0.00	0.00
A090[1]	Belt 36 to Surge Bin SB5	200	1,000,000	0.00	0.00	0.00	0.00	0.00	0.00
A075[1]	Belt 28 to Dewater Screen	150	428,571	0.00	0.00	0.00	0.00	0.00	0.00
A076[1]	Dewater Screen to BC41	150	428,571	0.00	0.00	0.00	0.00	0.00	0.00
A106[1]	Canica VSI Crusher 6a	175	500,000	0.0024	0.0024	0.42	0.6	0.42	0.60
A103[1]	Canica VSI Crusher 7a	175	500,000	0.0024	0.0024	0.42	0.6	0.42	0.60

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EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A107	Belt 59 to Belt 39 (recirc)	350	1,000,000	0.000013	0.000046	0.01	0.02	0.01	0.02
A107a	Belt 39 to Belt 74	350	1,000,000	0.000013	0.000046	0.01	0.02	0.01	0.02
A107b	Aux Sand Refeed (Loader or Stockpile)	125	357,142	0.000013	0.000046	0.01	0.02	0.01	0.02
A103[1]	Belt 37 to Belt 38	125	357,142	0.000013	0.000046	0.00	0.01	0.01	0.01
A106a[1]	Belt 38 to Splitter	370	1,057,143	0.000013	0.000046	0.00	0.02	0.02	0.02
A096a[1]	Belt 31 to Belt 40	270	771,429	0.00	0.00	0.00	0.00	0.00	0.00
A092[1]	Belt 40 to Belt 33	270	771,429	0.00	0.00	0.00	0.00	0.00	0.00
A092a[1]	Belt 33 to Twin Shaft Coarse mat. Wash	270	771,429	0.00	0.00	0.00	0.00	0.00	0.00
A092b[1]	3 Deck Screen (wet process)	270	771,429	0.00	0.00	0.00	0.00	0.00	0.00
A092c[1]	Screen to Belt 34	120	342,857	0.00	0.00	0.00	0.00	0.00	0.00
A092d[1]	Screen to Belt 43 (alt)	100	285,714	0.00	0.00	0.00	0.00	0.00	0.00
A092e[1]	Screen to Stacker ST32	100	285,714	0.00	0.00	0.00	0.00	0.00	0.00
A096[1]	Stacker ST32 to Size Screen #67/#4	100	285,714	0.00	0.00	0.00	0.00	0.00	0.00
A097[1]	Belt BC34 to Stacker 35	100	285,714	0.00	0.00	0.00	0.00	0.00	0.00
A098[1]	Stacker 35 to Bin #4	100	285,714	0.00	0.00	0.00	0.00	0.00	0.00
A096b[1]	Belt 43 to Belt 44 (alt)	120	342,857	0.00	0.00	0.00	0.00	0.00	0.00
A096d[1]	Belt 44 to Belt 57 (alt)	120	342,857	0.00	0.00	0.00	0.00	0.00	0.00
A096c[1]	44" Sand Screw (spare)	100	285,714	0.00	0.00	0.00	0.00	0.00	0.00
A109[1]	Screens 5, 6, and 7 to Twin 54" Screws	270	771,429	0.00	0.00	0.00	0.00	0.00	0.00
A113[1]	Dewater Screen S10	370	1,057,143	0.00	0.00	0.00	0.00	0.00	0.00
A114[1]	Belt 60 to Belt 61	340	1,046,154	0.00	0.00	0.00	0.00	0.00	0.00
A114a[1]	Belt 61 to Stacker 42	340	1,046,154	0.00	0.00	0.00	0.00	0.00	0.00
A115[1]	Stacker 42 to Stockpile	340	1,046,154	0.00	0.00	0.00	0.00	0.00	0.00
A110a[1]	Loader to Aux Hopper	400	500,000	0.00	0.00	0.00	0.00	0.00	0.00
A110b[1]	Belt to Stacker	400	500,000	0.00	0.00	0.00	0.00	0.00	0.00
A110d[1]	Stacker to Stockpile	400	500,000	0.00	0.00	0.00	0.00	0.00	0.00
A110c[1]	Belt (spare)	300	400,000	0.00	0.00	0.00	0.00	0.00	0.00
A110e[1]	Stacker (spare)	300	400,000	0.00	0.00	0.00	0.00	0.00	0.00

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EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A110f[1]	Dewater Screen S-12 (Spare)	200	400,000	0.00	0.00	0.00	0.00	0.00	0.00
A110[1]	Loader to Aux Refeed Hopper	100	168,750	0.000013	0.000046	0.01	0.01	0.01	0.01
A111[1]	Belt 72 to Belt 74	100	168,750	0.000013	0.000046	0.01	0.01	0.01	0.01
					Subtotals	**0.07**	**0.18**	**0.09**	**0.25**

[1]Wet process (no emissions) denotes emission units processing materials with >10% moisture in the ¼" minus materials.

Table 10: Wash Plant #2 Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A048	VGF 1 and 2 to Belt 12	650	1,500,000	0.000013	0.000046	0.01	0.03	0.01	0.03
A049	Belt 12 Tunnel to Belt 13	650	1,500,000	0.000013	0.000046	0.01	0.03	0.01	0.03
A050	Belt 13 to Surge Bin 4	650	1,500,000	0.000013	0.000046	0.01	0.03	0.01	0.03
A051	Belt 22 to Belt 17	400	923,077	0.000013	0.000046	0.01	0.02	0.01	0.02
A053	Belt 20 to Belt 21	400	923,077	0.000013	0.000046	0.01	0.02	0.01	0.02
A055[1]	Screen S-4 (Simplicity)	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A052[1]	Belt 17 to East Screen S-4	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A062[1]	Screens S-4 and S-8 to Belt 53	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A070[1]	Screens S-4 and S-8 to Belt 18a	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A074[1]	Screens S-4 and S-8 to Screw Washer	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A056[1]	Screen S-8 (Svedala)	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A054[1]	Belt 21 to West Screen S-8	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A057[1]	Screens S-4 and S-8 to Belt 14	400	923,077	0.00	0.00	0.00	0.00	0.00	0.00
A059[1]	Crusher CR-5 (Canica VSI)	150	250,000	0.00	0.00	0.00	0.00	0.00	0.00
A058[1]	Belt 14 to Crusher CR-5	150	250,000	0.00	0.00	0.00	0.00	0.00	0.00
A060[1]	Crusher CR-5 to Belt 19 (recirc.)	150	250,000	0.00	0.00	0.00	0.00	0.00	0.00
A061[1]	Belt 19 to Surge Bin 4 (recirc.)	150	250,000	0.00	0.00	0.00	0.00	0.00	0.00
A063[1]	Belt 53 to Screen S-11 (6 x	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00

