

**Statement of Basis
Concrete Batch Plant General Permit**

**Permit to Construct No. P-2018.0036
Project ID 62091**

**East Valley Cattle Batch Plant
Declo, Idaho**

Facility ID 031-00073

Final

**October 15, 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.

FACILITY INFORMATION	5
Description	5
Permitting History	5
Application Scope	5
Application Chronology	5
TECHNICAL ANALYSIS.....	6
Emissions Units and Control Equipment	6
Emissions Inventories	7
Ambient Air Quality Impact Analyses.....	11
REGULATORY ANALYSIS	12
Attainment Designation (40 CFR 81.313)	12
Facility Classification.....	12
Permit to Construct (IDAPA 58.01.01.201).....	13
Tier II Operating Permit (IDAPA 58.01.01.401).....	13
Visible Emissions (IDAPA 58.01.01.625).....	13
Fugitive Emissions (IDAPA 58.01.01.650).....	13
Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701).....	13
Rules for Control of Odors (IDAPA 58.01.01.775).....	14
Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70).....	14
PSD Classification (40 CFR 52.21)	14
NSPS Applicability (40 CFR 60).....	14
NESHAP Applicability (40 CFR 61).....	14
MACT Applicability (40 CFR 63).....	14
Permit Conditions Review	14
PUBLIC REVIEW.....	16
Public Comment Opportunity	16
Public Comment Period	16
APPENDIX A – EMISSIONS INVENTORIES	
APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES	

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
CMS	continuous monitoring systems
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	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
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
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
mg/dscm	milligrams per dry standard cubic meter
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
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
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
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd ³	cubic yards
µg/m ³	micrograms per cubic meter

FACILITY INFORMATION

Description

East Valley Cattle Batch Plant has proposed a new stationary central mix concrete batch plant consisting of aggregate stockpiles, a primary and secondary cement storage silo, a weigh batcher, and conveyors. The facility combines aggregate, sand, and cement and then transfers the mixture into a truck mixer, along with water, for in-transit mixing of the 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.

The Applicant has proposed concrete production rate throughput limits of 4,000 cubic yards per day, and 1,000,000 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.

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

July 26, 2018	DEQ received an application and an application and processing fee.
August 6 – August 21, 2018	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
August 6, 2018	DEQ determined that the application was complete.
Sept. 10 – Oct. 10, 2018	DEQ provided a public comment period on the proposed action.
October 15, 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	<p><u>Material Transfer Points:</u> Materials handling Concrete aggregate transfers Truck unloading of aggregate Aggregate conveyor transfers Aggregate handling</p>	Maintaining the moisture content in 1/4" or smaller aggregate material at 1.5% by weight, using water sprays, using shrouds, or other best management practices emissions controls	N/A
Concrete Mixer	<p><u>Concrete Batch Plant – Truck Mix:</u> Manufacturer: Liddell Industries Model: Comanche Manufacture Date: TBD Max. design production rates: 200 yd³/hr, 4,800yd³/day, and 1,752,000 yd³/yr Permitted rates: 4,000 yd³/day, and 1,000,000 yd³/yr</p> <p><u>Cement Storage Silo:</u> Storage capacity: 171.85 cubic yards (yd³) Bin Vent Filter/Baghouse Manufacturer^a: Liddell Industries Model: PJC-425</p> <p><u>Second Cement Storage Silo:</u> Storage capacity: 150 cubic yards (yd³) Bin Vent Filter/Baghouse Manufacturer^a: Liddell Industries Model: PJC-305</p>	<p><u>Weigh Batch Baghouse:</u> Manufacturer: Lindell Industries Model: PJC-35 PM₁₀/PM_{2.5} control efficiency: 99.99%</p> <p><u>Cement Storage Silo Bin Vent Filter/Baghouse:</u> Manufacturer: Lindell Industries Model: PJC-425 PM₁₀/PM_{2.5} control efficiency: 99.99%</p> <p><u>Second Cement Storage Silo Bin Vent Filter/Baghouse</u> Manufacturer: Lindell Industries Model: PJC-305 PM₁₀/PM_{2.5} control efficiency: 99.99%</p> <p><u>Truck Load-out : Boot or Shroud</u> PM₁₀/PM_{2.5} control efficiency: 75%</p> <p><u>Material Transfer Points:</u> PM₁₀/PM_{2.5} control efficiency: 75%</p>	<p><u>Weigh Batch Baghouse Exhaust:</u> Exit height: 25 ft (7.62 m) Exit diameter: 12 in x 3.375 in Exit flow rate: 210 acfm Exit temperature: NA</p> <p><u>Cement Storage Silo Bin Vent Filter/Baghouse Exhaust:</u> Exit height: 75 ft (22.86 m) Exit diameter: 36 in x 6 in Exit flow rate: 3,000 acfm Exit temperature: NA</p> <p><u>Second Cement Storage Silo Bin Vent Filter/Baghouse Exhaust:</u> Exit height: 70 ft (21.34 m) Exit diameter: 24 in x 6 in Exit flow rate: 2,000 acfm Exit temperature: NA</p>

