Statement of Basis
Concrete Batch Plant General Permit

Permit to Construct No. P-2018.0043
Project ID 62136

Suntec Concrete
Nampa, Idaho

Facility ID 027-00177

Final

November 26, 2018
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Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form

PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_X	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
U.S.C.	United States Code
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

Suntec Concrete has proposed a new stationary truck mix concrete batch plant consisting of aggregate stockpiles, cement storage silos, a cement supplement (fly ash) storage silo, a weigh batcher, and conveyors. The facility combines aggregate, sand, fly ash, and cement and then transfers the mixture into a truck mixer along with water, for in-transit mixing of the concrete. In addition, a water heater is used to heat the water in cold weather prior to use for the mixing of concrete.

The concrete batch plant will be fed a mixture of aggregates from imported aggregate.

The process begins with materials being fed via front end loader to a compartment bin feeder system and then dispensed in metered proportions to a collecting conveyor. The material will pass over a scalping screen before being conveyed into the truck mixer.

All particulate emissions from the truck load out will be collected and vented to a high efficiency baghouse with a minimum control efficiency of 99% as proposed by the Applicant.

The Applicant has proposed concrete production rate throughput limits of 900 cubic yards per day, and 88,000 cubic yards per year.

The Applicant has proposed that line power will be used exclusively at the facility. Therefore, no IC engines powering electrical generators were included in the application. However, a 174 HP IC Engine is incorporated into the concrete batch plant is used as a hydraulic pump and an air compressor. This IC Engine is being classified as a non-road engine by the applicant and therefor is not a stationary source and within the scope of this permit. As a non-road engine an IC Engine cannot be operated for more than a year at a single site and be considered a mobile source. Consequently, if the facility operates an IC Engine (or a replacement) for more than a year at the current permitted location without a PTC modification, the facility will be considered to be operating an unpermitted stationary source of air pollution.

Permitting History

This is the initial PTC for a new facility thus there is no permitting history.

Application Scope

This is the initial PTC for a new facility.

Application Chronology

October 29, 2018	DEQ received an application
October 31, 2018	DEQ received an application and processing fee
November 2, 2018	DEQ determined that the application was complete
Nov. 5 – Nov. 20, 2018	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action
November 26, 2018	DEQ issued the final permit and statement of basis

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
Materials Handling	Material Transfer Points: Materials handling Concrete aggregate transfers Truck unloading of aggregate Aggregate conveyor transfers Aggregate handling	Best Management Practices: including maintaining the moisture content in ¼" or smaller aggregate material at 1.5% by weight, using water sprays, using shrouds, or other emissions controls	N/A
Concrete Mixer	Concrete Batch Plant – Truck Mix: Manufacturer: Cemco Model: 275 Manufacture Date: 2015 Max. rated production: 275 yd^3/hr, 6,600 yd^3/day, and 2,409,000 yd^3/yr Cement Storage Silo: Storage capacity: 48 cubic yards (yd^3) Bin Vent Filter/Baghouse Manufacturer[a]: WAM Model: RO3 Second Cement Storage Silo: Storage capacity: 103 cubic yards (yd^3) Bin Vent Filter/Baghouse Manufacturer[a]: Load Craft Model: PJB-1800 Fly Ash Storage Silo: Storage capacity: 75 cubic yards (yd^3) Bin Vent Filter/Baghouse Manufacturer[a]: WAM Model: RO3	Weigh Batcher Baghouse: Manufacturer: WAM Model: FNC1J03 $PM_{10}/PM_{2.5}$ control efficiency: 99% Cement Storage Silo Bin Vent Filter/Baghouse: Manufacturer: WAM Model: RO3 $PM_{10}/PM_{2.5}$ control efficiency: 99% Second Cement Storage Silo Bin Vent Filter/Baghouse: Manufacturer: Load Craft Model: PJB-1800 $PM_{10}/PM_{2.5}$ control efficiency: 99% Fly Ash Storage Silo Bin Vent Filter/Baghouse: Manufacturer: WAM Model: RO3 $PM_{10}/PM_{2.5}$ control efficiency: 99% Truck Load-out Baghouse: Manufacturer: C&W Model: CP 535 $PM_{10}/PM_{2.5}$ control efficiency: 99% Material Transfer Points: Use of Best Management Practices	Weigh Batcher Baghouse Exhaust: Exit height: 22 ft (6.7 m) Exit dimensions: 18 x 6 in (45.7 x 15.2 cm) Exit flow rate: 150 acfm Exit temperature: NA Cement Storage Silo Bin Vent Filter/Baghouse Exhaust: Exit height: 45 ft (13.7 m) Exit dimensions: 24 x 8 in (61 x 15.2 cm) Exit flow rate: 1500 acfm Exit temperature: NA Second Cement Storage Silo Bin Vent Filter/Baghouse Exhaust: Exit height: 48 ft (14.6 m) Exit dimensions: 36 x 6 in (91.4 x 15.2 cm) Exit flow rate: 1800 acfm Exit temperature: NA Fly Ash Storage Silo Bin Vent Filter/Baghouse Exhaust: Exit height: 45 ft (13.7 m) Exit dimensions:24 x 8 in (61 x 15.2 cm) Exit flow rate: 1500 acfm Exit temperature: NA Truck Load-out Baghouse Exhaust: Exit height: 35 ft (10.7 m) Exit dimensions: 10 x 18 in (25.4 x 45.7 cm) Exit flow rate: 5000 acfm Exit temperature: NA
Boiler	Boiler: Manufacturer: Sioux Model: M-1 Manufacture Date: 2014 Heat input rating: 1 MMBtu/hr Fuel: LPG/propane	N/A	Boiler Exhaust: Exit height: 8 ft (2.4 m) Exit diameter: 10 in (25.4 cm) Exit flow rate: NA Exit temperature: 160 °F (71.1 °C)

a) Both the storage silo baghouse and supplement storage silo flyash baghouse are considered process equipment and therefore there is no associated control efficiency. Controlled PM_{10} emission factors were used when determining PTE and for modeling purposes.

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the concrete batch plant operations at the facility associated with this proposed project using the DEQ developed CBP EI spreadsheet (see Appendix A). Emissions estimates of criteria pollutant PTE were based on the following assumptions:

- Maximum concrete throughput does not exceed 900 yd^3/day, and 88,000 yd^3/year (per the Applicant).
- Baghouse/cartridge filter control efficiencies were assumed to be 99.0%.
- Fugitive emissions of particulate matter (PM), PM_{10}, and $PM_{2.5}$ from the concrete batch plant material transfer points were assumed to be controlled by manual water sprays, sprinklers, or spray bars, or an equivalent method that reduce PM emissions by an estimated 75%. The assumed 75% control efficiency is based on the Western Regional Air Partnership Fugitive Dust Handbook. According to the Handbook, water suppressant of material handling can range from 50-90% control. Assuming the average of 70% and including another 5% due to Best Management Practices required by the permit allow for 75% control to be a conservative estimate.
- Aggregate is washed before delivery to the concrete batch plant site, and water is used on-site to control the temperature of the aggregate. Particulate matter and PM_{10} emissions from the weigh batcher transfer point are controlled by a baghouse, and truck mix load-out emissions are controlled by a baghouse. Capture efficiency of the weigh batcher transfer and truck mix load-out baghouse or equivalent are estimated at 99%.
- Controlled emissions of particulate toxic air pollutants (TAPs) were estimated based on the presence of bin vent filters/baghouse controlling emissions from the cement/cement supplement silos, a baghouse controlling emissions from the weigh batcher, and 99% control for truck load-out emissions. Hexavalent chromium content was estimated at 20% of total chromium for cement, and 30% of total chromium for the cement supplement/fly ash. The hexavalent chromium percentages were taken from a University of North Dakota study, by the Energy and Environmental Research Center, Center for Air Toxic Metals. Detailed emissions calculations can be found in Appendix A of this document.
- Determining emissions from a concrete batch plant also includes transfer emissions from the number of drop points throughout the process. The PM_{10} emissions from truck-mix loading operations are defined by an equation which includes the wind speed at each drop point and the moisture content of cement and cement supplement and a number of exponents and constants defined by AP-42 Equation 11.12-1 (6/06). An average value of wind speed and moisture content are 7 mph, 4.17%, and 1.77%, respectively[1]. The following equation of particulate emissions is specific to PM_{10}. The resulting emissions were used to determine a factor to help evaluate wind speed variations in AERMOD modeling.

[1] 7 mph was the average wind speed obtained from an average of 19 Idaho airports throughout the state from 1996-2006. This data is from the Western Regional Climate Center (http://www.wrcc.dri.edu/htmlfiles/westwind.final.html#IDAHO). 4.17 % and 1.77% were the average percentages for sand and aggregate respectively. These values are based on EPA tests conducted at Cheney Enterprises. The percentages used in AP-42 are typical for most concrete batching operations.

$$E = k(0.0032) * \left[\frac{U^a}{M^b} \right] + c$$

Where:
k = particle size multiplier
a = exponent
b = exponent
c = constant
U = mean wind speed
M = moisture content

- The second transfer emissions calculations were used to determine conveyor emissions. For both coarse and fine aggregate to a conveyor. It was assumed that 82%, which for this facility is 275 yd^3/hr (0.82 x 225.5 yd^3/hr), of the concrete produced was aggregate. This percentage was based on 1,865 lb coarse aggregate, 1,428 lb sand, 564 lb cement/supplement and 167 lb water for a total of 4,024 lb concrete as defined by AP-42 Table 11.12-5 (06/06). The fine and coarse aggregate contributions were separated into 36% and 46% of the total concrete production[2]. Employing emission factors from AP-42 Table 11.12-5 (6/06) for conveyor transfer and assuming 75% control efficiency as stated earlier for conveyor transfer PM_{10} emissions were calculated for each transfer point. For both fine and coarse aggregate the facility has 6 transfer points.