Proposed

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
	16)								
A064[1]	Screen S-11 to Belt 15	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A068[1]	Screen S-11 to Belt 24	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A068a[1]	Screen S-11 to ST5	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A068b[1]	Stacker ST-5 to Stockpile (alt)	50	115,385	0.00	0.00	0.00	0.00	0.00	0.00
A065[1]	Belt 15 to Coarse Material Washer	100	230,769	0.00	0.00	0.00	0.00	0.00	0.00
A066[1]	Coarse Washer to Stacker 52	100	230,769	0.00	0.00	0.00	0.00	0.00	0.00
A067[1]	Stacker 52 to Stockpile	100	230,769	0.00	0.00	0.00	0.00	0.00	0.00
A069[1]	Stacker 24 to Stockpile	100	230,769	0.00	0.00	0.00	0.00	0.00	0.00
A071[1]	Belt 18a to Belt 18b	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A071a	Belt 18b to Belt 18c	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A071b[1]	Belt 18c to Stockpile or Feed Hopper	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A117[1]	Loader to Feed Hopper	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A120[1]	Canica VSI Crusher CR-9	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A120h[1]	Canica VSI Crusher CR-9a	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A120c[1]	Canica VSI Crushers CR-9 and CR-9a to Belt 77	266	613,846	0.00	0.00	0.00	0.00	0.00	0.00
A120d[1]	Belt 72 to Canica VSI Crushers CR-9 and CR-9a	266	613,846	0.00	0.00	0.00	0.00	0.00	0.00
A120a[1]	3 Deck Size Screen	266	613,846	0.00	0.00	0.00	0.00	0.00	0.00
A120e[1]	Belt 73 to Size Screen	266	613,846	0.00	0.00	0.00	0.00	0.00	0.00
A120f[1]	Size Screen to Ubelt and Belt 79	266	613,846	0.00	0.00	0.00	0.00	0.00	0.00
A120b[1]	Belt 79 to Belt 80	66	152,308	0.00	0.00	0.00	0.00	0.00	0.00
A120g	Belt 80 recirc to Belt 72	66	152,308	0.00	0.00	0.00	0.00	0.00	0.00
A121[1]	Dewatering Screen	260	576,923	0.00	0.00	0.00	0.00	0.00	0.00
A121a[1]	Belt 77 to Dewatering Screen	260	576,923	0.00	0.00	0.00	0.00	0.00	0.00
A121b[1]	Dewatering Screen to Belt 73	260	576,923	0.00	0.00	0.00	0.00	0.00	0.00
A122a[1]	Ubelt to Stacker 78 or Belt 74 (alt feed)	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A122[1]	Stacker 78 to Stockpile	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00

Proposed

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A122b[1]	Belt 74 to Belt 81	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A122c[1]	Belt 81 to Belt 82	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A122d[1]	Belt 82 to Belt BC12	200	461,538	0.00	0.00	0.00	0.00	0.00	0.00
A075[1]	Screw to Dewatering Screen	260	576,923	0.00	0.00	0.00	0.00	0.00	0.00
A077[1]	Belt 65 to Stacker 66	260	576,923	0.00	0.00	0.00	0.00	0.00	0.00
A078[1]	Stacker 66 to Stockpile	260	576,923	0.00	0.00	0.00	0.00	0.00	0.00
					Subtotals	**0.04**	**0.13**	**0.04**	**0.15**

[1]Wet process (no emissions) denotes emission units processing materials with >10% moisture in the ¼" minus materials.

Table 11: Wash Plant #2 Alternate Canica VSI Circuit Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A117	Loader to Feeder	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A120	Canica VSI Crusher CR-9	100	100,000	0.00007	0.0012	0.01	0.12	0.01	0.06
A120h	Canica VSI Crusher CR-9a	100	100,000	0.00007	0.0012	0.01	0.12	0.01	0.06
A120c	Canica VSI Crusher CR-9 to Belt 77	200	200,000						
A120d	Belt 72 to Canica VSI Crushers CR-9 and CR-9a	200	200,000						
A120a	3 Deck Size Screen	200	200,000	0.00005	0.00074	0.01	0.15	0.01	0.07
A120e	Belt 73 to 3 Deck Size Screen	200	200,000						
A120f	3 Deck Size Screen to Ubelt & Belt 79	200	200,000						
					Subtotals	**0.03**	**0.40**	**0.03**	**0.20**

Table 12: Wash Plant #2 Alternate Dewatering Screen Circuit Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
A120b	Belt 79 to Belt 80	66	66,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A120g	Belt 80 to Belt 72	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A121	Dewatering Screen	266	266,000	0.00005	0.00074	0.01	0.20	0.01	0.10

A121a	Belt 77 to Dewater Screen	266	266,000						
A121b	Dewatering Screen to Belt 73	266	266,000						
A122a	Ubelt to Stacker 78 or Belt 74 (alt feed)	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A122	Stacker 78 to Stockpile	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A122b	Belt 74 to Belt 81	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A122c	Belt 81 to Belt 82	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A122d	Belt 82 to Belt BC12	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A124	Belt (Spare)	200	200,000	0.000013	0.000046	0.01	0.01	0.01	0.01
					Subtotals	**0.09**	**0.28**	**0.09**	**0.18**

Table 13: Rip Rap/Miscellaneous Screening System Plant Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
H05c	Loader to Feeder	500	150,000	0.000013	0.000046	0.01	0.02	0.01	0.01
H08	Trommel Screen Hurcules HT182	500	150,000	0.00005	0.00074	0.03	0.37	0.01	0.06
H02	Oversize Reject #1 - #4	250	150,000	0.000013	0.000046	0.01	0.01	0.01	0.01
H02a	Grizzly Screen (Loader or Conveyor Feed)	250	75,000	0.00005	0.00074	0.01	0.19	0.01	0.03
H09	Belt R1 to Belt R2	250	75,000	0.000013	0.000046	0.01	0.01	0.01	0.01
H10	Reject Stacker	125	32,500	0.000013	0.000046	0.01	0.01	0.01	0.01
H05	Fines Transfer Belt	50	32,500	0.000013	0.000046	0.01	0.01	0.01	0.01
H05a	Fines Reject Stacker	50	32,500	0.000013	0.000046	0.01	0.01	0.01	0.01
					Subtotals	**0.10**	**0.61**	**0.08**	**0.14**

Table 14: West Screen Plant Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
B001	Stockpile to Belt 1	550	1,500,000	0.000013	0.000046	0.01	0.03	0.01	0.03
B002	Belt 1 to Belt 3	550	1,500,000	0.000013	0.000046	0.01	0.03	0.01	0.03
B004	Belt 3 to Splitter (BH) [1]	550	1,500,000	0.0011	0.0011	0.15	0.15	0.21	0.21
B004a	Splitter to Belt 4 (BH) [21]	220	600,000	0.0011	0.0011	0.06	0.06	0.08	0.08