- 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 PM₁₀ 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 4,000 yd³/day, and 1,000,000 yd³/year (per the Applicant).
- Baghouse filter control efficiencies were assumed to be 99.0%.
- Fugitive emissions of particulate matter (PM), PM₁₀, 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 PM₁₀ emissions from the weigh batcher transfer point are controlled by a baghouse filter, and truck mix load-out emissions are controlled by a boot or shroud. Capture efficiency of the truck mix load-out boot or shroud are equivalent was estimated at 75%
- 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 75% 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 PM₁₀ 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%, respectively¹. The following equation of particulate emissions is specific to PM₁₀. 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 134.5 yd³/hr (0.82 x 200 yd³/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 production². 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 PM₁₀ emissions were calculated for each transfer point. For both fine and coarse aggregate the facility has 5 transfer points.
- Any emissions unit outside a 1,000 ft radius from the concrete batch plant was not included in the emissions modeling analysis for this project.

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 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.

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%.

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	2.11	0.00	0.00	0.00	0.00
Total, Point Sources	2.11	0.00	0.00	0.00	0.00

The following table presents the uncontrolled Potential to Emit for HAP pollutants from all 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 and 8,760 hours of operation per year.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

IDAPA Listing	Hazardous Air Pollutants	PTE (T/yr)
585	Chromium metal (II and III)	2.88E-03
	Manganese as Mn (fume)	1.51E-02
	Selenium	6.47E-04
	Phosphorus	1.24E-02
586	Arsenic	3.01E-03
	Beryllium and compounds	6.04E-05
	Cadmium and compounds	6.63E-05
	Chromium (VI)	5.65E-04
	Nickel	2.95E-03
Total		0.0377

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 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	3.33	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Totals	3.33	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- 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	3.33	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Changes in Potential to Emit	3.33	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	1.93E-04	1.93E-04	0.033	No
Manganese as Mn (fume)	0.0	7.37E-04	7.37E-04	0.067	No
Phosphorous	0.0	6.18E-04	6.18E-04	0.007	No
Selenium	0.0	3.08E-05	3.08E-05	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	0.0	9.83E-05	9.83E-05	1.5E-06	Yes
Beryllium and compounds	0.0	1.98E-06	1.98E-06	2.8E-05	No
Cadmium and compounds	0.0	7.81E-06	7.81E-06	3.7E-06	Yes
Chromium (VI)	0.0	1.85E-05	1.85E-05	5.6E-07	Yes
Nickel	0.0	9.71E-05	9.71E-05	2.7E-05	Yes

Some of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is required for arsenic, cadmium, nickel, and chromium (VI) because 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 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)	1.93E-04
	Manganese as Mn (fume)	7.37E-04
	Selenium	3.08E-05
	Phosphorus	6.18E-04
586	Arsenic	9.83E-05
	Beryllium and compounds	1.98E-06
	Cadmium and compounds	7.81E-06
	Chromium (VI)	1.85E-05
	Nickel	9.71E-05
	Total	0.0018

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 in the Modeling Memo in Appendix B, the estimated emission rates of the TAP arsenic, cadmium, nickel, and chromium (VI) from this project exceeded 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 Guideline³. 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). A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix B.

An ambient air quality impact analysis document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix B).

As a result of the ambient air quality impact analysis, 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,
- The Concrete Operation Setback Distance Requirements permit condition,

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

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Cassia County, which is designated as attainment or unclassifiable for PM_{2.5}, PM₁₀, SO₂, NO₂, 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

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	2.11	0.15	100	B
PM ₁₀	2.11	0.15	100	B
PM _{2.5}	2.11	0.15	100	B
SO ₂	0.0	0.0	100	B
NO _x	0.0	0.0	100	B
CO	0.0	0.0	100	B
VOC	0.0	0.0	100	B
HAP (single)	1.51E-02	7.37E-04	10	B
Total HAPs	0.038	0.002	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 PM₁₀ emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Condition 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 2.6.

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:

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

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

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

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

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

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 200 y³/hr, E is calculated as follows:

$$\text{Proposed throughput} = 4,024 \text{ lb per cubic yard} \times 200 \text{ y}^3/\text{hr} = 804,800 \text{ lb/hr}$$

Therefore, E is calculated as:

$$E = 1.10 \times \text{PW}^{0.25} = 1.10 \times (804,800)^{0.25} = 32.95 \text{ lb-PM/hr}$$

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.15 lb-PM₁₀/hr. Assuming PM is 50% PM₁₀ means that PM emissions will be 0.30 lb-PM/hr (0.15 lb-PM₁₀/hr ÷ 0.5 lb-PM₁₀/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 2.5 and 2.7.

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 52.21(a)(2). 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.

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 60.

Permit Conditions Review

This section describes the permit conditions for this initial permit.

Permit condition 1.1 establishes the permit to construct scope and provides a description of the purpose of the permit.

Table 1.1, provides the regulated sources, the process, and the control devices used at the facility.

FACILITY-WIDE CONDITIONS

As discussed previously, 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.