Uncontrolled Potential to Emit

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a "Synthetic Minor" source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the uncontrolled Potential to Emit for regulated air pollutants from all permitted emissions units at the facility as determined by DEQ staff using the DEQ Concrete Batch Plant EI spreadsheet. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this operation uncontrolled Potential to Emit is calculated with 0% control efficiency for the Concrete Batch Plant itself.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources					
Concrete batch plant[(a)]	1.85E-01	N/A	N/A	N/A	N/A
Boiler	2.23E-02	4.13E-02	4.19E-01	2.35E-01	3.07E-02
Total, Point Sources	**0.71**	**0.04**	**0.42**	**0.24**	**0.03**

a) $PM_{10}/PM_{2.5}$ emissions from the concrete batch plant are considered "fugitive emissions" and therefore are not included in the Potential to Emit.

[2] The percentages of coarse and fine aggregate are based on the AP-42 concrete composition. One cubic yard of concrete as defined by AP-42 is 4024 total pounds. Similarly, coarse aggregate is 1865 pounds or 46% of the total and sand (fine) aggregate is 1428 pounds or 36%.

following table presents the uncontrolled Potential to Emit for HAP pollutants from all permitted emissions units at the facility as determined by DEQ staff using the DEQ Concrete Batch Plant EI spreadsheet. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this operation uncontrolled Potential to Emit is calculated with 0% control efficiency for the Concrete Batch Plant itself.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

IDAPA Listing	Hazardous Air Pollutants	PTE (T/yr)
585	Chromium metal (II and III)	4.00E-03
	Manganese as Mn (fume)	2.08E-02
	Phosphorous	1.67E-02
	Selenium	8.93E-04
586	Arsenic	4.19E-03
	Beryllium and compounds	8.70E-05
	Cadmium and compounds	8.08E-05
	Chromium (VI)	8.41E-04
	Nickel	4.15E-03
	Total	**0.0517**

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

This is a new facility. Therefore, pre-project emissions are set to zero for all criteria pollutants.

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria and GHG pollutants from all permitted emissions units at the facility as determined by DEQ staff using the DEQ Concrete Batch Plant EI spreadsheet. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 4 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
Concrete batch plant	0.021	0.004	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Boiler	0.009	0.022	0.0162	0.0413	0.164	0.419	0.092	0.235	0.012	0.031
Post Project Totals	**0.03**	**0.03**	**0.02**	**0.04**	**0.16**	**0.42**	**0.09**	**0.24**	**0.01**	**0.03**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 5 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Potential to Emit	0.03	0.03	0.02	0.04	0.16	0.42	0.09	0.24	0.01	0.03
Changes in Potential to Emit	**0.03**	**0.03**	**0.02**	**0.04**	**0.16**	**0.42**	**0.09**	**0.24**	**0.01**	**0.03**

Non-Carcinogenic TAP Emissions

Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Chromium metal (II and III)	0.0	5.78E-07	5.78E-07	**0.033**	No
Manganese as Mn (fume)	0.0	9.91E-06	9.91E-06	**0.067**	No
Phosphorous	0.0	3.67E-05	3.67E-05	**0.007**	No
Selenium	0.0	3.76E-07	3.76E-07	**0.013**	No

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Carcinogenic TAP Emissions

Pre- and post project, as well as the change in, carcinogenic TAP emissions are presented in the following table:

Table 7 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Arsenic	0.00E-03	7.23E-07	7.23E-07	1.5E-06	No
Beryllium and compounds	0.00E-03	4.13E-08	4.13E-08	2.8E-05	No
Cadmium and compounds	0.00E-03	5.78E-07	5.78E-07	3.7E-06	No
Chromium (VI)	0.00E-03	2.17E-07	2.17E-07	5.6E-07	No
Nickel	0.00E-03	1.28E-06	1.28E-06	2.7E-05	No

a) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

None of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all permitted emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 8 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

IDAPA Listing	Hazardous Air Pollutants	PTE (T/yr)
585	Chromium metal (II and III)	5.78E-07
	Manganese as Mn (fume)	9.91E-06
	Phosphorous	3.67E-05
	Selenium	3.76E-07
586	Arsenic	7.23E-07
	Beryllium and compounds	4.13E-08
	Cadmium and compounds	5.78E-07
	Chromium (VI)	2.17E-07
	Nickel	1.28E-06
	Total	**0.0001**

The estimated PTE for all federally listed HAPs combined is below 25 T/yr and no PTE for a federally listed HAP exceeds 10 T/yr. Therefore, this facility is not a Major Source for HAPs.

Ambient Air Quality Impact Analyses

As presented above, the estimated emission rates of PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC, HAP, and TAP from this project were below Regulatory Concern, applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[3]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP).

As a result of the ambient air quality standards, as well as information submitted by the applicant for specific operating scenarios, the following conditions (along with corresponding monitoring and record keeping requirements) were placed in the permit:

- The Emissions Limits permit condition,
- The Concrete Production Limits permit condition,

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Canyon County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has permitted emissions > 10 T/yr or if the aggregate of all HAPS (Total HAPs) has permitted emissions > 25 T/yr.

SM80 = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits > 8 T/yr of a single HAP or ≥ 20 T/yr of Total HAPs.

SM = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits < 8 T/yr of a single HAP and/or < 20 T/yr of Total HAPs.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 10 and 25 T/yr HAP major source thresholds.

UNK = Class is unknown

[3] Criteria pollutant thresholds in Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002.

For All Other Pollutants:

A = Use when permitted emissions of a pollutant are > 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are < 80 T/yr.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 100 T/yr major source threshold.

UNK = Class is unknown.

Table 9 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM_{10}	0.71	0.003	**100**	B
$PM_{2.5}$	0.71	0.003	**100**	B
SO_2	0.04	0.04	**100**	B
NO_X	0.42	0.42	**100**	B
CO	0.23	0.23	**100**	B
VOC	0.03	0.03	**100**	B
HAP (single)	0.021	3.67E-05	**10**	B
Total HAPs	0.0517	0.0001	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed new emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.624 Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 3.4.

Fugitive Emissions (IDAPA 58.01.01.650)

IDAPA 58.01.01.650 Rules for the Control of Fugitive Emissions

The sources of fugitive emissions at this facility are subject to the State of Idaho fugitive emissions standards. These requirements are assured by Permit Conditions 2.1, 2.2, and 2.7.

Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701)

IDAPA 58.01.01.701 Particulate Matter – New Equipment Process Weight Limitations

IDAPA 58.01.01.700 through 703 set PM emission limits for process equipment based on when the piece of equipment commenced operation and the piece of equipment's process weight (PW) in pounds per hour (lb/hr). IDAPA 58.01.01.701 and IDAPA 58.01.01.702 establish PM emission limits for equipment that commenced operation on or after October 1, 1979 and for equipment operating prior to October 1, 1979, respectively.

For equipment that commenced operation on or after October 1, 1979, the PM allowable emission rate (E) is based on one of the following four equations:

IDAPA 58.01.01.701.01.a: If PW is < 9,250 lb/hr; $E = 0.045 (PW)^{0.60}$

IDAPA 58.01.01.701.01.b: If PW is ≥ 9,250 lb/hr; $E = 1.10 (PW)^{0.25}$

For equipment that commenced prior to October 1, 1979, the PM allowable emission rate is based on one of the following equations:

IDAPA 58.01.01.702.01.a: If PW is < 17,000 lb/hr; $E = 0.045 (PW)^{0.60}$

IDAPA 58.01.01.702.01.b: If PW is ≥ 17,000 lb/hr; $E = 1.12 (PW)^{0.27}$

As discussed previously in the Emissions Inventory Section, concrete has a density of 4,024 lb per cubic yard. Thus, for the new Concrete Batch Plant proposed to be installed as a result of this project with a proposed throughput of 275 y^3/hr, E is calculated as follows:

Proposed throughput = 4,024 lb per cubic yard x 275 y^3/hr = 1,106,600 lb/hr

Therefore, E is calculated as:

$E = 1.10 \times PW^{0.25} = 1.10 \times (1{,}106{,}600)^{0.25} = 35.7$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.03 lb-PM_{10}/hr. Assuming PM is 50% PM_{10} means that PM emissions will be 0.06 lb-PM/hr (0.03 lb-PM_{10}/hr ÷ 0.5 lb-PM_{10}/lb-PM). Therefore, compliance with this requirement has been demonstrated.

Rules for Control of Odors (IDAPA 58.01.01.775)

IDAPA 58.01.01.750 Rules for Control of Odors

Section 776.01 states that no person shall allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids into the atmosphere in such quantities as to cause air pollution. These requirements are assured by Permit Conditions 2.4 and 2.6.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for all criteria pollutants or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

PSD Classification (40 CFR 52.21)

40 CFR 52.21	Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is/is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

Non-road Engine (40 CFR 1068)

40 CFR 1068	General Compliance Provisions for Highway, Stationary, and Nonroad Programs

40 CFR 1068.30 defines a non-road engine is an internal combustion engine that is by itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

An IC engine is not a non-road engine if it will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. For any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced, include the time period of both engines in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (*i.e.,* at least two years) and that operates at that single location approximately three months (or more) each year. See §1068.31 for provisions that apply if the engine is removed from the location.