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
B006a	Splitter to Belt 5 (BH) [1]	220	600,000	0.0011	0.0011	0.06	0.06	0.08	0.08
B003a	Reject Stacker (alt ops) [2]	550	400,000	0.000013	0.000046	0.01	0.03	0.01	0.01
B006	Screen 1 ElJay (BH) [1]	220	600,000	0.0087	0.0087	0.49	0.49	0.66	0.66
B005	Belt 4 to Screen 1	220	600,000						
B022	Screen 1 to Belt 18	220	600,000						
B008	Screen 2 ElJay (BH) [1]	220	600,000	0.0087	0.0087	0.49	0.49	0.66	0.66
B007	Belt 5 to Screen 2	220	600,000						
B024	Screen 2 to Belt 19	220	600,000						
B012a	Splitter to Belt 7	220	600,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B013	Screen 3 (JCI) (BH) [1]	220	600,000	0.0087	0.0087	0.49	0.49	0.66	0.66
B012	Belt 7 to Screen 3	220	600,000						
B013	Screens to Belt 10	220	600,000						
B028	Screen 3 to Belt 15	220	600,000						
B028a	Screens to Belt 17	220	600,000						
B039	Screen 3 to Belt 8	220	600,000						
B018	Screens to Belt 20	220	600,000						
B033	Belt 20 (rev) to Belt 11 or Belt 15	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B029	Belt 14 to Belt 10 or Belt 16	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B033	Belt 10 to Belt 11	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B037	Belt 12 to Belt 9	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B041	Belt 9 to Splitter (recirc)	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B035	Cone Crusher (BH) [1]	110	300,000	0.0024	0.0024	0.07	0.07	0.09	0.09
B034	Belt 11 to Cone Crusher	110	300,000						
B036	Cone Crusher to Belt 12	110	300,000						
B043	Wet Screen [3]	110	300,000	0.00	0.00	0.00	0.00	0.00	0.00
B003	Belt 2 to Wet Screen	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B016	Belt 16 to Stacker 2	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B017	Stacker 2 to Stockpile	110	300,000	0.000013	0.000046	0.01	0.01	0.01	0.01
B020	Belt 15 to Stacker 4	140	381,818	0.000013	0.000046	0.01	0.01	0.01	0.01
B027	Stacker 4 to Stockpile	140	381,818	0.000013	0.000046	0.01	0.01	0.01	0.01
B051	Belt 17 to Belt 2	140	381,818	0.000013	0.000046	0.01	0.01	0.01	0.01

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
B052	Wash Screw to Stacker 3 [3]	140	381,818	0.00	0.00	0.00	0.00	0.00	0.00
B053	Stacker 3 to Stockpile 3/8	140	381,818	0.000013	0.000046	0.01	0.01	0.01	0.01
B038	Belt 18 to Belt 13	53.3	145,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B026	Belt 19 to Belt 13	53.3	145,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B040	Belt 8 to Belt 13	53.3	145,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B053	Belt 13 to Belt 13a	160	436,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B054	Belt 13a to Washer or Stacker 1	160	436,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B031	Stacker 1 to Stockpile or alt feed	160	436,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B055	Overland Belt Conveyor Transfer to Belt (to BC10 Tert. feed)	160	436,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B047	7 x 20 Dewater Screen (spare) [3]	400	1,500,000	0.00	0.00	0.00	0.00	0.00	0.00
B011	Belt 6 (spare)	270	736,364	0.000013	0.000046	0.01	0.01	0.01	0.02
B045	Stacking Conveyor (spare)	400	600,000	0.000013	0.000046	0.01	0.02	0.01	0.01
B046	Belt Conveyor Transfer to Belt (spare)	160	436,364	0.000013	0.000046	0.01	0.01	0.01	0.01
B049	Stacking Conveyor (spare wet process) [3]	400	600,000	0.00	0.00	0.00	0.00	0.00	0.00
B050	Stacking Conveyor (spare wet process) [3]	400	600,000	0.00	0.00	0.00	0.00	0.00	0.00
B001	Stockpile to Belt 1	550	1,500,000	0.000013	0.000046	0.01	0.03	0.01	0.03
B002	Belt 1 to Belt 3	550	1,500,000	0.000013	0.000046	0.01	0.03	0.01	0.03
B046a	Loader to Aux Refeed Hopper w/Feeder (alt) [2]	150	100,000	0.000013	0.000046	(0.01)	(0.01)	(0.01)	(0.01)
B056	Belt to Belt 9 (alt) [2]	150	100,000	0.000013	0.000046	(0.01)	(0.01)	(0.01)	(0.01)
Subtotals						**2.06**	**2.12**	**2.72**	**2.78**

[1]BH denotes unit vented to baghouse. Emissions from baghouse points are computed based on 75% capture efficiency and 99.5% control efficiency.
[2]The emission unit is not included in the table subtotal. It is an alternate process that, if used, will decrease throughput from the remaining emission units.
[3]Wet process (no emissions) denotes emission units processing materials with >10% moisture in the ¼" minus materials.

Proposed

Table 15: Type 2 Plant (Virgin and Recycle) Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
C001a	Mining [1]	400	500,000	0.0012	0.008	0.48	3.20	0.30	2.00
A012b	Jaw Crusher CR-10	200	250,000	0.001	0.00054	0.20	0.11	0.13	0.07
A012d	VGF2 to Belt 70	200	250,000	0.000013	0.000046	0.01	0.01	0.01	0.01
A012e	Belt 70 to Belt 2a Overland	400	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
A010	Belt 2a to VGF Feeder or SP	400	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
A10a	Loader to VGF Feeder	400	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
C001	Loader to VGF	400	700,000	0.000013	0.000046	0.01	0.02	0.01	0.02
C003	VGF to Belt 3	400	700,000	0.000013	0.000046	0.01	0.02	0.01	0.02
C004	Belt 3 to Belt 4	400	700,000	0.000013	0.000046	0.01	0.02	0.01	0.02
C002	Jaw Crusher	400	700,000	0.0001	0.00054	0.04	0.22	0.04	0.19
C002b	VGF to Jaw Crusher	400	700,000						
C002a	Jaw Crusher CR-10 to BC70	400	700,000						
C002c	Jaw Crusher to Belt 3	400	700,000						
C005a	Screen 3 Cedar Rapids	400	700,000	0.00005	0.00074	0.02	0.30	0.02	0.26
C005b	Belt 4 to Screen 3	400	700,000						
C005c	Screen 3 to Stacker 22 (alt) [2]	400	700,000						
C005d	Screen 3 to Stacker 15 (alt) [2]	400	700,000						
C005e	Screen 3 to Underbelt	400	700,000						
C005f	Screen 3 to Belt 5	400	700,000						
C003b	Stacker 22 to Stockpile (alt) [2]	200	350,000	0.000013	0.000046	0.01	0.01	0.01	0.01
C010b	Stacker 15 to Stockpile (alt) [2]	150	262,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C031	S3 Underbelt to Stacker	50	87,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C036	Stacker to Stockpile	50	87,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C006	Belt 5 to Belt 6 & 7 (splitter)	350	612,500	0.000013	0.000046	0.01	0.02	0.01	0.01
C008	Screen 1 Cedar Rapids	275	481,250	0.00005	0.00074	0.01	0.20	0.01	0.18
C007	Belt 6 to Screen 1	275	481,250						
C016	Screen 1 to Belt 14	275	481,250						
C009	Screen 2 Cedar Rapids	350	612,500	0.00005	0.00074	0.02	0.26	0.02	0.23
C008a	Belt 7 to Screen 2	350	612,500						