As discussed previously, 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 the permittee shall not operate the concrete batch plant for more than 5 years after initial start-up date under the Short Term Source Factor requirement listed under IDAPA 58.01.01.210.15. This requirement was incorporated into the permitting project's Ambient Air Quality Impact Analysis and affects the permitted setback distance required.

As discussed previously, permit condition 2.5 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.

As discussed previously, permit condition 2.6 establishes that the permittee shall monitor fugitive dust emissions on a daily basis to demonstrate compliance with the facility-wide permit requirements.

As discussed previously, permit condition 2.7 establishes that the permittee monitor and record odor complaints to demonstrate compliance with the facility-wide permit requirements.

Permit Condition 2.8 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} and PM₁₀ 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, 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 establishes setback distance restrictions for the concrete production operation. The setback distance restrictions are based upon the results of the Ambient Air Quality Modeling Analysis performed for this project.

Permit condition 3.7 requires that the Applicant employ a baghouse filter to control emissions from the weigh batcher as proposed by the Applicant.

Permit condition 3.8 requires that the Applicant employ a boot or shroud to control emissions from the truck loadout operation as proposed by the Applicant.

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

Permit condition 3.10 establishes that the Permittee monitor and record daily and monthly concrete production to demonstrate compliance with the Concrete Production Limits permit condition.

Permit condition 3.11 establishes that the Permittee measure and record concrete production equipment setback distances to demonstrate compliance with operating permit requirements.

Permit condition 3.12 establishes that the Permittee shall establish procedures for operating the weigh batcher and storage silo operations baghouses. This is a DEQ imposed standard requirement for operations using baghouses to control particulate emissions.

Permit Condition 3.13 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. During this time, there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were not submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

APPENDIX A – EMISSIONS INVENTORIES

Data Input

1. Facility Information

Facility Name:	East Valley Cattle Batch Plant
Facility ID:	031-00073
Permit and Project No.:	P-2018.0036 Project 62091
Source Type:	Stationary Concrete Batch Plant
Manufacturer/Model:	Liddell Industries, Comache

2. Concrete Production Rates

Maximum Hourly Concrete Production Rate:	200		
Proposed Daily Concrete Production Rate:	4,000	cy/day	20.00
Proposed Maximum Annual Concrete Production Rate:	1,000,000	cyl/year	hr/day

3. Daily Operating Hours

Maximum daily hours of operation for facility?	20
------------------------------------------------	----

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?	75%
What level of PM control is used for fugitive emissions?	75%

5. Water Heater Usage

Does this facility use a water heater?	No			
How many units?	0	Heat Input Rating		
What type of fuel, Diesel, Natural Gas or Propane for unit 1?	N/A	0	MMBtu/hr	Please select N/A for all i 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?	No			
Maximum annual hours of water heater operation? (If assuming continual operation, enter 8,760)	8,760			

6. Internal Combustion Engine(s)

Are internal combustion engines used to provide electrical power at the facility?	No			
How many small engines (less than or equal to 600 bhp) are being used at the facility?	0			Please enter 0 for all units.
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:	-1	-1	-1
Not an EPA-certified IC engine: Enter "0" (zero)			
Certified Tier 1, Tier 2, Tier 3, or Tier 4 IC engine: Enter 1, 2, 3, or 4			
Certified "BLUE SKY" IC engine: Enter 5			

Enter the annual operating hours for the small IC engine(s)	0
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)	5
-------------------------------------------------------------------------------	---

CRITERIA POLLUTANT EMISSION INVENTORY for Portable Concrete Batch Plant

Facility Information		8/30/18 8:25
Company Facility ID Permit and Project No. Source Type Manufacturer/Model	East Valley Cattle Batch Plant 031-00073 P-2018.0036 Project 62091 Stationary Concrete Batch Plant Liddell Industries, Comanche	Assumptions Implied or Stated in Application: See control assumptions Truck Mix (T) or Central Mix (C) <input checked="" type="checkbox"/> T

Production Rates¹	
Maximum Hourly Production Rate	200 cy/hr
Proposed Daily Production Rate	4,000 cy/day 20.00
Proposed Maximum Annual Production Rate	1,000,000 cy/yr
Cement Storage Silo Capacity	4540 ft ³ 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