For this project the facility has proposed a compression ignition IC engine that meets the definition of a non-road engine. Note: If the IC engine remains at a site for more than12 months, the facility shall submit an application for a PTC modification to permit the engine as stationary source IC engine.

NSPS Applicability (40 CFR 60)

The facility is not subject to any NSPS requirements 40 CFR Part 60.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT Applicability (40 CFR 63)

The facility is not subject to any MACT requirements 40 CFR Part 63.

Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Permit condition 1.1 establishes the permit to construct scope.

Permit condition, Table 1.1, provides a description of the purpose of the permit and the regulated sources, the process, and the control devices used at the facility.

FACILITY-WIDE CONDITIONS

Permit condition 2.1 establishes that the permittee shall take all reasonable precautions to prevent fugitive particulate matter (PM) from becoming airborne and provides examples of the controls in accordance with IDAPA 58.01.01.650-651.

Permit condition 2.2 establishes that the concrete batch plant shall employ efficient fugitive dust controls and provides examples of the controls in accordance with IDAPA 58.01.01.808.01 and 808.02.

Permit condition 2.3 establishes that the permittee shall not relocate the permitted equipment until a PTC has been obtained that allows operation at the proposed new site. This requirement is based upon imposing reasonable permit conditions for non-portable concrete batch plants.

Permit condition 2.4 establishes that there are to be no emissions of odorous gases, liquids, or solids from the permit equipment into the atmosphere in such quantities that cause air pollution.

Permit condition 2.5 establishes that the permittee shall monitor fugitive dust emissions on a daily basis to demonstrate compliance with the facility-wide permit requirements.

Permit condition 2.6 establishes that the permittee monitor and record odor complaints to demonstrate compliance with the facility-wide permit requirements.

Permit condition 2.7 establishes that the permittee shall maintain records as required by the Recordkeeping general provision.

CONCRETE BATCH PLANT EQUIPMENT

Permit condition 3.1 provides a process description of the concrete production process at this facility.

Permit condition 3.2 provides a description of the control devices used on the concrete production equipment at this facility.

Permit condition 3.3 establishes hourly and annual emissions limits for $PM_{2.5}$, SO_2, NO_X, CO, and VOC emissions from the concrete production operation at this facility.

As discussed previously, Permit condition 3.4 establishes a 20% opacity limit for the concrete batch plant baghouse and the boiler stacks or functionally equivalent openings associated with the concrete production operation.

Permit condition 3.5 establishes a daily, and an annual concrete production limit for the concrete production operation as proposed by the Applicant.

Permit condition 3.6 requires that the Applicant employ a baghouse filter to control emissions from the weigh batcher loadout operation as proposed by the Applicant.

Permit condition 3.7 requires that the Applicant employ a baghouse to control emissions from the truck loadout operation as proposed by the Applicant.

Permit condition 3.8 requires that the Applicant employ a baghouse to control emissions from primary and secondary cement silo operations as proposed by the Applicant.

Permit condition 3.9 requires that the Applicant employ a baghouse to control emissions from the fly ash silo operation as proposed by the Applicant.

Permit condition 3.10 establishes that the boiler will only operate a limited number of hours per year. This operational limit was included because it limited emissions from the boiler.

Permit condition 3.11 establishes the specifications of the fuel combusted in the boiler. This operational limit was included because it limited emissions from the boiler.

Permit condition 3.12 establishes that the Permittee monitor and record daily concrete production to demonstrate compliance with the Concrete Production Limits permit condition.

Permit condition 3.13 establishes that the Permittee shall establish procedures for operating all facility baghouses. This is a DEQ imposed standard requirement for operations using baghouses to control particulate emissions.

Permit condition 3.14 establishes that the permittee shall record daily operation of the boiler to demonstrate compliance with the Boiler Operation Limits permit requirement.

Permit condition 3.15 establishes that the permittee shall maintain records as required by the Recordkeeping general provision.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

Data Input Tab

Note: All blue text is meant to be edited by the processing engineer.

1 Enter the facility information in the "Facilty Information" boxes.

2 Enter the concrete production rates that were applied for.

3 Enter the daily operating hours for the facility.

4 Select "T" or "C" as the type of facility. "T" represents truck mix and "C" represents central mix
The fugitive control efficiency can either be **75%** or **95%. 0%** is used to calculate uncontrolled emissions.
75% Fugitive Control assumes typical Best Management Practices like those identified in IDAPA 58.01.01.650-651.
95% Fugitive Control assumes typical control methods such as limiting dust from traffic, enclosed aggregate piles, and covering or suppressing piles.
This amount of control also assumes that no visible emissions will occur at the property boundary.
Truck loadout control efficiency can be either **70%, 95%,** or **99%. 0%** is used to calculate uncontrolled emissions.
75% Control Loadout assumes a boot shroud or enclosure with 70% control efficiency during truck loadout.
80% Control Loadout assumes a boot shroud and a water ring spray system.
99% Control Loadout assumes a boot shroud and a baghouse system.

5 Select the dropdown stating whether or not a water heater will be used onsite.
If the selected answer is "Yes", fill out the remainder of the section. The facility may have up to two water heaters up to a heating input rating less than 10 MMBtu/h
Select the appropriate fuel type for each heater and enter the rating of each unit. Remember to set all heaters not used to fuel type "**N/A**"
Enter the annual operating hours of the heaters. Note: It assumed that they will operate simultaneously.

6 Select the dropdown stating whether or not an engine will be used as an electrical power source at the facility.
If the selected answer is "Yes", enter the make, model, and the horsepower of the engine. If the engine is a "non-road" IC engine (thus not stationary), "No" should
The EPA certification rating needs to be entered as well.
Enter a zero if there is only one engine. For example, if there is only a 1,000 bhp engine, enter "0" as the rating for the small engine.
Enter a negative one (-1) if there is only one engine. For example, if there is only a 1,000 bhp engine, enter -1 as the certification for the small engine.
The facility may have up to 2 small engines (<=600 bhp) and one large engine (>600 bhp).
Enter the number of operating hours for each engine.

7 Enter the number of transfer points at the facility; the default value is two (2).

CBP Criteria Tab

9 Daily and annual throughput is restricted to specific amounts defined in the pulldown menu.

10 Depending on the data inputs, emissions are calculated for all criteria and TAP emissions associated with the concrete batch plant.
Note that 20% Chromium VI is used for cement and 30% Cr 6+ is used for the supplement or flyash

EI-Nat Gas Water Heater Tab

11 Natural Gas Water Heater - Limited to only natural gas as a fuel source.
If two heaters are selected and both are natural gas, the rating will be additive.
If the water heater being used is not natural gas-fired the hr/day and hr/yr should both be set to zero

EI-Diesel Water Heater Tab

12 Diesel water heater - Limited to only 15 ppm sulfur content ASTM disillate fuel.
If two heaters are selected and both are diesel-fired, the rating will be additive.
If the water heater being used is not diesel-fired the hr/day and hr/yr should both be set to zero

Propane Water Heater Tab

13 Propane water heater - Limited to only propane as a fuel source
If two heaters are selected and both are propane, the rating will be additive.
If the water heater being used is not propane-fired the hr/day and hr/yr should both be set to zero

IC Engine Input Tab

14 This section reiterates the input parameters and makes a few calculations associated with the IC engine.

Large and Small IC Engine Emissions Tabs

15 This tab displays the emisions associated with the IC engines. These emissions assume worst case scenario. There is no user input here.

GHG Emissions

16 This tab displays the emisions associated with the generator. These emissions assume worst case scenario. There is no user input here.

Transfer Points Tab

17 The number of transfer points may be updated by the user and is highlighted in blue. The default assumes 2.

Final EI Tab

18 This tab provides the total emissions for the facility.

Data Input

1. Facility Information

Facility Name:	Suntec Concrete
Facility ID:	027-00177
Permit and Project No.:	P-2018.0043 Project 62136
Source Type:	Portable Concrete Batch Plant
Manufacturer/Model:	Cemco 275

2. Concrete Production Rates

Maximum Hourly Concrete Production Rate:	275		
Proposed Daily Concrete Production Rate:	900	cy/day	3.27
Proposed Maximum Annual Concrete Production Rate:	88,000	cy/year	hr/day

3. Daily Operating Hours

Maximum daily hours of operation for facility?	24

4. Concrete Batch Plant Specifications

Is the facility type a truck mix (T) or central mix (C)?	T
What level of PM control is used for loadout, either Truck or Central?	99%
What level of PM control is used for fugitive emissions?	75%

5. Water Heater Usage

Does this facility use a water heater?	Yes		
How many units?	1	Heat Input Rating	
What type of fuel, Diesel, Natural Gas or Propane for unit 1?	Propane	1	MMBtu/hr
If multiple units, what type of fuel, Diesel, Natural Gas or Propane for unit 2?	N/A	0	MMBtu/hr
Are you assuming continual operations throughout the year?	Yes		
Maximum annual hours of water heater operation? (If assuming continual operation, enter 8,760)	5,110		