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
C009a	Screen1 & 2 to Belt 8	350	612,500						
C025	Screen 2 to Belt 21	350	612,500						
C012	Horz. Shaft Impact Crusher	200	350,000	0.0001	0.00054	0.02	0.11	0.02	0.09
C012b	Belt 8 to H.S.I. Crusher	200	350,000						
C012a	H.S.I. to Belt 11	200	350,000						
C013	Belt 11 to Belt 12	200	350,000	0.000013	0.000046	0.01	0.01	0.01	0.01
C013a	Belt 12 to Belt 6&7 (splitter)	200	350,000	0.000013	0.000046	0.01	0.01	0.01	0.01
C017	Belt 14 to Belt 18a	50	87,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C022	Belt 18a to Stacker 17	50	87,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C020	Stacker 17 to Stockpile	50	87,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C026	Belt 21 to Belt 20	350	612,500	0.000013	0.000046	0.01	0.02	0.01	0.01
C027	Belt 20 to Belt 16	350	612,500	0.000013	0.000046	0.01	0.02	0.01	0.01
C019	Belt 16 to Stacker	350	612,500	0.000013	0.000046	0.01	0.02	0.01	0.01
C028	Stacker to Stockpile T2	350	612,500	0.000013	0.000046	0.01	0.02	0.01	0.01
C033	Stacker 18 (alt) [2]	50	87,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C034	Stacker 19 (alt) [2]	50	87,500	0.000013	0.000046	0.01	0.01	0.01	0.01
C011	Belt 9 Spare	200	350,000	0.000013	0.000046	0.01	0.01	0.01	0.01
C035	Belt 19 Spare	200	350,000	0.000013	0.000046	0.01	0.01	0.01	0.01
					Subtotals	**1.04**	**4.72**	**0.77**	**3.31**

[1]Mining EF based on two conveyor drop points (controlled).
[2]The emission unit is not included in the table subtotals. It is an alternate process that, if used, will decrease throughput from the remaining emission units.

Table 16: Asphalt System Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
D001	Loader to Hoppers (10 ea.)	360	527,340	0.000013	0.000046	0.01	0.02	0.01	0.01
D011	Loader to 2 RAP Hoppers	64	93,060	0.000013	0.000046	0.01	0.01	0.01	0.01
D002-6d	Belt Feeders 1 – 6d (10 ea)	360	527,340	0.000013	0.000046	0.01	0.02	0.01	0.01
D007	Conveyor 5e to Conveyor 6	360	527,340	0.000013	0.000046	0.01	0.02	0.01	0.01
D009	Screen to Conveyor 8 (BH) [1]	360	527,340	0.0011	0.0011	0.10	0.10	0.07	0.07

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
D008	Conveyor 6 to Scalping Screen	360	527,340	0.000013	0.000046	0.01	0.02	0.01	0.01
D012	Belts 9 and 10 to Conveyor 11	64	93,060	0.000013	0.000046	0.01	0.01	0.01	0.01
D029	Conveyor 11a to Conv. 11	64	93,060	0.000013	0.000046	0.01	0.01	0.01	0.01
D014	Aztec Drum Mixer (BH) [1]	450	660,000	See Table 17			2.21	2.21	1.62
D010	Conveyor 8 to Drum Mixer	360	527,340	0.000013	0.000046	0.01	0.02	0.01	0.01
D013	Conveyor 11 to Drum Mixer	64	93,060	0.000013	0.000046	0.01	0.01	0.01	0.01
D015	Mixer to Drag Slat Conveyor	450	660,000	Enclosed	Enclosed	0.00	0.00	0.00	0.00
D016	Asphalt Silo 1 Loading	450	110,000	0.00006	0.00006	0.03	0.03	0.01	0.01
D019e	Asphalt Silo 1 Un-Loading	450	110,000	0.0005	0.0005	0.23	0.23	0.03	0.03
D017	Asphalt Silo 2 Loading	450	110,000	0.00006	0.00006	0.03	0.03	0.01	0.01
D019e	Asphalt Silo 2 Un-Loading	450	110,000	0.0005	0.0005	0.23	0.23	0.03	0.03
D019a	Asphalt Silo 3 Loading	450	110,000	0.00006	0.00006	0.03	0.03	0.01	0.01
D019f	Asphalt Silo 3 Un-Loading	450	110,000	0.0005	0.0005	0.23	0.23	0.03	0.03
D019b	Asphalt Silo 4 Loading	450	110,000	0.00006	0.00006	0.03	0.03	0.01	0.01
D019g	Asphalt Silo 4 Un-Loading	450	110,000	0.0005	0.0005	0.23	0.23	0.03	0.03
D019c	Asphalt Silo 5 Loading	450	110,000	0.00006	0.00006	0.03	0.03	0.01	0.01
D019h	Asphalt Silo 5 Un-Loading	450	110,000	0.0005	0.0005	0.23	0.23	0.03	0.03
D019i	Asphalt Silo 6 Loading	450	110,000	0.00006	0.00006	0.03	0.03	0.01	0.01
D019j	Asphalt Silo 6 Un-Loading	450	110,000	0.0005	0.0005	0.23	0.23	0.03	0.03
D020	Baghouse to Screw Conveyor	1	250	Enclosed	Enclosed	0.00	0.00	0.00	0.00
D021	Screw Conveyor to Storage	1	250	Enclosed	Enclosed	0.00	0.00	0.00	0.00
D022	Silo to Conveyor 22	1	250	Enclosed	Enclosed	0.00	0.00	0.00	0.00
D023	Screw Conveyor 1 to Conveyor 2	1	250	Enclosed	Enclosed	0.00	0.00	0.00	0.00
D024	Screw Conveyor 21 to 22	1	250	Enclosed	Enclosed	0.00	0.00	0.00	0.00
D025	Asphalt Hauling (0.95 miles RT)	See Table 28							
D026	Diesel Hot Oil Heater 16	See Table 18				0.01	0.01	0.05	0.05
D027	Diesel Hot Oil Heater 17	See Table 18				0.02	0.02	0.08	0.08
D028	Diesel Hot Oil Heater 17a	See Table 18				0.01	0.01	0.05	0.05
					Subtotals	**3.95**	**3.99**	**2.19**	**2.19**

[1]BH denotes unit vented to baghouse. Emissions from baghouse points are computed based on 75% capture efficiency and 99.5% control efficiency.

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Table 17: PTE for Asphalt Drum Mixer[1]

EU D014	$PM_{2.5}/PM_{10}$		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
Diesel	2.21	1.62	26.1	19.14	45	33.00	26.1	19.14	14.4	10.56	3.92	2.87
LPG Firing	2.21	1.62	26.1	12.87	45	33.00	1.67	1.22	14.4	10.56	3.42	2.51
EU PTE	**2.21**	**1.62**	**26.1**	**19.14**	**45**	**33.00**	**26.1**	**19.14**	**14.4**	**10.56**	**3.92**	**2.87**

[1]Emission values based on maximum throughput of 450 tons per hour and 660,000 tons per year. The PTE is established using the fuel that results in the highest PTE (Fuel oil). Emission Factor (lbs/ton) for PM = 0.0049 is based on performance test data with plus a 25% margin. Emission Factors (lbs/ton) for NOx = 0.058, CO = 0.10 are based on AP42 11.1-7 adjusted to reflect burner control system. Emission Factor (lbs/ton) for SOx is based on AP42 11.1-7 assuming combustion of on specification fuel oil. Emission factors (lbs/ton) for VOC = 0.032, and HAPs = 0.0076, based on AP42 11.1-7, 11.1-8, 11.1-9, and 1.5-1. Emission factor for SO_x (lbs/ton) = 0.0037, based on SBAPCD sulfur content table converted to lbs/ton (0.017 lb per MMBtu / 0.22 MMBtu per ton).