Per manufacturer
Hours of operation per day at max capacity

PM₁₀ Emissions due to this PTC

Emissions Point	PM _{2.5} Emission Factor ¹ (lb/cy)		PM ₁₀ Emission Factor ¹ (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 ²	lb/hr ²	lb/hr ²	lb/day ³	lb/hr ²	lb/day ³	lb/yr ⁴	Tpy ⁵	lb/yr ⁴	Tpy ⁵		
Aggregate delivery to ground storage		0.00096		0.0031	0.05	0.16	0.04	0.96	0.129	3.10	2.74E-02	1.20E-01	0.088	0.388	75%	Water Sprays at Operator's Discretion
Sand delivery to ground storage		0.000225		0.0007	0.01	0.04	9.38E-03	0.23	0.029	0.70	6.42E-03	2.81E-02	0.020	0.088	75%	Water Sprays at Operator's Discretion
Aggregate transfer to conveyor		0.00096		0.0031	0.05	0.16	0.04	0.96	0.129	3.10	2.74E-02	1.20E-01	0.088	0.388	75%	Water Sprays at Operator's Discretion
Sand transfer to conveyor		0.000225		0.0007	0.01	0.04	9.38E-03	0.23	0.029	0.70	6.42E-03	2.81E-02	0.020	0.088	75%	Water Sprays at Operator's Discretion
Aggregate transfer to elevated storage		0.00096		0.0031	0.05	0.16	0.04	0.96	0.129	3.10	2.74E-02	1.20E-01	0.088	0.388	75%	Water Sprays at Operator's Discretion
Sand transfer to elevated storage		0.000225		0.0007	0.01	0.04	9.38E-03	0.23	0.029	0.70	6.42E-03	2.81E-02	0.020	0.088	75%	Water Sprays at Operator's Discretion
Cement delivery to Silo (controlled EF)	0.00003		0.0001		6.00E-03	1.67E-02	5.00E-03	1.20E-01	1.39E-02	3.34E-01	3.42E-03	1.50E-02	9.53E-03	4.17E-02	0.00%	Baghouse in process prep plant, use controlled EF
Cement supplement delivery to Silo (controlled EF)	0.000045		0.0002		9.00E-03	3.58E-02	7.50E-03	1.80E-01	2.98E-02	7.15E-01	5.14E-03	2.25E-02	2.04E-02	8.94E-02	0.00%	Baghouse in process prep plant, use controlled EF
Weigh hopper loading (sand & aggregate batcher loading)		0.001186		0.00395	2.37E-03	7.90E-03	1.98E-03	4.74E-02	8.59E-03	1.58E-01	1.35E-03	5.93E-03	4.51E-03	1.98E-02	99.0%	Enclosed hood (vents back to silo) or baghouse
Truck mix loading, Table 11.12-2, 0.316 lb/ton of cement+flyash ⁶ x ((491 lb cement + 73 lb flyash/cy concrete)/2000 lb = 0.0674 lb/cy. PM _{2.5} was calculated as 15% of PM ₁₀ : 0.572 lb/ton of cement+flyash ⁶ x ((491 lb cement + 73 lb flyash/cy concrete)/0.15/2000 lb = 0.0473 lb/cy.		0.0473		0.07474	2.37E+00	3.94	1.97	47.30	3.28	78.74	1.35E+00	5.91E+00	2.25	9.84	75.0%	Bool, enclosure, or equivalent or baghouse or boot wheeler ring
Central mix loading, Table 11.12-2, 0.156 lb/ton of cement+flyash ⁶ x ((491 lb cement + 73 lb flyash/cy concrete)/2000 lb = 0.0440 lb/cy. PM _{2.5} was calculated as 15% of PM ₁₀ : 0.572 lb/ton of cement+flyash ⁶ 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	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	75.0%	Baghouse control
Point Sources Total Emissions	4.66E-02		8.30E-02		4.00E+00	1.99E+00	4.78E+01	3.33E+00	7.99E+01	9.91E+03	4.34E-02	3.44E-02	1.51E-01			
Process Fugitive Emissions	0.003555		0.0114		0.18	0.57	0.15	3.56	0.48	11.41	0.10	0.44	0.33	1.43		
Facility Wide Total: Point Sources + Process Fugitives (Except for Road Dust and Windblown Dust)				0.0844		4.57	2.13	51.20	3.81	91.36			0.36	1.58		

POINT SOURCE EMISSIONS for FACILITY CLASSIFICATION⁷	Controlled EF	at	1,752,000 cy/yr	Tpyr	(controlled PTE @ 8,760)
Facility Classification Total PM⁸	8.40E-03			7.36E+00	
Facility Classification Total PM¹⁰⁸	4.21E-03			3.69E+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, 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.

⁵ Daily emissions rate = max emissions rate (1-hr average) x proposed hrs/day.

⁶ Annual average hourly emissions rate = EF (lb/cy) x proposed annual production rate (cy/yr) / (8760 hr/yr).

⁷ Annual emissions rate = EF (lb/cy) x proposed annual production rate (cy/yr) / (2000 lb/T).

⁸ 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)

⁹ Emissions for Facility Classification are based on baghouses as process equipment, 24-hr day, 8760 hr/yr = 4,800 cy/day, and 1,752,000 cy/yr

¹⁰ Emissions for Facility Classification do not include truck mix loading emissions; this is typically considered a fugitive emission source for concrete batch plants.