6. Internal Combustion Engine(s)

Are internal combustion engines used to provide electrical power at the facility?	No	Please enter 0 for all units.
How many small engines (less than or equal to 600 bhp) are being used at the facility?	0	
Horsepower rating of small engine #1 (<=600 bhp)? (If non-road or no engine enter 0)	0	
Horsepower rating of small engine #2 (<=600 bhp)? (If non-road or no engine enter 0)	0	
Horsepower rating of large engine (greater than 600 bhp)? (If non-road or no engine enter 0)	0	

Note: If there is no small or large engine enter -1 for the certification	Small IC Engine #1	Small IC Engine #2	Large IC Engine
Select the EPA Certification:	3	-1	-1
Not an EPA-certified IC engine: Enter "0" (zero)			
Certified Tier I, Tier 2, Tier 3, or Tier 4 IC engine: Enter 1, 2, 3, or 4			
Certified "BLUE SKY" IC engine: Enter 5			

An invalid certification was added for the selected size generator. Try again

Enter the annual operating hours for the small IC engine(s)	3080
Enter the annual operating hours for the large IC engine	0

7. Transfer Points

Enter the total number of transfer points in the facility? (2 is the default)	6

CRITERIA POLLUTANT EMISSION INVENTORY for Portable Concrete Batch Plant

11/21/18 13:16

Facility Information

Company:	Suntec Concrete
Facility ID:	027-00177
Permit and Project No.:	P-2018.0043 Project 62136
Source Type:	Portable Concrete Batch Plant
Manufacturer/Model:	Cemco 278

Assumptions Implied or Stated in Application:

See control assumptions

Truck Mix (T) or Central Mix (C): T

Production Rates[1]

Maximum Hourly Production Rate:	275	cy/hr		Per manufacturer
Proposed Daily Production Rate:	900	cy/day	3.27	Hours of operation per day at max capacity
Proposed Maximum Annual Production Rate:	88,000	cy/year		
Cement Storage Silo Capacity:	4540	ft³ of aerated cement		
Cement Storage Silo Large Compartment Capacity for cement only:	65%	of the silo capacity		
Cement Storage Silo small Compartment Capacity for cement or ash:	35%	of the silo capacity		

PM_{10} Emissions due to this PTC

Emissions Point	$PM_{2.5}$ Emission Factor[1] (lb/cy)		PM_{10} Emission Factor[2] (lb/cy)		Controlled Emission Rate $PM_{2.5}$, Max	Controlled Emission Rate PM_{10}, Max	Controlled Emission Rate $PM_{2.5}$, 24-hour average		Controlled Emission Rate PM_{10}, 24-hour average		Controlled Emission Rate $PM_{2.5}$, annual average		Controlled Emission Rate PM_{10}, annual average		Control Assumptions:	
	Controlled	Uncontrolled	Controlled	Uncontrolled	lb/hr[3]	lb/hr[3]	lb/hr[4]	lb/day[4]	lb/hr[4]	lb/day[4]	lb/hr[5]	T/yr[5]	lb/hr[5]	T/yr[5]		
Aggregate delivery to ground storage		0.00096		0.0031	0.07	0.21	0.01	0.22	0.029	0.70	2.41E-03	1.06E-02	0.008	0.034	75%	Water Sprays at Operator's Discretion
Sand delivery to ground storage		0.000225		0.0007	0.02	0.05	2.11E-03	0.05	0.007	0.16	5.65E-04	2.48E-03	0.002	0.008	75%	Water Sprays at Operator's Discretion
Aggregate transfer to conveyor		0.00096		0.0031	0.07	0.21	0.01	0.22	0.029	0.70	2.41E-03	1.06E-02	0.008	0.034	75%	Water Sprays at Operator's Discretion
Sand transfer to conveyor		0.000225		0.0007	0.02	0.05	2.11E-03	0.05	0.007	0.16	5.65E-04	2.48E-03	0.002	0.008	75%	Water Sprays at Operator's Discretion
Aggregate transfer to elevated storage		0.00096		0.0031	0.07	0.21	0.01	0.22	0.029	0.70	2.41E-03	1.06E-02	0.008	0.034	75%	Water Sprays at Operator's Discretion
Sand transfer to elevated storage		0.000225		0.0007	0.02	0.05	2.11E-03	0.05	0.007	0.16	5.65E-04	2.48E-03	0.002	0.008	75%	Water Sprays at Operator's Discretion
Cement delivery to Silo (controlled EF)	0.00003		0.0001		8.25E-03	2.30E-02	1.13E-03	2.70E-02	3.13E-03	7.51E-02	3.01E-04	1.32E-03	8.38E-04	3.67E-03	0.00%	Baghouse is process equipment, use controlled EF
Cement supplement delivery to Silo (controlled EF)	0.000045		0.0002		1.24E-02	4.92E-02	1.69E-03	4.05E-02	6.71E-03	1.61E-01	4.52E-04	1.98E-03	1.80E-03	7.87E-03	0.00%	Baghouse is process equipment, use controlled EF
Weigh hopper loading (sand & aggregate batcher loading)		0.001185		0.00395	3.26E-03	1.09E-02	4.44E-04	1.07E-02	1.48E-03	3.56E-02	1.19E-04	5.21E-04	3.97E-04	1.74E-03	99.0%	Sealed boot (vents back to silo) or baghouse
Truck mix loading, Table 11.12-2, "0.310 lb/ton of cement+flyash" x ((491 lb cement + 73 lb flyash)/cy concrete)/ 2000 lb = 0.0874 lb/cy. PM2.5 was calculated as 15% of PM: "1.116 lb/ton of cement+flyash" x ((491 lb cement + 73 lb flyash)/cy concrete)*0.15/ 2000 lb = 0.0473 lb/cy		0.0473		0.07874	1.30E-01	0.22	0.02	0.43	0.03	0.71	4.75E-03	2.08E-02	0.01	0.03	99.0%	Boot, enclosure, or equivalent or baghouse or boot w/water ring
Central mix loading, Table 11.12-2, "0.156 lb/ton of cement+flyash" x ((491 lb cement + 73 lb flyash)/cy concrete)/ 2000 lb = 0.0440 lb/cy. PM2.5 was calculated as 15% of PM: "0.572 lb/ton of cement+flyash" x ((491 lb cement + 73 lb flyash)/cy concrete)*0.15/ 2000 lb = 0.0242 lb/cy		0.0000		0.0000	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00E+00	0.00	0.00	99.0%	Baghouse control
Point Sources Total Emissions		**4.86E-02**		**8.30E-02**	**1.54E-01**	**3.00E-01**	**2.10E-02**	**5.04E-01**	**4.08E-02**	**9.80E-01**	**8.72E-04**	**3.82E-03**	**3.03E-03**	**1.33E-02**		
Process Fugitive Emissions		0.003555		0.0114	0.24	0.78	0.03	0.80	0.11	2.57	0.01	0.04	0.03	0.13		
Facility Wide Total: Point Sources + Process Fugitives (Except for Road Dust and Windblown Dust)				0.0944		1.08	0.05	1.30	0.15	3.55			0.03	0.14		

POINT SOURCE EMISSIONS for FACILITY CLASSIFICATION[6] Controlled EF at 2,409,000 cy/yr T/yr (controlled PTE @ 8,760)

Facility Classification Total PM[6]		**8.40E-03**		**1.01E+01**
Facility Classification Total PM10[6,8]		**4.21E-03**		**5.08E+00**

1 The EFs were calculated using EFs in lb/ton of material handled from Table 11.12-5, and a percentage of PM that is considered to be $PM_{2.5}$. The percentage used to establish the EFs were based on AP-42, Appendix B, Table B-2.2, Category 3. It was established that the fraction that is $PM_{2.5}$ is 15%. Note that the aggregate and sand handling are static EFs in this spreadsheet, but varies during modeling as the wind speed changes each hour.

2 The EFs were calculated using EFs in lb/ton of material handled from Table 11.12-2, typical composition per cubic yard of concrete (1865 lb aggregate, 1428 lbs sand, 491 lbs cement, 73 lbs cement supplement, and 20 gallons of water = 4024 lb/cy), and closely match Table 11.12-5 values (version 6/06) when rounded to the same number of figures. AP-42 lists the same EFs for uncontrolled and controlled emissions, so control estimates are based on the assumed control levels input on the right hand side of the table.

3 Max. hourly rate includes reductions associated with control assumptions.

4 Hourly emissions rate (24-hr average) = Max hourly emissions rate x (hrs per day) / 24.
Daily emissions rate = max emissions rate (1-hr average) x proposed hrs/day.

5 Annual average hourly emissions rate = EF (lb/cy) x proposed annual production rate (cy/yr) / (8760 hr/yr).
Annual emissions rate = EF (lb/cy) x proposed annual production rate (cy/yr) /(2000 lb/T)

6 Controlled EFs for PM = 0.0002 (cement silo) + 0.0003 (flyash silo) +0.0079(weigh batcher)
for PM10 = 0.0001 (cement silo) + 0.0002 (flyash silo) +0.0040 (weigh batcher)

7 Emissions for Facility Classification are based on baghouses as process equipment, 24-hr day, 8760 hr/yr = 6,600 cy/day, and 2,409,000 cy/yr

8 Emissions for Facility Classification do not include truck mix loading emissions; this is typically considered a fugitive emission source for concrete batch plants.