Table 18: PTE for Asphalt Hot Oil Heaters[1]

EU	$PM_{2.5}/PM_{10}$		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
D026[2]	0.01	0.05	0.12	0.53	0.03	0.13	0.04	0.18	0.01	0.01	0.01	0.01
D027[3]	0.012	0.08	0.18	0.79	0.05	0.20	0.06	0.28	0.01	0.01	0.01	0.01
D028[2]	0.01	0.05	0.12	0.53	0.03	0.13	0.04	0.18	0.01	0.01	0.01	0.01
Subtotals	**0.04**	**0.18**	**0.42**	**1.85**	**0.11**	**0.46**	**0.14**	**0.64**	**0.03**	**0.03**	**0.03**	**0.03**

[1]Emission factors from AP-42 Tables 1.3-1, 1.3-3, and 1.3-9.
[2]Based on six (6) gallons per hour and 52,560 gallons per year.
[3]Based on nine (9) gallons per hour and 78,840 gallons per year.

Table 19: Road Runner Portable Screen Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
RS01	Loader to Hopper	150	50,000	0.000013	0.000046	0.01	0.01	0.01	0.01
RS03	Road Runner Incline Screen	150	50,000	0.00005	0.00074	0.01	0.11	0.01	0.02
RS02	Conveyor to Screen	150	50,000						
RS04	Screen to Stacker 1	150	50,000						
RS06	Screen to Stacker 2	150	50,000						
RS08	Underbelt Transfer to Stacker 3	100	33,333	0.000013	0.000046	0.01	0.01	0.01	0.01
RS05	Stacker 1 to Stockpile	50	16,667	0.000013	0.000046	0.01	0.01	0.01	0.01
RS07	Stacker 2 to Stockpile	50	16,667	0.000013	0.000046	0.01	0.01	0.01	0.01

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
RS09	Stacker 3 to Stockpile	100	33,333	0.000013	0.000046	0.01	0.01	0.01	0.01
RS10	Duetz 63 hp Diesel Engine	500 hrs/yr		See Table 21		0.13	0.13	0.03	0.03
					Subtotals	**0.19**	**0.29**	**0.09**	**0.10**

Table 20: Blending System Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
BS01	Loader to Five Bin System	450	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
BS02	Belt Feeders to Belt	450	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
BS03	Splitter to Alt Stacker (pugmill bypass)	450	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
BS03a	Stacker to Stockpile (bypass)	450	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
D013d	Pugmill Mixer (mixes supplement, water, and aggregate)	475	517,833	0.0055	0.0055	2.61	2.61	1.42	1.42
BS05a	Belt to Pugmill	450	500,000	0.000013	0.000046	0.01	0.02	0.01	0.01
BS05	Auger to Pugmill	25	8,333	0.000013	0.000046	0.01	0.01	0.01	0.01
D013a	Dual Lime Silo Loading	125	9,000	0.000051	0.00034	0.01	0.04	0.01	0.01
BS06a	Auxiliary Silo (Cement/Lime)	125	9,000	0.000051	0.00034	0.01	0.04	0.01	0.01
BS06	Guppy Silo	25	8,333	0.000051	0.00034	0.01	0.01	0.01	0.01
D013e	Belt Conveyor to Stacker	475	517,833	0.000013	0.000046	0.01	0.02	0.01	0.01
BS08	Stacker to Stockpile	475	517,833	0.000013	0.000046	0.01	0.02	0.01	0.01
					Subtotals	**2.72**	**2.86**	**1.53**	**1.53**

Table 21: PTE for Diesel Generators

EU	Description	Emission Factor[1]		Pollutant	PTE lbs/hr	PTE tons/yr
A123	Caterpillar Diesel Engine; M/N: XQ225; S/N: N/A; 306 hp 2,000 hrs/yr	2.20E-04	lbs/hr	$PM_{2.5}/PM_{10}$	0.07	0.07
		1.092E-02		NOx	3.34	3.34
		9.48E-04		CO	0.29	0.29
		2.05E-03		SOx	0.63	0.63
		2.51E-03		VOC	0.77	0.77
		4.52E-05		Total HAP	0.01	0.01

EU	Description	Emission Factor[1]		Pollutant	PTE lbs/hr	PTE tons/yr
STM39	Caterpillar Diesel Engine; M/N: 3306TA; S/N: N/A; 306 hp; 12 gal/hr 2,187 hrs/yr	8.00E-03	lbs/gal	$PM_{2.5}/PM_{10}$	0.10	0.10
		2.61E-01		NOx	3.13	3.42
		4.60E-02		CO	0.55	0.60
		7.10E-03		SOx	0.09	0.09
		2.00E-02		VOC	0.24	0.26
		9.59E-03		Total HAP	0.12	0.13
GW01	MultiQuip Diesel Engine; M/N: 4SL942; S/N: N/A; 75 hp; 2,560 hrs/yr	2.20E-03	lbs/hp-hr	$PM_{2.5}/PM_{10}$	0.17	0.21
		3.10E-02		NOx	2.33	2.98
		6.68E-03		CO	0.50	0.64
		2.05E-03		SOx	0.15	0.20
		2.51E-03		VOC	0.19	0.24
		4.52E-05		Total HAP	0.01	0.01
RS10	Duetz Diesel Engine; M/N: 4SL942; S/N: ; 50 kW; 67 hp; 500 hrs/yr	2.0E-03	lbs/hp-hr	$PM_{2.5}/PM_{10}$	0.13	0.03
		3.1E-02		NOx	2.08	0.52
		6.68E-03		CO	0.45	0.11
		2.05E-03		SOx	0.14	0.03
		2.51E-03		VOC	0.17	0.04
		4.52E-5		Total HAP	0.01	0.01

[1]PM_{10}, CO, and NO_x emission factors are from manufacturers' data. SOx, VOC, and HAP emission factors are based on AP-42 3.3-1. SO_x based on a maximum 0.05% sulfur content. Emission factors are based on AP-42 3.3-1 default values.