Emissions Point	Lead Emission Factor ¹ (lb/ton of material loaded)		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	Tpy ⁴	lb/hr qtrly avg ⁵			Tpyr
Cement delivery to silo ²	1.09E-08	7.38E-07	6.15E-07	3.74E-04	3.07E-03	5.12E-07	Point Source		2.69E-06
Cement supplement delivery to Silo ³	5.20E-07		0.00E+00	0.00E+00	0.00E+00	0.00E+00	Point Source		0.00E+00
Truck Loadout (with 99.9% control) ⁴		3.62E-06	5.10E-05	3.11E-02	2.55E-01	4.25E-05	Fugitive		
Total			5.17E-05	3.14E-02	0.258			Point Sources	2.69E-06
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/vol³ of concrete x max. hourly concrete production rate/(2000 lb/T)

³ lb/mo = EF x pound of material/vol³ of concrete x max. daily concrete production rate x (365/12)/(2000 lb/T)

⁴ Tpyr = EF x pound of material/vol³ 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

B/30/2018 8:25

Facility Information		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:		Truck Mix Loadout Factor: 1	
Company:	East Valley Cattle Batch Plant	Coarse aggregate	1865 pounds	Central Mix Batching Factor: 0	
Facility ID:	031-00073	Sand	1428 pounds		
Permit No.:	P-2018.0036 Project 62091	Cement	564 pounds		
Source Type:	Stationary Concrete Batch Plant	Cement supplement	0 pounds		
Manufacturer:	Liddell Industries, Comache	Water	20 gallons		
		Concrete	4024 pounds		

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:	200	cy/hr	
Proposed Daily Production Rate:	4,000	cy/day	
Proposed Maximum Annual Production Rate:	1,000,000	cy/year	

Uncontrolled (Unlimited Production Rate)	
4,800 cy/day	24 hrs/day,
1,752,000 cy/year	7 day/wk,
	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 Percent of total Cr that is Cr+6
	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	
Cement silo filling (with baghouse) ¹	4.24E-09	1.68E-06	4.86E-10	1.79E-06	ND	2.34E-07	2.90E-08	2.57E-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)	1.87E-07	1.22E-05	1.04E-07	2.44E-07	9.05E-06	3.42E-08	4.18E-08	1.14E-05	2.08E-05	6.12E-05	4.78E-05	1.19E-05	1.28E-05	3.84E-05	1.13E-07	2.62E-06	20.00%
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	20.00%

UNCONTROLLED TAP EMISSIONS Note: Includes baghouses as process equipment.

4,800 cy/day, and 1,752,000 cy/yr

Emissions Point	Arsenic		Beryllium		Cadmium		Chromium		Manganese		Nickel		Phosphorus		Selenium		Chromium VI
	lb/hr annual avg	T/yr ^a	lb/hr annual avg	T/yr	lb/hr annual avg	T/yr	lb/hr 24-hr avg	T/yr ^a	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	
Cement silo filling (with baghouse) ¹	2.39E-07	1.05E-06	2.74E-08	1.20E-07	1.32E-05	5.78E-05	1.64E-06	6.23E-05	6.60E-06	2.89E-05	2.36E-06	1.03E-05	6.66E-04	2.91E-03	ND	ND	3.27E-07
Cement supplement silo filling (with baghouse) ²	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Truck loading (no boot or shroud)	6.88E-04	3.01E-03	1.38E-05	6.03E-05	1.93E-06	8.45E-06	6.43E-04	2.82E-03	3.45E-03	1.51E-02	6.71E-04	2.94E-03	2.17E-03	9.49E-03	1.48E-04	6.47E-04	1.29E-04
Sources Total	6.88E-04	3.01E-03	1.38E-05	6.04E-05	1.51E-05	6.63E-05	6.45E-04	2.88E-03	3.46E-03	1.51E-02	6.74E-04	2.95E-03	2.83E-03	1.24E-02	1.48E-04	6.47E-04	1.29E-04
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

3.72E-02 Tons per year

CONTROLLED TAP EMISSIONS Note: Includes baghouses as process equipment.

4,000 cy/day, and 1,000,000 cy/year

Emissions Point	Arsenic		Beryllium		Cadmium		Chromium		Manganese		Nickel		Phosphorus		Selenium		Chromium VI
	lb/hr annual avg	T/yr ^a	lb/hr annual avg	T/yr	lb/hr annual avg	T/yr	lb/hr 24-hr avg	T/yr ^a	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	
Cement silo filling (with baghouse) ¹	1.36E-07	5.98E-07	1.56E-08	6.85E-08	7.53E-06	3.30E-05	1.36E-06	4.09E-06	5.50E-06	1.65E-05	1.35E-06	5.89E-06	ND	ND	ND	ND	1.87E-07
Cement supplement silo filling (with baghouse) ²	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.73E-05	0.00E+00	1.20E-05	0.00E+00	0.00E+00	0.00E+00	1.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Truck loading (with baghouse)	9.82E-05	4.30E-04	1.96E-06	8.60E-06	2.75E-07	1.21E-06	1.34E-04	4.02E-04	7.19E-04	2.16E-03	9.58E-05	4.19E-04	4.51E-04	1.35E-03	3.08E-05	9.24E-05	1.83E-05
Sources Total	9.83E-05	4.31E-04	1.98E-06	8.67E-06	7.81E-06	3.42E-05	1.93E-04	4.06E-04	7.37E-04	2.17E-03	9.71E-05	4.25E-04	6.18E-04	1.35E-03	3.08E-05	9.24E-05	1.85E-05
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	6554.76%		7.07%		211.03%		0.58%		0.2212%		359.69%		8.82%		0.2368%		3310.00%
EXCEEDS EL?	Yes		No		Yes		No		No		Yes		No		No		Yes