Lead emissions

Emissions Point	Lead Emission Factor[1] (lb/ton of material loaded)		Increase in Emissions from this PTC: Emission Rate, Max	Emissions for Comparison with DEQ Modeling Threshold		Emission Rate, Quarterly	Emissions for Facility Classification	
	Controlled with fabric	Uncontrolled	lb/hr, 1-hr avg.[2]	lb/month[3]	T/yr[4]	lb/hr qtrly avg[5]		T/yr
Cement delivery to silo [2]	**1.09E-08**	7.36E-07	7.36E-07	7.33E-05	2.35E-04	1.00E-07	Point Source	3.22E-06
Cement supplement delivery to Silo [3]	**5.20E-07**	ND	5.22E-06	5.20E-04	1.67E-03	7.12E-07	Point Source	2.29E-05
Truck Loadout (with 99.9% control) [6]		**3.62E-06**	2.81E-06	2.79E-04	8.98E-04	3.83E-07	Fugitive	
Total			**8.76E-06**	**8.72E-04**	**0.003**		**Point Sources**	**2.61E-05**
DEQ Modeling Threshold				100	0.6			
Modeling Required?				No	No			

1 The emissions factors are from AP-42, Table 11.12-8 (version 06/06)
2 Max. hourly rate = EF x pound of cement/yd³ of concrete x max. hourly concrete production rate/(2000 lb/T)
3 lb/mo = EF x pound of material/yd³ of concrete x max. daily concrete production rate x (365/12)/(2000 lb/T)
4 T/yr = EF x pound of material/yd³ of concrete x max. annual concrete production rate/(2000 lb/T)
5 lb/hr, qtrly avg = lb/mo x 3 months per qtr / (8760/4)hrs per qtr

Toxic Air Pollutant (TAPs) EMISSIONS INVENTORY, Concrete Batch Plant

11/21/2018 13:16

Facility Information

Company:	Suntec Concrete
Facility ID:	027-00177
Permit No.:	P-2018.0043 Project 62136
Source Type:	Portable Concrete Batch Plant
Manufacturer:	Cemco 275

Emissions estimates are based on EFs in AP-42, Table 11.12-8 (version 06/06) and the following composition of one yard of concrete:

Coarse aggregate		1865 pounds
Sand		1428 pounds
Cement		491 pounds
Cement supplement		73 pounds
Water		20 gallons
Concrete		**4024 pounds**

Truck Mix Loadout Factor: 1

Central Mix Batching Factor: 0

DEQ EI VERIFICATION WORKSHEET Version 032007
Tip: Blue text or numbers are meant to be changed.
Black text or numbers indicates it's hard-wired or calculated.
Review these before you change them.

Concrete Production

Maximum Hourly Production Rate:	275	cy/hr	
Proposed Daily Production Rate:	900	cy/day	
Proposed Maximum Annual Production Rate:	88,000	cy/year	

Uncontrolled (Unlimited Production Rate)

	24 hrs/day,
6,600 cy/day	7 day/wk,
2,409,000 cy/year	52 wks/year

TAP Emission Factors from AP-42, Table 11.12-8 (Version 06/06)

Emissions Point	Arsenic EF (lb/ton of material loaded)		Beryllium EF (lb/ton of material loaded)		Cadmium EF (lb/ton of material loaded)		Chromium EF (lb/ton of material loaded)		Manganese EF (lb/ton of material loaded)		Nickel EF (lb/ton of material loaded)		Phosphorus EF (lb/ton of material loaded)		Selenium EF (lb/ton of material loaded)		Chromium VI
	Controlled with Fabric filter	Uncontrolled	Controlled with Fabric filter	Uncontrolled	Controlled with Fabric filter	Uncontrolled	Controlled with Fabric filter	Uncontrolled	Controlled with Fabric filter	Uncontrolled	Controlled with Fabric filter	Uncontrolled	Controlled with Fabric filter	Uncontrolled	Controlled with Fabric filter	Uncontrolled	Percent of total Cr that is Cr+6
Cement silo filling (with baghouse)	**4.24E-09**	1.68E-06	**4.86E-10**	1.79E-05	ND	2.34E-07	**2.90E-08**	2.52E-07	**1.17E-07**	2.02E-04	**4.18E-08**	1.78E-05	ND	**1.18E-05**	ND	ND	**20%**
Cement supplement silo filling (with baghouse)	**1.00E-06**	ND	**9.04E-08**	ND	**1.98E-10**	ND	**1.22E-06**	ND	**2.56E-07**	ND	**2.28E-06**	ND	**3.54E-06**	ND	**7.24E-08**	ND	**30%**
Truck loading (no boot or shroud)	9.02E-07	**1.22E-05**	1.04E-07	**2.44E-07**	9.06E-09	**3.42E-08**	4.10E-06	**1.14E-05**	2.08E-05	**6.12E-05**	4.79E-06	**1.19E-05**	1.23E-05	**3.84E-05**	1.13E-07	**2.62E-06**	**21.29%**
Central Mix Batching (NO boot or shroud)	0.00E+00	**0.00E+00**	ND	ND	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**	ND	ND	**21.29%**

UNCONTROLLED TAP EMISSIONS **Note: Includes baghouses as process equipment.** **6,600 cy/day, and** **2,409,000 cy/yr**

Emissions Point	Arsenic		Beryllium		Cadmium		Chromium		Manganese		Nickel		Phosphorus		Selenium		Chromium VI		
	lb/hr annual avg.	T/yr[4]	lb/hr annual avg.	T/yr	lb/hr annual avg.	T/yr	lb/hr 24-hr avg.	T/yr[5]	lb/hr 24-hr avg.	T/yr	lb/hr annual avg.	T/yr	lb/hr 24-hr avg.	T/yr	lb/hr 24-hr avg.	T/yr	lb/hr annual avg.		
Cement silo filling (with baghouse)	2.86E-07	1.25E-06	3.28E-08	1.44E-07	1.58E-05	6.92E-05	1.96E-06	7.45E-05	7.90E-06	3.46E-05	2.82E-06	1.24E-05	7.97E-04	3.49E-03	ND	ND	3.92E-07		
Cement supplement silo filling (with baghouse)	1.00E-05	4.40E-05	9.07E-07	3.97E-06	1.99E-09	8.70E-09	1.22E-05	5.36E-05	2.57E-06	1.13E-05	2.29E-05	1.00E-04	3.55E-05	1.56E-04	7.27E-07	3.18E-06	3.67E-06		
Truck loading (no boot or shroud)	9.46E-04	4.14E-03	1.89E-05	8.29E-05	2.65E-06	1.16E-05	8.84E-04	3.87E-03	4.75E-03	2.08E-02	9.23E-04	4.04E-03	2.98E-03	1.30E-02	2.03E-04	8.90E-04	1.88E-04		
Sources Total	**9.56E-04**	4.19E-03	**1.99E-05**	8.70E-05	**1.85E-05**	8.08E-05	**8.98E-04**	4.00E-03	**4.76E-03**	2.08E-02	**9.49E-04**	4.15E-03	**3.81E-03**	1.67E-02	**2.04E-04**	8.93E-04	**1.92E-04**	**5.09E-02**	**Tons per year**
IDAPA Screening EL (lb/hr)	1.50E-06		2.80E-05		3.70E-06		3.30E-02		3.33E-01		2.70E-05		7.00E-03		1.30E-02		5.60E-07		
EXCEEDS EL?	**Yes**		No		Yes		No		No		**Yes**		No		No		**Yes**		

CONTROLLED TAP EMISSIONS **Note: Includes baghouses as process equipment.** **900 cy/day, and** **88,000 cy/year**

Emissions Point	Arsenic		Beryllium		Cadmium		Chromium		Manganese		Nickel		Phosphorus		Selenium		Chromium VI		
	lb/hr annual avg.	T/yr[4]	lb/hr annual avg.	T/yr	lb/hr annual avg.	T/yr	lb/hr 24-hr avg.	T/yr[5]	lb/hr 24-hr avg.	T/yr	lb/hr annual avg.	T/yr	lb/hr 24-hr avg.	T/yr	lb/hr 24-hr avg.	T/yr	lb/hr annual avg.		
Cement silo filling (with baghouse)[1]	1.05E-08	4.58E-08	1.20E-09	5.25E-09	5.77E-07	2.53E-06	2.67E-07	3.13E-07	1.08E-06	1.26E-06	1.03E-07	4.52E-07	ND	ND	ND	ND	1.43E-08		
Cement supplement silo filling (with baghouse)[2]	3.67E-07	1.61E-06	3.31E-08	1.45E-07	7.26E-11	3.18E-10	1.12E-05	1.96E-06	2.36E-06	4.11E-07	8.36E-07	3.66E-06	3.26E-05	5.69E-06	9.91E-08	1.16E-07	1.34E-07		
Truck loading (with baghouse)	3.46E-07	1.51E-06	6.91E-09	3.03E-08	9.69E-10	4.24E-09	1.21E-06	1.41E-06	6.47E-06	7.59E-06	3.37E-07	1.48E-06	4.06E-06	4.76E-06	2.77E-07	3.25E-07	6.88E-08	**99.00%**	Boot, enclosure, or equivalent or baghouse or boot w/water ring
Sources Total	**7.23E-07**	3.17E-06	**4.13E-08**	1.81E-07	**5.78E-07**	2.53E-06	**1.27E-05**	3.69E-06	**9.91E-06**	9.27E-06	**1.28E-06**	5.59E-06	**3.67E-05**	1.04E-05	**3.76E-07**	4.41E-07	**2.17E-07**	**3.53E-05**	**Tons per year**
IDAPA Screening EL (lb/hr)	1.50E-06		2.80E-05		3.70E-06		3.30E-02		3.33E-01		2.70E-05		7.00E-03		1.30E-02		5.60E-07		
Percent of EL	48.18%		0.15%		15.63%		0.04%		0.0030%		4.73%		0.52%		0.0029%		38.80%		
EXCEEDS EL?	**No**		No		No		No		No		No		No		No		**No**		