Table 22: Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder, g/kW-hr (g/hp-hr), EU: A123

Maximum Engine Power	NMHC + NO_X	HC	NO_X	CO	PM
225≤kW≤450 (300≤hp≤600)	N/A	1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

Table 23: Southern Nevada Ready Mix Plant Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	$PM_{2.5}$ PTE tons/yr
F001	Aggregate Unloading to Hopper 1	494	411,625	0.000013	0.000046	0.01	0.02	0.01	0.01
F002	Belt 2 to Stacker 3	494	411,625	0.000013	0.000046	0.01	0.02	0.01	0.01
F003	Stacker 3 to Stockpile	494	411,625	0.000013	0.000046	0.01	0.02	0.01	0.01
F004	Loader to 4 Comp Agg Grind Hoppers	494	205,812	0.000013	0.000046	0.01	0.02	0.01	0.01

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EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	$PM_{2.5}$ PTE tons/yr
	(rock/sand)								
F005	Belt 5 to Belt 7	247	205,812	0.000013	0.000046	0.01	0.01	0.01	0.01
F006	Belt 6 to Belt 7	247	205,812	0.000013	0.000046	0.01	0.01	0.01	0.01
F007	Belt 7 to 4-Comp Agg. Bin 10	247	205,812	0.000013	0.000046	0.01	0.01	0.01	0.01
F009	Belt 8 to 4-Comp Agg. Bin 10	247	205,812	0.000013	0.000046	0.01	0.01	0.01	0.01
F011	Belt 9 to 4-Comp Agg. Bin 10	247	205,812	0.000013	0.000046	0.01	0.01	0.01	0.01
F012	Agg Bin 10 to Hopper 11	79	65,833	Enclosed	Enclosed	0.00	0.00	0.00	0.00
F008	Loader to Agg. Hopper 8a	247	205,812	0.000013	0.000046	0.01	0.01	0.01	0.01
F010	Loader to Agg. Hopper 9a	247	205,812	0.000013	0.000046	0.01	0.01	0.01	0.01
F013	Belt 12 to Belt 13	494	411,625	0.000013	0.000046	0.01	0.02	0.01	0.01
F014a	Loading Station Central Mix (BH) [1]	90	75,000	0.0011	0.0011	0.03	0.03	0.01	0.01
F019	Batcher 18 to Truck (BH) [1]	90	75,000	0.0011	0.0011	0.03	0.03	0.01	0.01
F015	Fly Ash 15 Loading (Bin vent) [1]	16	13,125	0.0049	0.0049	0.02	0.02	0.01	0.01
F017	Cement Silo 14 Loading (Bin vent) [1]	74	61,875	0.00034	0.00034	0.01	0.01	0.01	0.01
F017a	Cement Silo 14a Loading (Bin vent) [1]	74	61,875	0.00034	0.00034	0.01	0.01	0.01	0.01
F018	Weigh Batcher Loading 18 (Bin vent) [1]	90	75,000	0.0049	0.0049	0.11	0.11	0.05	0.05
F016	Ash Silo to Weigh Hopper 18	16	13,125	0.000735	0.0049	0.01	0.08	0.01	0.03
F023	Fire Storm Propane-Fired Water Heater, 4.0 MMBtu/hr	See Table 24				0.03	0.03	0.01	0.01
					Subtotals	**0.33**	**0.47**	**0.24**	**0.26**

[1]BH 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 24: Ready Mix Plant Hot Water Heater PTE

EU	$PM_{2.5}/PM_{10}$		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]	0.03	0.01	0.15	0.09	0.30	0.18	0.01	0.04	0.02	0.01	0.01	0.01

[1]NO_x Emissions are based on 30 ppm and CO 100 ppm. All other values based on AP-42.

Table 25: Con-E-Co Concrete Batch Plant Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
F025	Agg. Unloading Bellydump	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F026	Loader to Feedhoppers 1 - 3	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F026a	Loader to Aux. Feedhopper	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F027	Belts 1 - 3 to Overhead Bins	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F027a	Aux Belt to Overhead Bins	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F027b	Overhead Bins to Weighhopper	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F027c	Weighthopper to Belt	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F027d	Belt to Loadout Aggs	237	80,580	0.000013	0.000046	0.01	0.01	0.01	0.01
F028	Fly Ash Silo Loading (Bin vent)	45	15,300	0.00	0.0049	0.06	0.06	0.01	0.01
F028a	Fly Ash Silo to Weigh Batcher	45	15,300	Enclosed	Enclosed	0.00	0.00	0.00	0.00
F029	Cement Silo Loading (Bin vent)	45	15,300	0.00034	0.00034	0.01	0.01	0.01	0.01
F029a	Cement Silo to Weigh Batcher	45	15,300	Enclosed	Enclosed	0.00	0.00	0.00	0.00
F030	Aux Guppy Loading 1 - 4	45	77,175	0.00034	0.00034	0.01	0.02	0.01	0.01
F031	Transit Truck Loading (BH)[1]	58	20,400	0.03	0.0263	0.39	0.39	0.07	0.07
					Subtotals	**0.54**	**0.56**	**0.18**	**0.18**

[1]BH and Bin Vent denotes units vented to baghouses and bin vents. Emissions from baghouses and bin vents are computed based on 75% capture efficiency and 99.5% control efficiency.

Table 26: Haul Road PTE for $PM_{2.5}$ and PM_{10}

EU	Process	Load Limit (tons)	Road Length (miles)	VMT/yr	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
H06[1]	Aggregate	45 tons	0.5	32,866	5.86	39.05	2.41	16.06
	Aggregate Haul Out	45 tons	0.55	29,822				
	Type 2	45 tons	0.35	10,889				
	Mine Haul	45 tons	0.30	6,666				
	Asphalt	25 tons	0.475	25,080				
	Portable Screen Hauling	45 tons	1.0	1,100				
	Blending System	45 tons	0.6	2,000				
	Southern Nevada Ready Mix	20 tons	1.0	25,000				
	Aggregate	40 tons	1.0	3,950				
	Rip Rap	25 tons	3.0	18,000				

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EU	Process	Load Limit (tons)	Road Length (miles)	VMT/yr	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
	Cyclone Sand	25 tons	0.6	600				
	Ready-Mix Hauling	25 tons	0.5	2,500				
	Admixture Haul	25 tons	0.5	227				
	Cal Portland Hauling	20 tons	1.0	30,000				
	Wet-Cast Cement Haul In	20 tons	0.4 mi.	914				
	Wet-Cast Cement Haul Out	20 tons	0.4 mi.	6,720				

Table 27: Source-wide Stockpile Area PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Acres	$PM_{2.5}$ EF lbs/acre/day	PM_{10} EF lbs/acre/day	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
G01	Entire Plant	45.0	0.249	1.66	0.47	3.11	2.04	13.63

Table 28: Cyclone Sand Loadout System Emission Unit List and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
CS01	Loader to Masterscreen Feed Hopper w/ Static Grizzle	25	15,000	0.000013	0.000046	0.01	0.01	0.01	0.01
CS02	Loadout Belt to Pneumatic Truck	25	15,000	0.000013	0.000046	0.01	0.01	0.01	0.01
					Subtotals	**0.02**	**0.02**	**0.02**	**0.02**