75.00% Boot, enclosure, or equivalent or baghouse or boot w/water ring

4.92E-03 Tons per year

¹ lb/hr, annual average = EF x pound of cement / Yd³ 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 / Yd³ 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) / Yd³ 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

NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

Operating Assumptions:

0 MMBtu/hr / 1,020 MMBtu/MMscf = 0.00E+00 MMscf/hr
 0 hr/day
 0 hr/yr

Fuel Use:
 0.000 MMscf/day
 0.000 MMscf/year

Criteria Air Pollutants	Emission Factor lb/MMscf	Emissions		CBP + Boiler Emissions T/yr	Modeling Threshold 2002 Guidance	Modeling Required?	Modeling Threshold Case-by-Case	Modeling Required?
		lb/hr	T/yr					
NO2	100	0.00E+00	0.00E+00	0.00E+00	1 T/yr	No	7 T/yr	No
CO	84	0.00E+00	0.00E+00	0.00E+00	14 lb/hr	No	70 lb/hr	No
PM10	7.6	0.00E+00	0.00E+00	1.51E-01	0.2 lb/hr	No	0.9 lb/hr	No
		0.00E+00	0.00E+00		1 T/yr	No	7 T/yr	No
PM2.5	7.6	0.00E+00	0.00E+00	4.34E-02				
		0.00E+00	0.00E+00					
SOx	0.6	0.00E+00	0.00E+00	0.00E+00	0.2 lb/hr	No	0.9 lb/hr	No
		0.00E+00	0.00E+00		1 T/yr	No	7 T/yr	No
VOC	5.5	0.00E+00	0.00E+00	0.00E+00	40 T/yr	No		
Lead	0.0005	0.00E+00	0.00E+00	2.58E-01	0.6 T/yr	No		
Lead, continued				5.37E-03 lb/quarter	10 lb/mo	No		
TOTAL			0.00E+00	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)

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)	lb/MMscf	lb/hr	T/yr	EL (lb/hr)	Exceeds EL/Modeling Required?
2-Methylnaphthalene	2.40E-05	0.00E+00	0.00E+00	9.10E-05	No
3-Methylchloranthrene	1.80E-06	0.00E+00	0.00E+00	2.50E-06	No
7,12-Dimethylbenz(a)anthracene	1.60E-05	0.00E+00	0.00E+00		
Acenaphthene	1.80E-06	0.00E+00	0.00E+00	9.10E-05	No
Acenaphthylene	1.80E-06	0.00E+00	0.00E+00	9.10E-05	No
Anthracene	2.40E-06	0.00E+00	0.00E+00	9.10E-05	No
Benzo(a)anthracene	1.80E-06	0.00E+00	0.00E+00	9.10E-05	See POM
Benzo(a)pyrene	1.20E-06	0.00E+00	0.00E+00	2.00E-06	See POM
Benzo(b)fluoranthene	1.80E-06	0.00E+00	0.00E+00		See POM
Benzo(g,h,i)perylene	1.20E-06	0.00E+00	0.00E+00	9.10E-05	No
Benzo(k)fluoranthene	1.80E-06	0.00E+00	0.00E+00		See POM
Chrysene	1.80E-06	0.00E+00	0.00E+00		See POM
Dibenz(a,h)anthracene	1.20E-06	0.00E+00	0.00E+00		See POM
Dichlorobenzene	1.20E-03	0.00E+00	0.00E+00	9.10E-05	No
Fluoranthene	3.00E-06	0.00E+00	0.00E+00	9.10E-05	No
Fluorene	2.80E-06	0.00E+00	0.00E+00	9.10E-05	No
Indeno(1,2,3-cd)pyrene	1.80E-06	0.00E+00	0.00E+00		See POM
Naphthalene	6.10E-04	0.00E+00	0.00E+00	3.33	No
Naphthalene	6.10E-04	0.00E+00	0.00E+00	9.10E-05	No
Phenanthrene	1.70E-05	0.00E+00	0.00E+00	9.10E-05	No
Pyrene	5.00E-06	0.00E+00	0.00E+00	9.10E-05	No
Polycyclic Organic Matter (POM) 7-PAH Group		0.00E+00	0.00E+00	2.00E-06	No
Non-PAH HAPs					
Benzene	2.10E-03	0.00E+00	0.00E+00	8.00E-04	No
Formaldehyde	7.50E-02	0.00E+00	0.00E+00	5.10E-04	No
Hexane	1.80E+00	0.00E+00	0.00E+00	12	No
Toluene	3.40E-03	0.00E+00	0.00E+00	25	No
Non-HAP Organic Compounds					
Butane	2.10E+00	0.00E+00	0.00E+00		
Ethane	3.10E+00	0.00E+00	0.00E+00		
Pentane	2.60E+00	0.00E+00	0.00E+00	118	No
Propane	1.60E+00	0.00E+00	0.00E+00		
Metals (HAPs)					
Arsenic	2.00E-04	0.00E+00	0.00E+00	1.50E-06	No
Barium	4.40E-03	0.00E+00	0.00E+00	0.033	No
Beryllium	1.20E-05	0.00E+00	0.00E+00	2.80E-05	No
Cadmium	1.10E-03	0.00E+00	0.00E+00	3.70E-06	No
Chromium	1.40E-03	0.00E+00	0.00E+00	0.033	No
Cobalt	8.40E-05	0.00E+00	0.00E+00	0.0033	No
Copper	8.50E-04	0.00E+00	0.00E+00	0.013	No
Manganese	3.80E-04	0.00E+00	0.00E+00	0.057	No
Mercury	2.60E-04	0.00E+00	0.00E+00	0.033	No
Molybdenum	1.10E-03	0.00E+00	0.00E+00	0.333	No
Nickel	2.10E-03	0.00E+00	0.00E+00	2.70E-05	No
Selenium	2.40E-05	0.00E+00	0.00E+00	0.013	No
Vanadium	2.30E-03	0.00E+00	0.00E+00	0.003	No
Zinc	2.90E-02	0.00E+00	0.00E+00	0.667	No