[1] lb/hr, annual average = EF x pound of cement / Yd[3] of concrete x annual concrete production rate / 2000lb/Ton / 8760 hr/yr; lb/hr, 24-hr = EF x pound of cement / Yd3 of concrete x daily concrete production rate / 2000lb/Ton / 24 hr/day

[2] lb/hr, annual average = EF x pound of cement supplement / Yd[3] of concrete x annual concrete production rate / 2000lb/Ton / 8760 hr/yr; lb/hr, 24-hr average = EF x pound of cement supplement / Yd3 of concrete x daily concrete production rate / 2000lb/Ton

[3] lb/hr, annual average = EF x pound of (cement + cement supplement) / Yd[3] of concrete x annual concrete production rate / 2000lb/Ton / 8760 hr/yr; lb/hr, 24-hr average = EF x pound of (cement + cement supplement) / Yd3 of concrete x daily concrete production

[4] T/yr = lb/hr, annual avg x 8760 hr/yr x (1T/2000 lb)

[5] T/yr = EF x pound of cement, or cement supplement, or cement + cement supplement x annual concrete production rate /2000 lb/ton / 2000 lb/ton

PROPANE/BUTANE COMBUSTION, AP-42 SECTION 1.5 (9/98)

Operating Assumptions: 1 MMBtu/hr / 91.5 MMBtu/10^3 gal = 1.09E-02 10^3 gal/hr **Fuel Use:**
24 hr/day **262.30 gal/day**
5,110 hr/yr **55,847 gal/year**

Criteria Air Pollutants	Emission Factor	Emissions		CBP + Boiler Emissions	Modeling Threshold		Modeling Required?	Modeling Threshold		Modeling Required?
	lb/10^3 gal	lb/hr	T/yr	T/yr	2002 Guidance			Case-by-Case		
NO2	15	1.64E-01	4.19E-01	4.19E-01	1	T/yr	No	7	T/yr	No
CO	8.4	9.18E-02	2.35E-01	2.35E-01	14	lb/hr	No	70	lb/hr	No
PM10 (filterable + condensable)	0.8	8.74E-03	2.23E-02	3.56E-02	0.2	lb/hr	No	0.9	lb/hr	No
		8.74E-03	2.23E-02		1	T/yr	No	7	T/yr	No
PM2.5 (filterable + condensable)	0.8	8.74E-03	2.23E-02	2.62E-02						
		8.74E-03	2.23E-02							
SOx (SO2 + SO3)	1.479	1.62E-02	4.13E-02	4.13E-02	0.2	lb/hr	No	0.9	lb/hr	No
		1.62E-02	4.13E-02		1	T/yr	No	7	T/yr	No
VOC (TOC)	1.1	1.20E-02	3.07E-02	3.07E-02	40	T/yr	No			
Lead EF = 9 lb/10^{12} Btu	0	0.00E+00	0.00E+00	2.80E-03	0.6	T/yr	No			
Lead, continued			0.00E+00	lb/quarter	10	lb/mo	No			
		TOTAL	**7.48E-01**	T/yr	Note: 100 lb/mo Pb in guidance reduced by factor of 10 based on latest Pb NAAQS (reduced in 2008 from 1.5 ug/m3 to 0.15 ug/m3)					

Case-by-Case Modeling Thresholds may be used ONLY with DEQ Approval

TOTAL CBP + WATER HEATER EMISSIONS (POINT SOURCES, T/YR)	0.79

Facility: **Suntec Concrete**
11/21/2018 13:16 **Permit/Facility ID:** **027-00177** **P-2018.0043 Project 62136**

Max Hourly Production	275 cy/hr	**82%** T/hr is Aggregate =		**226 cy/hr**
Max Daily Production	900 cy/day	82% T/hr is Aggregate =		**738 cy/day**
Max Annual Production	88,000 cy/yr	82% T/hr is Aggregate =		**72,160 cy/yr**

Aggregate is considered both coarse and fine (sand).The 82% is based on 1,865 lb coarse aggregate, 1,428 lb sand, 564 lb cement/supplement and 167 lb water for a total of 4,024 lb concrete

Truck Mix Operations Drop Points, AP-42 11-12 (06/06)

$E = k\ (0.0032) \times (U^a / M^b) + c$ = 9.71E-02 3.88E-02 lb/ton for PM10 5.83E-03 lb/ton for PM2.5

k = particle size multiplier	0.8 for PM	0.32 for PM10	0.048 for PM2.5
a = exponent	1.75 for PM	1.75 for PM10	1.75 for PM2.5
b = exponent	0.3 for PM	0.3 for PM10	0.3 for PM2.5
c = constant	0.013 for PM	0.0052 for PM10	0.00078 for PM2.5
U = mean wind speed =	**10** mph		
M = moisture content =	**6** %		

Mean wind spped: 7 mph was the average wind speed obtained from an average of 19 Idaho airports throughout the state from 1996-2006. This data is from the Western Regional Climate Center (http://www.wrcc.dri.edu/htmlfiles/westwind.final.html#IDAHO).

Moisture Content: 4.17 % and 1.77% were the average percentages for sand and aggegate respectively. These values are based on EPA tests conducted at Cheney Enterprises Cement plant in Roanoke, VA, 1994. (AP-42 11-12 06/06).

Windspeed Variation Factors for AERMOD modeling:				PM10		PM2.5	
Wind Category	Upper windspeed (m/sec)	Avg windspeed (m/sec)	Avg windspeed (mph)	E @ avg mph	F = Eavg mph/ E@10mph	E @ avg mph	mph/ E@10mph
Cat 1:	1.54	0.77	1.72	6.75E-03	0.1738	1.01E-03	0.1738
Cat 2:	3.09	2.32	5.18	1.58E-02	0.4077	2.38E-03	0.4077
Cat 3:	5.14	4.12	9.20	3.43E-02	0.8831	5.15E-03	0.8831
Cat 4:	8.23	6.69	14.95	7.32E-02	1.885	1.10E-02	1.885
Cat 5:	10.80	9.52	21.28	1.31E-01	3.382	1.97E-02	3.382
Cat 6:	14.00	12.40	27.74	2.06E-01	5.298	3.09E-02	5.298

Central Mix Operations Drop Points, AP-42 11-12 (06/06)

$E = k\ (0.0032) \times (U^a / M^b) + c$ = 2.08E-03 1.23E-03 lb/ton for PM10 2.54E-04 lb/ton for PM2.5

k = particle size multiplier	0.19 for PM	0.13 for PM10	0.03 for PM2.5
a = exponent	0.95 for PM	0.45 for PM10	0.45 for PM2.5
b = exponent	0.9 for PM	0.9 for PM10	0.9 for PM2.5
c = constant	0.001 for PM	0.001 for PM10	0.0002 for PM2.5
U = mean wind speed =	**10** mph		
M = moisture content =	**6** %		

Mean wind spped: 7 mph was the average wind speed obtained from an average of 19 Idaho airports throughout the state from 1996-2006. This data is from the Western Regional Climate Center (http://www.wrcc.dri.edu/htmlfiles/westwind.final.html#IDAHO).

Moisture Content: 4.17 % and 1.77% were the average percentages for sand and aggegate respectively. These values are based on EPA tests conducted at Cheney Enterprises

Windspeed Variation Factors for AERMOD modeling:				PM10		PM2.5	
Wind Category	Upper windspeed (m/sec)	Avg windspeed (m/sec)	Avg windspeed (mph)	E @ avg mph	F = Eavg mph/ E@10mph	E @ avg mph	mph/ E@10mph
Cat 1:	1.54	0.77	1.72	1.11E-03	0.8964	2.24E-04	0.8838
Cat 2:	3.09	2.32	5.18	1.87E-03	1.5160	2.40E-04	0.9456
Cat 3:	5.14	4.12	9.20	2.13E-03	1.7261	2.52E-04	0.9922
Cat 4:	8.23	6.69	14.95	2.41E-03	1.949	2.65E-04	1.0422
Cat 5:	10.80	9.52	21.28	2.65E-03	2.146	2.76E-04	1.0860
Cat 6:	14.00	12.40	27.74	2.86E-03	2.315	2.85E-04	1.1238

Conveyor and Scalping Screen Emission Points

Moisture/Control %:

Aggregate for CBP typically stabilizes between 5-6% by weight--> Apply additional **25%** control to lb/hr, etc. for the higher moisture.