Table 29: Precast Management Mobile Mini Mixer Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
MM01	2 Comp. Feed Bin	2,370	23,700	0.000013	0.000046	0.03	0.11	0.01	0.01
MM02	Charge Belt	2,370	23,700	0.000013	0.000046	0.03	0.11	0.01	0.01
MM03	3/4 Yard Mixer	330	3,300	0.000285	0.0019	0.09	0.63	0.01	0.01
MM04	Cement Hopper	330	3,300	0.000051	0.00034	0.02	0.11	0.01	0.01
MM05	Disturbed Surfaces	1.5 acres		0.249 lbs/acre-day	1.66 lbs/acre-day	0.02	0.10	0.07	0.45
					Subtotals	**0.19**	**1.06**	**0.11**	**0.49**

Proposed

Table 30: Precast Management Mobile Mini Mixer Engines and PTE

EU	Description	PM_{10} EF (lbs/hp-hr)[1]	Pollutant	PTE lbs/hr	PTE tons/yr
MM06	Perkins Diesel Engine; M/N: TBD; S/N: TBD; 21 hp 500 hrs/yr	2.20E-03	$PM_{2.5}/PM_{10}$	0.05	0.01
		3.10E-02	NOx	0.65	0.16
		6.68E-03	CO	0.14	0.04
		2.05E-03	SOx	0.04	0.01
		2.51E-03	VOC	0.05	0.01
		4.52E-05	Total HAP	0.01	0.01
MM08	MQ Power Engine; M/N: DCA25SSIU; S/N: 7105410; 30 hp 1,200 hrs/yr	1.30E-03	$PM_{2.5}/PM_{10}$	0.04	0.02
		8.91E-03	NOx	0.27	0.16
		2.43E-03	CO	0.07	0.04
		2.05E-03	SOx	0.06	0.04
		2.51E-03	VOC	0.08	0.05
		4.52E-05	Total HAP	0.01	0.01

[1]Emission factors from AP-42 except PM_{10}, NO_x, and CO which are from manufacturer's emission data sheets.

Table 31: Emission Standards for Diesel Engines, g/kW-hr

Maximum Engine Power	NO_X	HC	NMHC + NO_X	CO	PM
MM06	N/A	N/A	9.5	6.6	0.80
MM08	9.2	N/A	N/A	N/A	N/A

Table 32: CalPortland Plant One Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
STM01	Unloading Aggregate Belly dump	494	642,135	0.000013	0.000046	0.01	0.02	0.01	0.01
STM02	Loader to Aggregate Hopper 1a	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01
STM03	Loader to Aggregate Hopper 2a	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01
STM04	Loader to Aggregate Hopper 3a	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01
STM04A	Loader to Aux. Hopper	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01
STM06	Belt 1 to 5 Comp Storage Bin (T. P.)	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01
STM07	Belt 2 to 5 Comp Storage Bin	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01
STM08	Belt 3 to 5 Comp Storage Bin	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01
STM08a	Belt 4 to Weigh Hopper	123	160,534	0.000013	0.000046	0.01	0.01	0.01	0.01

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
STM10	Weigh Hopper 5 to Underbelt 6	494	642,135	0.000013	0.000046	0.01	0.02	0.01	0.01
STM13	Cement Silo 7 Loading (Bin vent) [1]	74	48,263	0.00034	0.00034	0.01	0.01	0.01	0.01
STM13a	Cement Silo 7a Loading (Bin vent) [1]	74	48,263	0.00034	0.00034	0.01	0.01	0.01	0.01
STM14	Guppy Silo 11 Loading (Bin vent) [1]	16	96,525	0.00034	0.00034	0.01	0.01	0.01	0.01
STM15	Fly Ash Silo 8 Loading (Bin vent) [1]	74	20,475	0.0049	0.0049	0.09	0.09	0.01	0.01
STM16	Cement to Weigh Batcher (Bin vent) [1]	74	96,525	0.01	0.01	0.19	0.19	0.12	0.12
STM17	Fly Ash to Weigh Batcher (Bin vent) [1]	74	96,525	0.01	0.01	0.19	0.19	0.12	0.12
STM18	Transit Truck Loading Station (BH) [1]	90	117,000	0.0087	0.0087	0.30	0.86	0.19	0.56
STM18a	Belt 6 to Transit Truck	90	117,000	0.0011	0.0074	0.10	0.67	0.06	0.43
STM19	Storage Piles- 4 Acres	4.0 Acres	N/A	0.249	1.66	0.04	0.28	0.18	1.21
STM19a	Water Heater <1MMBtu/hr (Categorically Exempt)	Categorically Exempt							
					Subtotals	**1.03**	**2.43**	**0.83**	**2.60**

[1]BH 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 33: Cal Portland Plant Three Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
STM44	Radial Stacker	474	474,000	0.000013	0.000046	0.01	0.02	0.01	0.01
STM43	Drive over Hopper	474	474,000	0.000013	0.000046	0.01	0.02	0.01	0.01
STM45	Hopper to Agg. Belt 1	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM46	Hopper to Agg. Belt 2	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM47	Hopper to Agg. Belt 3	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM48	Hopper to Agg. Belt 4	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM49	Hopper to Agg. Belt 5	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM55	Agg. Bin (5 compartment)	474	474,000	0.000013	0.000046	0.01	0.02	0.01	0.01
STM50	Belt 6 to Agg. Bin	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM51	Belt 7 to Agg. Bin	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM52	Belt 8 to Agg. Bin	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01

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EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
STM53	Belt 9 to Agg. Bin	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM54	Belt 10 to Agg. Bin	95	94,800	0.000013	0.000046	0.01	0.01	0.01	0.01
STM56	Bin to Weigh Hopper	474	474,000	Enclosed	Enclosed	0.00	0.00	0.00	0.00
STM57	Belt A13 to Truck Loadout	474	474,000	0.000051	0.00034	0.02	0.16	0.01	0.08
STM58	Cement Silo #1 Loading	20	20,000	0.000051	0.00034	0.01	0.01	0.01	0.01
STM59	Cement Silo #2 Loading	20	20,000	0.000051	0.00034	0.01	0.01	0.01	0.01
STM60	Fly Ash Silo Loading	30	30,000	0.000735	0.0049	0.02	0.15	0.01	0.07
STM61	Silos to Weigh Batcher	90	90,000	0.000360	0.0024	0.03	0.22	0.02	0.11
STM62	Truck Loading (BH) [1]	90	90,000	0.0087	0.0087	0.20	0.20	0.10	0.10
STM63	Guppy Silo (Bin vent) [1]	60	60,000	0.0034	0.00034	0.05	0.01	0.03	0.01
STM64	Ash Guppy Silo (Bin vent) [1]	30	30,000	0.0049	0.0049	0.04	0.04	0.02	0.02
STM65	Cement Silo (Bin vent) [1]	20	20,000	0.0034	0.00034	0.02	0.01	0.01	0.01
STM66	Disturbed Surface	2.0 acres		0.249 lbs/acre/day	1.66 lbs/acre/day	0.14	0.14	0.09	0.61
STM68	Diesel Generator (490 hp)	See Table 34				0.12	0.12	0.12	0.12
STM19a	Pearson Water Heater <1MMBtu/hr (Categorically Exempt)	Categorically Exempt				--	--	--	--
					Subtotals	**0.79**	**1.23**	**0.55**	**1.28**

[1]BH 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 34: Cal Portland Diesel Generator PTE

EU	$PM_{2.5}/PM_{10}$		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
STM68 490 hp Genset [1]	0.12	0.12	8.25	8.25	0.81	0.81	0.18	0.18	0.13	0.13	0.24	0.24

[1]Emissions based on AP-42 3.3-a default values.