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

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

TOTAL CBP + WATER HEATER EMISSIONS (POINT SOURCES, T/yr) **0.45**

DIESEL COMBUSTION, AP-42 SECTION 1.3 (9/98)

Operating Assumptions: 0 MMBtu/hr / 140 MMBtu/10³ gal = 0.00E+00 10³ gal/hr Fuel Use: 0.00 gal/day
 0 hr/day 0 gal/year
 0 lb/yr 0 gal/year
 0.0015% sulfur

Criteria Air Pollutants	Emission Factor	Emissions		CBP + Boiler Emissions	Modeling Threshold	Modeling Required?	Modeling Threshold	Modeling Required?
		lb/10 ³ gal	lb/hr					
NO2	20	0.00E+00	0.00E+00	0.00E+00	1 T/yr	No	7 T/yr	No
CO	5	0.00E+00	0.00E+00	0.00E+00	14 lb/hr	No	70 lb/hr	No
PM10 (filterable + condensable)	3.3	0.00E+00	0.00E+00	1.51E-01	0.2 lb/hr	No	0.9 lb/hr	No
PM2.5 (filterable + condensable)	1.8	0.00E+00	0.00E+00	4.34E-02	1 T/yr	No	7 T/yr	No
SOx (SO2 + SO3)	0.216	0.00E+00	0.00E+00	0.00E+00	0.2 lb/hr	No	0.9 lb/hr	No
VOC (TOC)	0.556	0.00E+00	0.00E+00	0.00E+00	40 T/yr	No		
Lead EF = 9 lb/10 ¹² Btu	9	0.00E+00	0.00E+00	2.58E-01	0.6 T/yr	No		
Lead continued			0.00E+00	lb/quarter	10 lb/mo	No		
TOTAL			0.00E+00	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)

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)					Exceeds EL/Modeling Required?
	lb/10 ³ gal	lb/hr	T/yr	EL (lb/hr)	
PAH HAPs					
Acenaphthene	2.11E-05	0.00E+00	0.00E+00	9.10E-05	No
Acenaphthylene	2.57E-07	0.00E+00	0.00E+00	9.10E-05	No
Anthracene	1.22E-08	0.00E+00	0.00E+00	9.10E-05	No
Benzo(a)anthracene	4.01E-08	0.00E+00	0.00E+00	9.10E-05	See POM
Benzo(a)pyrene				2.00E-06	See POM
Benzo(b,k)fluoranthene	1.48E-08	0.00E+00	0.00E+00		See POM
Benzo(g,h,i)perylene	2.28E-06	0.00E+00	0.00E+00	9.10E-05	No
Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00		See POM
Chrysene	2.38E-08	0.00E+00	0.00E+00		See POM
Dibenz(a,h)anthracene	1.67E-08	0.00E+00	0.00E+00		See POM
Dichlorobenzene				9.10E-05	No
Fluoranthene	4.84E-08	0.00E+00	0.00E+00	9.10E-05	No
Fluorene	4.47E-08	0.00E+00	0.00E+00	9.10E-05	No
Indeno(1,2,3-cd)pyrene	2.14E-06	0.00E+00	0.00E+00		See POM
Naphthalene	1.13E-03	0.00E+00	0.00E+00	3.33	No
Naphthalene	1.13E-03	0.00E+00	0.00E+00	9.10E-05	No
Phenanthrene	1.05E-05	0.00E+00	0.00E+00	9.10E-05	No
Pyrene	4.25E-06	0.00E+00	0.00E+00	9.10E-05	No
Polycyclic Organic Matter (POM)	7-PAH Group	0.00E+00	0.00E+00	2.00E-06	No
Non-PAH HAPs					
Benzene	2.14E-04	0.00E+00	0.00E+00	8.00E-04	No
Ethyl benzene	6.38E-05	0.00E+00	0.00E+00	2.90E+01	No
Formaldehyde	3.30E-02	0.00E+00	0.00E+00	5.10E-04	No
Hexane	1.80E+00	0.00E+00	0.00E+00	12	No
Toluene	6.20E-03	0.00E+00	0.00E+00	25	No
o-Xylene	1.09E-04			0.007	
Metals (HAPs)					
Arsenic	4.00E+00	0.00E+00	0.00E+00	1.50E-06	No
Barium				0.033	No
Beryllium	3.00E+00	0.00E+00	0.00E+00	2.80E-05	No
Cadmium	3.00E+00	0.00E+00	0.00E+00	3.70E-06	No
Chromium	3.00E+00	0.00E+00	0.00E+00	0.033	No
Cobalt				0.0033	No
Copper	6.00E+00	0.00E+00	0.00E+00	0.013	No
Manganese	6.00E+00	0.00E+00	0.00E+00	0.067	No
Mercury	3.00E+00	0.00E+00	0.00E+00	0.003	No
Molybdenum				0.333	No
Nickel	3.00E+00	0.00E+00	0.00E+00	2.70E-05	No
Selenium	1.50E+01	0.00E+00	0.00E+00	0.013	No
Vanadium				0.003	No
Zinc	4.00E+00	0.00E+00	0.00E+00	0.667	No