Sand aggregate for CBPs is **36%**

Coarse aggregate for CBPs is **46%**

Fine Aggegate (Sand) Transfer to Conveyor

Transfer from truck to conveyor: **226 cy/hr** **6** Transfer Points

Pollutant	Emission Factor Table 11.12-5 CONVEYOR TRANSFER PT CONTROLLED (lb/cy)	Emissions Per Transfer Point: Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Total Emissions: Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	0.0015	0.110	0.015	1.76E-02	4.01E-03	0.659	0.090	1.05E-01	2.41E-02
PM-10 (total)	7.00E-04	0.051	0.007	8.20E-03	1.87E-03	0.308	0.042	4.92E-02	1.12E-02
PM-2.5 (total)	2.25E-04	0.016	0.002	2.64E-03	1.15E-02	0.099	0.013	1.58E-02	6.93E-02

0.186

1.256

Coarse Aggegate Transfer to Conveyor

Transfer from truck to conveyor: **226 cy/hr** **6** Transfer Points

Pollutant	Emission Factor Table 11.12-5 CONVEYOR TRANSFER PT CONTROLLED (lb/cy)	Emissions Per Transfer Point: Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Total Emissions: Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	0.0064	0.607	0.083	9.72E-02	2.22E-02	3.643	0.497	5.83E-01	1.33E-01
PM-10 (total)	3.10E-03	0.294	0.040	4.71E-02	1.07E-02	1.765	0.241	2.82E-01	6.45E-02
PM-2.5 (total)	9.60E-04	0.091	0.012	1.46E-02	6.38E-02	0.546	0.075	8.74E-02	3.83E-01

Transfer Points

Final Concrete Batch Plant Emissions Inventory

Listed Below are the emissions estimates for the units selected.

Company:	Suntec Concrete
Facility ID:	027-00177
Permit No.:	P-2018.0043 Project 62136
Source Type:	Portable Concrete Batch Plant
Manufacturer/Model:	Cemco 275

Production

Maximum Hourly Production Rate:	275	cy/hr
Proposed Daily Production Rate:	900	cy/day
Proposed Maximum Annual Production Rate:	88000	cy/year

Tons/year

Emissions Units		$PM_{2.5}$	PM_{10}	SO_2	NO_x	CO	VOC	Lead	THAPs	CO_2e
CBP Type:	Truck Mix	0.004	0.01	NA	NA	NA	NA	2.61E-05		N/A
Water Heater #1:	1 MMBtu/hr Propane Heater	0.022	0.022	4.13E-02	0.419	0.235	0.031	0.00E+00		268
Water Heater #2:	No water heater	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.00E+00		0
Small Diesel Engine(s) *:	No Engine	0.00	0.00	0.00E+00	0.00	0.00	0.00	NA		0
Large Diesel Engine *:	No Large Engine	0.00	0.00	0.00E+00	0.00	0.00	0.00	NA		0
	Annual Totals (T/yr)	**0.03**	**0.04**	**4.13E-02**	**0.42**	**0.23**	**0.03**	**2.61E-05**	**3.63E-05**	**268**

Pounds/hour

		$PM_{2.5}$	PM_{10}	SO_2	NO_x	CO	VOC	Lead	THAPs
CBP Type:	Truck Mix	0.021	0.04	NA	NA	NA	NA	8.76E-06	
Water Heater #1:	1 MMBtu/hr Propane Heater	0.009	0.009	1.62E-02	0.164	0.092	0.012	0.00E+00	
Water Heater #2:	No water heater	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.00E+00	
Small Diesel Engine(s) *:	No Engine	0.00	0.00	0.00E+00	0.00	0.00	0.00	NA	
Large Diesel Engine*:	No Large Engine	0.00	0.00	0.00E+00	0.00	0.00	0.00	NA	
	Daily Totals (lb/hr)	**0.03**	**0.05**	**1.62E-02**	**0.16**	**0.09**	**0.01**	**8.76E-06**	**6.25E-05**

* The Large engine may run : There is no large engine. hr/yr
* The Small engine(s) may run : There is no small engine. hr/yr

HAPS & TAPS Emissions Inventory

Metals	HAP	TAP	lb/hr	T/yr	Averaging Period	EL lb/hr	Exceeded?
Arsenic	X	X	7.23E-07	3.17E-06	Annual	1.50E-06	No
Barium		X	0.00E+00	0.00E+00	24-hour	3.30E-02	No
Beryllium	X	X	4.13E-08	1.81E-07	Annual	2.80E-05	No
Cadmium	X	X	5.78E-07	2.53E-06	Annual	3.70E-06	No
Cobalt	X	X	0.00E+00	0.00E+00	24-hour	3.30E-03	No
Copper		X	0.00E+00	0.00E+00	24-hour	1.30E-02	No
Chromium	X	X	1.27E-05	3.69E-06	24-hour	3.30E-02	No
Manganese	X	X	9.91E-06	9.27E-06	24-hour	3.33E-01	No
Mercury	X	X	0.00E+00	0.00E+00	24-hour	N/A	No
Molybdenum (soluble)		X	0.00E+00	0.00E+00	24-hour	3.33E-01	No
Nickel	X	X	1.28E-06	5.59E-06	Annual	2.70E-05	No
Phosphorus	X	X	3.67E-05	1.04E-05	24-hour	7.00E-03	No
Selenium	X	X	3.76E-07	4.41E-07	24-hour	1.30E-02	No
Vanadium		X	0.00E+00	0.00E+00	24-hour	3.00E-03	No
Zinc		X	0.00E+00	0.00E+00	24-hour	6.67E-01	No
Chromium VI	X	X	2.17E-07	9.52E-07	Annual	5.60E-07	No
Non PAH Organic Compunds							
Pentane		X	0.00E+00	0.00E+00	24-hour	118	No
Methyl Ethyl Ketone	X	X	0.00E+00	0.00E+00	24-hour	39.3	No
Non-PAH HAPs							
Acetaldehyde	X	X	0.00E+00	0.00E+00	Annual	3.00E-03	No
Acrolein	X	X	0.00E+00	0.00E+00	24-hour	1.70E-02	No
Benzene	X	X	0.00E+00	0.00E+00	Annual	8.00E-04	No
1,3 - Butadiene	X	X	0.00E+00	0.00E+00	Annual	2.40E-05	No
Ethyl Benzene	X	X	0.00E+00	0.00E+00	24-hour	29	No
Formaldehyde	X	X	0.00E+00	0.00E+00	Annual	5.10E-04	No
Hexane	X	X	0.00E+00	0.00E+00	24-hour	12	No
Methyl Chloroform	X	X	0.00E+00	0.00E+00	24-hour	127	No
Propionaldehyde	X	X	0.00E+00	0.00E+00	24-hour	2.87E-02	No
Quinone	X	X	0.00E+00	0.00E+00	24-hour	2.70E-02	No
Toluene	X	X	0.00E+00	0.00E+00	24-hour	25	No
o-Xylene	X	X	0.00E+00	0.00E+00	24-hour	29	No
PAH HAPs							
2-Methylnaphthalene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
3-Methylcholanthrene	X	X	0.00E+00	0.00E+00	Annual	2.50E-06	No
7,12-Dimethylbenz(a)anthracene	X		0.00E+00	0.00E+00	N/A	N/A	N/A
Acenaphthene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Acenaphthylene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Anthracene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Benzo(a)anthracene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Benzo(a)pyrene	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No
Benzo(b)fluoranthene	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No
Benzo(e)pyrene	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No
Benzo(g,h,i)perylene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Benzo(k)fluoranthene	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No
Chrysene	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No
Dibenzo(a,h)anthracene	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No
Dichlorobenzene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Fluoranthene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Fluorene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Indeno(1,2,3-cd)pyrene	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No
Naphthalene (24-hour)	X	X	0.00E+00	0.00E+00	24-hour	3.33	No
Naphthalene (Annual)	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Perylene	X		0.00E+00	0.00E+00	N/A	N/A	N/A
Phenanathrene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
Pyrene	X	X	0.00E+00	0.00E+00	Annual	9.10E-05	No
PAH HAPs Total	X	X	0.00E+00		Annual	2.00E-06	No
Polycyclic Organic Matter (POM)	X	X	0.00E+00	0.00E+00	Annual	2.00E-06	No

Total HAPs Emissions (lb/hr) and (T/yr): 6.25E-05 3.63E-05

Uncontrolled Criteria Pollutants

Source	PM10/PM2.5	SO2	NOx	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
Concrete Batch Plant	1.85E-01	N/A	N/A	N/A	N/A
Water Heater #1	2.23E-02	4.13E-02	4.19E-01	2.35E-01	3.07E-02
Water Heater #2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Small Diesel Engine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Large Diesel Engine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Note: The emissions from the transfer drop points are the emissions from the material handling

Facility: Suntec Concrete
11/21/2018 13:16 Permit P-2018.0043 Project 62136 Facility ID: 027-00177

Internal Combustion Engine > 600 hp (447 kW)

Fuel Type Toggle =	0	
Fuel Consumption Rate	0.00	gal/hr
Calculated MMBtu/hr	0.00	MMBtu/hr
Max Daily Operation	0	hr/day
Max Annual Operation	0	hrs/yr

Rated Power of Large (hp): 0

Not EPA Certified	No
Certified EPA Tier 1	No
Certified EPA Tier 2	No
Certified EPA Tier 3	No
Certified EPA Tier 4	No
Blue Sky Engine	No

Small Internal Combustion Engine #1 < 600 hp (447 kW)

Fuel Type Toggle =	0	
Fuel Consumption Rate	0.00	gal/hr
Calculated MMBtu/hr	0.00	MMBtu/hr
Max Daily Operation	24	hr/day
Max Annual Operation	3,080	hrs/yr

Rated Power of Small #1 (hp): 0

Not EPA Certified	No
Certified EPA Tier 1	No
Certified EPA Tier 2	No
Certified EPA Tier 3	Yes
Certified EPA Tier 4	No
Blue Sky Engine	No