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Table 35: Aggregate/Cement Products Wet-Cast Plant Emission Units and PTE for $PM_{2.5}$ and PM_{10}

EU	Description	Process tons/hr	Process tons/yr	Controlled $PM_{2.5}$ EF lbs/ton	Controlled PM_{10} EF lbs/ton	$PM_{2.5}$ PTE lbs/hr	PM_{10} PTE lbs/hr	$PM_{2.5}$ PTE tons/yr	PM_{10} PTE tons/yr
AP22	Loader to 4 Comp Agg Bins	16	109,760	0.000013	0.000046	0.01	0.01	0.01	0.01
AP23	Belt Feeders to Belt 2	16	109,760	0.000013	0.000046	0.01	0.01	0.01	0.01
AP24	Belt 2 to Elevator	16	109,760	0.000013	0.000046	0.01	0.01	0.01	0.01
SP25	Elevator to Weigh Hopper	16	109,760	0.00036	0.0024	0.01	0.04	0.02	0.13
AP26	Weigh Hopper to Mixer	16	109,760	0.000013	0.000046	0.01	0.01	0.01	0.01
AP27	Concrete Mixer (Bin vent)	19	133,560	0.000013	0.000046	0.01	0.01	0.01	0.01
AP28	Mixer to Wet Concrete Molding	19	133,560	0.00	Wet Process	0.00	0.00	0.00	0.00
AP29	Cement Silo Loading	20	23,800	0.00051	0.0034	0.01	0.07	0.01	0.04
AP40a	Cement Unloading to Silo #2	20	23,800	0.00051	0.0034	0.01	0.07	0.01	0.04
AP30	Silo Screws to Mixer	3	23,800	0.00057	0.0038	0.01	0.01	0.01	0.05
AP40b	Fly Ash Silo loading via pneumatic transfer. Unload via enclosed auger	125	4,000	0.00074	0.0049	0.09	0.61	0.01	0.01
AP31	Storage Piles/Disturbed Surfaces	2.0 acres		0.249 lbs/acre/day	1.66 lbs/acre/day	0.02	0.14	0.09	0.61
AP48	Tumbler (BH) [1]	9	40,000	0.00005	0.00005	0.01	0.01	0.01	0.01
AP47	Hopper Belt to Tumbler	9	40,000	0.00001	0.00005	0.01	0.01	0.01	0.01
AP49	Tumbler to Belt Conveyor	9	40,000	0.00001	0.00005	0.01	0.01	0.01	0.01
					Subtotals	**0.23**	**1.02**	**0.23**	**0.96**

[1]BH denotes unit vented to baghouse. Emissions from baghouse is computed based on 75% capture efficiency and 99.5% control efficiency.

Table 36: Media Blasting Emission Unit and PTE[1]

EU	Description	PM_{10} EF (lbs/1,000 lbs of abrasive)	PM_{10} PTE lbs/hr	PM_{10} PTE tons/yr
MB01	Media Blasting Operations, 48”x28”x28” enclosure vented to a dust collector.	0.69	0.50	0.25

[1]Based on a sand mass flow rate of 721.7 lbs/hr

Table 37: Gasoline Dispensing Emission Units and PTE

EU	Description	M/N	S/N	VOC PTE (lbs/hr)	VOC PTE (tons/yr)
FT01	500 gallon above ground gasoline storage tank			0.06	0.26
FT02	500 gallon above ground gasoline storage tank			0.06	0.26
			Subtotals	**0.12**	**0.52**

Calculation of NEI

This ATC addresses the change in emission factors and the corresponding change in source PTE. The PM_{10} PTE was reduced by 51.03 tons per year as a result in the change in emission factors and moisture control. The true NEI for this ATC is the PTE of the new diesel engine, the media blasting (EU: MB01), and the gasoline dispensing operations (EUs: FT01 and FT02). The change in emission factors and moisture is not included in the NEI calculation.

Table 38: Source NEI (tons per year)

Pollutant	PM_{10}	NO_x	CO	SO_x	VOC	HAP	H_2S	Pb
MM08	0.02	0.16	0.04	0.04	0.05	0.01	0.00	0.00
MB01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FT01	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00
FT02	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00
NEI	**0.27**	**0.16**	**0.04**	**0.04**	**0.57**	**0.01**	**0.00**	**0.00**

Production Limits

The production limits were set by the source in previous permitting actions and are listed in the PTE tables above. No increase in annual throughput has occurred in this permitting action.

Review of Applicable Regulations

The changes made in this permitting action do not cause the source to be subject to additional regulations. Standard AQR conditions apply as well as 40 CFR 60 Subparts I, OOO, and IIII. The new diesel engine (EUs: MM08) is subject to 40 CFR 60 Subpart IIII.

Control Technology

The uncontrolled PTE of two new emission units is below the significant threshold for all pollutants, therefore a control analysis is not required with this ATC. The production limit on the new generators, 1,200 hours per year each, and the throughput limits on media blasting and gasoline will limit the PTE.

The processing emission units will be continued to be controlled by baghouses, binvents, inherent moisture, and water sprays.

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Monitoring

No new monitoring requirements are added as a result of this permitting action. Standard opacity observations and baghouse pressure readings are included in the permit.

Testing

No new performance testing requirements are added as a result of this permitting action.

The annual Method 9 requirement has been changed to every 5 years. This change is implemented in conjunction with the daily visible emissions check. With daily checks, there is reasonable assurance that the source is operating in compliance of the opacity limits, reducing the need for a Method 9 test.

Mitigation

The source currently has no federal offset requirements.

Increment

Aggregate Industries Sloan Quarry is a major source in Hydrographic Area 212 (Las Vegas Valley). Permitted emission units include one drum mixer, four heaters, two engines, five generators and mineral processing. Since minor source baseline dates for NO_X (October 21, 1988) and SO_2 (June 29, 1979) have been triggered, Prevention of Significant Deterioration (PSD) increment analysis is required. DAQ modeled the source using AERMOD to track the increment consumption.

The source was modeled for the NO_X and SO_2 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) 7.5-minute National Elevation Dataset (NED) terrain data was used to calculate elevations. Table 39 presents the results of the modeling.

Table 39: PSD Increment Consumption

Pollutant	Averaging Period	PSD Increment Consumption by the Source (μg/m^3)	Location of Maximum Impact	
			UTM X (m)	UTM Y (m)
SO_2	3-hour	57.791	661662	3979156
SO_2	24-hour	18.161	660968	3979037
SO_2	Annual	0.58	660667	3979228
NO_2	Annual	2.20	660265	3979350

[1]Modeled 2nd High Concentration.

Table 39 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.

Proposed

Permitting History

1. An ATC application was received by DAQ on February 28, 2011.
2. An addendum to the application was submitted on April 14, 2011.

Proposed