Small Internal Combustion Engine #2 < 600 hp (447 kW)

Fuel Type Toggle =	0	
Fuel Consumption Rate	0.00	gal/hr
Calculated MMBtu/hr	0.00	MMBtu/hr
Max Daily Operation	24	hr/day
Max Annual Operation	3,080	hrs/yr

Rated Power of Small #2 (hp): 0

Not EPA Certified	No
Certified EPA Tier 1	No
Certified EPA Tier 2	No
Certified EPA Tier 3	No
Certified EPA Tier 4	No
Blue Sky Engine	No

Conversion Factors:

Avg brake specific fuel consumption (BSFC) =	7000	Btu/hp-hr
1 hp =	0.746	kW
1 lb =	453.592	g

g/kW-hr x (lb/453g) x (hp-hr/7000 Btu) x (0.746 kW/hp) x 10^6 Btu/MMBtu = lb/MMBtu
g/kW-hr x 0.23486 = lb/MMBtu

Pollutant:	NOx	VOC (total TOC--> VOCs)		CO	PM=PM10
EMISSION FACTORS USED FOR SMALL ENGINE (lb/MMBtu):	#N/A	#N/A		#N/A	#N/A
Pollutant:	**NOx**	**VOC (total TOC--> VOCs)**		**CO**	**PM=PM10**
EMISSION FACTORS USED FOR LARGE ENGINE (lb/MMBtu):	**0.00**	**0.00**		**0.00**	**0.000**

AP-42, 3.4 (10/96) EMISSION FACTORS (diesel fueled, uncontrolled)

Pollutant:	NOx	VOC (total TOC--> VOCs)		CO	PM10
Emission Factor (lb/MMBtu)	0	0		0.00	0
Emission Factor (g/kW-hr))	0.00	0.00		0.00	0.00

AP-42, Ch 3.3 (10/96) EMISSION FACTORS (diesel fueled, uncontrolled)

Pollutant:	NOx	VOC (total TOC--> VOCs)		CO	PM10
Emission Factor (lb/MMBtu)	4.41	0.36		0.95	0.31
Emission Factor (g/kW-hr))	18.78	1.53		4.05	1.32

Note: Rating for AP-42 PM10 EF of 0.0573 is "E" or Poor. Used Tier 1 PM EF and presumed PM = PM10

40 CFR 89 and 1039, EPA CERTIFIED GENERATOR EMISSION FACTORS (g/kW-hr converted to lb/MMBtu)

Rated Power (kW)	Tier	Applicable?	Model Year[1]	NOx	HC	NMHC + NOx	CO	PM = PM10
kW < 8	1	0	2000	0.0	0.36	2.47	1.88	0.23
kW < 8	2	0	2005	0.00	0.36	1.76	1.88	0.19
kW < 8	4	0	2008	0.00	0.36	1.76	1.88	0.09
kW < 8	BlueSky	0	n/a	0.00	0.36	1.08	1.88	0.11
8 ≤ kW < 19	1	0	2000	0.00	0.36	2.23	1.55	0.19
8 ≤ kW < 19	2	0	2005	0.00	0.36	1.76	1.55	0.19
8 ≤ kW < 19	4	0	2008	0.00	0.36	1.76	1.55	0.09
8 ≤ kW < 19	BlueSky	0	n/a	0.00	0.36	1.06	1.55	0.11
19 ≤ kW < 37	1	0	1999	0.00	0.36	2.23	1.29	0.19
19 ≤ kW < 37	2	0	2004	0.00	0.36	1.76	1.29	0.14
19 ≤ kW < 37	4	0	2008	0.00	0.36	1.10	1.29	0.007
19 ≤ kW < 37	BlueSky	0	n/a	0.00	0.36	1.06	1.29	0.085
37 < kW < 75	1	0	1998	2.16	0.36	0.00	---	---
37 < kW < 75	2	0	2004	0.00	0.36	1.76	1.17	0.09
37 < kW < 75	3	0	2008	0.00	0.36	1.10	1.17	0.09
37 < kW < 75	4	0	2008	0.00	0.36	1.10	1.17	0.007
37 < kW < 75	BlueSky	0	n/a	0.00	0.36	1.10	1.17	0.056
75 < kW < 130	1	0	1997	2.16	0.36	0.00	---	---
75 < kW < 130	2	0	2003	0.00	0.36	1.55	1.17	0.07
75 < kW < 130	3	0	2007	0.00	0.36	0.94	1.17	0.07
75 < kW < 130	4	0	2008	0.09	0.04	0.00	1.17	0.005
75 < kW < 130	BlueSky	0	n/a	0.00	0.36	0.94	1.17	0.042
130 < kW < 225	1	0	1996	2.16	0.31	0.00	2.68	0.13
130 < kW < 225	2	0	2003	0.00	0.31	1.55	0.82	0.05
130 < kW < 225	3	0	2006	0.00	0.31	0.94	0.82	0.05
130 < kW < 560	4	0	2008	0.09	0.04	0.00	0.82	0.005
130 ≤ kW ≤ 560	BlueSky	0	n/a	0.00	0.31	0.94	0.82	0.028
225 < kW < 450	1	0	1996	2.16	0.31	0.00	2.68	0.13
225 < kW < 450	2	0	2001	0.00	0.31	1.50	0.82	0.05
225 < kW < 450	3	0	2006	0.00	0.31	0.94	0.82	0.05
450 < kW < 560	1	0	1996	2.16	0.31	0.00	2.68	0.13
450 < kW < 560	2	0	2002	0.00	0.31	1.50	0.82	0.05
450 < kW < 560	3	0	2006	0.00	0.31	0.94	0.82	0.05
kW > 560	1	0	2000	2.16	0.31	0.00	2.68	0.13
kW > 560	2	0	2006	0.00	0.31	1.50	0.82	0.05
kW > 560	BlueSky	0	n/a	0.00	0.31	0.89	0.82	0.028

40 CFR 89 and 1039, EPA CERTIFIED GENERATOR EMISSION FACTORS FOR LARGE ENGINE (lb/MMBtu)

Rated Power (kW)	Tier	Applicable?	Model Year[1]	NOx	HC	NMHC + NOx	CO	PM10
kW< 8	1	0	2000	0.00	0.00	0.00	0.00	0.00
kW< 8	2	0	2005	0.00	0.00	0.00	0.00	0.00
kW< 8	4	0	2008	0.00	0.00	0.00	0.00	0.00
kW< 8	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
8 < kW < 19	1	0	2000	0.00	0.00	0.00	0.00	0.00
8 < kW < 19	2	0	2005	0.00	0.00	0.00	0.00	0.00
8 < kW < 19	4	0	2008	0.00	0.00	0.00	0.00	0.00
8 < kW < 19	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
19 < kW < 37	1	0	1999	0.00	0.00	0.00	0.00	0.00
19 < kW < 37	2	0	2004	0.00	0.00	0.00	0.00	0.00
19 < kW < 37	4	0	2008	0.00	0.00	0.00	0.00	0.00
19 < kW < 37	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
37 < kW < 75	1	0	1998	0.00	0.00	0.00	0.00	0.00
37 < kW < 75	2	0	2004	0.00	0.00	0.00	0.00	0.00
37 < kW < 75	3	0	2008	0.00	0.00	0.00	0.00	0.00
37 < kW < 75	4	0	2008	0.00	0.00	0.00	0.00	0.00
37 < kW < 75	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
75 < kW < 130	1	0	1997	0.00	0.00	0.00	0.00	0.00
75 < kW < 130	2	0	2003	0.00	0.00	0.00	0.00	0.00
75 < kW < 130	3	0	2007	0.00	0.00	0.00	0.00	0.00
75 < kW < 130	4	0	2008	0.00	0.00	0.00	0.00	0.00
75 < kW < 130	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
130 < kW < 225	1	0	1996	0.00	0.00	0.00	0.00	0.00
130 < kW < 225	2	0	2003	0.00	0.00	0.00	0.00	0.00
130 < kW < 225	3	0	2006	0.00	0.00	0.00	0.00	0.00
130 < kW < 560	4	0	2008	0.00	0.00	0.00	0.00	0.00
130 < kW ≤ 560	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00
225 < kW < 450	1	0	1996	0.00	0.00	0.00	0.00	0.00
225 < kW < 450	2	0	2001	0.00	0.00	0.00	0.00	0.00
225 < kW < 450	3	0	2006	0.00	0.00	0.00	0.00	0.00
450 < kW < 560	1	0	1996	0.00	0.00	0.00	0.00	0.00
450 < kW < 560	2	0	2002	0.00	0.00	0.00	0.00	0.00
450 < kW < 560	3	0	2006	0.00	0.00	0.00	0.00	0.00
kW > 560	1	0	2000	0.00	0.00	0.00	0.00	0.00
kW > 560	2	0	2006	0.00	0.00	0.00	0.00	0.00
kW > 560	BlueSky	0	n/a	0.00	0.00	0.00	0.00	0.00

Emission Factors

APPENDIX B – FACILITY DRAFT COMMENTS

The following comments were received from the facility on November 21, 2018:

Facility Comment: "On page 12 of the Statement of Basis, you have the facility located in Ada County, when it will actually be located in Canyon County. Please edit the doc to reflect this."

DEQ Response: DEQ concurs; the location has been corrected from Ada to Canyon County.