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

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

TOTAL CBP + WATER HEATER EMISSIONS (POINT SOURCES, T/yr) 0.45

1,1,1-Trichloroethane 2.36E-04 Not a HAP (1,1,2 TCA is a HAP). Not a 585 or 586 TAP.

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

Operating Assumptions: 0 MMBtu/hr / 91.5 MMBtu/10³ gal = 0.00E+00 10³ gal/hr Fuel Use: 0.00 gal/day
 0 hr/day 0 gal/year
 0 hr/yr 0 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					
NO2	15	0.00E+00	0.00E+00	0.00E+00	1 T/yr	No	7 T/yr	No
CO	8.4	0.00E+00	0.00E+00	0.00E+00	14 lb/hr	No	70 lb/hr	No
PM10 (filterable + condensable)	0.8	0.00E+00	0.00E+00	1.51E-01	0.2 lb/hr	No	0.9 lb/hr	No
		0.00E+00	0.00E+00		1 T/yr	No	7 T/yr	No
PM2.5 (filterable + condensable)	0.8	0.00E+00	0.00E+00	4.34E-02				
		0.00E+00	0.00E+00					
SOx (SO2 + SO3)	1.479	0.00E+00	0.00E+00	0.00E+00	0.2 lb/hr	No	0.9 lb/hr	No
		0.00E+00	0.00E+00		1 T/yr	No	7 T/yr	No
VOC (TOC)	1.1	0.00E+00	0.00E+00	0.00E+00	40 T/yr	No		
Lead EF = 9 lb/10 ¹² Btu	0	0.00E+00	0.00E+00	2.58E-01	0.6 T/yr	No		
Lead, continued		0.00E+00	0.00E+00	lb/quarter	10 lb/mo	No		
				T/yr				
		TOTAL	0.00E+00					

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) 0.45

CURRENT PTC APPLICATION ESTIMATES

Do you have an internal combustion engine? **No**

No

Internal Combustion Engine(s) AP-42 Section 3.3 or 3.4 (diesel fueled)			
		Fuel Type(s)	Generator Toggle
Generator Make/Model	Enter Info	#2 Fuel Oil (Diesel)	1
Rating of Large Engine (hp)	0.0	Max Sulfur weight percent (w/o)	0.0015%
Rating of Small Engine #1 (hp)	0.0		
Rating of Small Engine #2 (hp)	0.0		
EF OPTIONS:		Use EFs in lb/MMBtu fuel input	
1 hp = 0.7456999 kW	0.7457	Calculated Max Fuel Use Rate, gal/hr (Large)	0.00
Avg brake-specific fuel consumption (BSFC) = 7000 Btu/hp-hr	7000	Calculated Max Fuel Use Rate, gal/hr (small #1)	0.00
Fuel Heating Value, Btu/gal	137.030	Calculated Max Fuel Use Rate, gal/hr (small #2)	0.00
		Calculated MMBtu/hr (Large)	0.00
		Calculated MMBtu/hr (Small #1)	0.00
		Calculated MMBtu/hr (Small #2)	0.00
Note: AP-42 Tables 3.3-x,3.4-x: avg diesel heating value is based on 19,300 Btu/lb with density equal 7.1 lb/gal=> Btu/gal =			137.030

EPA Certification for Large Engine:		-1
Not EPA-certified: Enter "0" (zero)		
Certified Tier 1, Tier 2, Tier 3, or Tier 4: Enter 1, 2, 3, or 4		
Certified "BLUE SKY" engine: Enter 5		

EPA Certification for Small Engine #1:		-1	EPA Certification for Small Engine #2:		-1
Not EPA-certified: Enter "0" (zero)			Not EPA-certified: Enter "0" (zero)		
Certified Tier 1, Tier 2, Tier 3, or Tier 4: Enter 1, 2, 3, or 4			Certified Tier 1, Tier 2, Tier 3, or Tier 4: Enter 1, 2, 3, or 4		
Certified "BLUE SKY" engine: Enter 5			Certified "BLUE SKY" engine: Enter 5		

Facility: East Valley Cattle Batch Plant

8/30/2018 8:25 Permit/Facility ID: 62091 031-00073

Project

User Input Weight % Sulfur = 0.0015% SO2 EF = 1.01 x S

Large Engine

Fuel Type Toggle = 0 0 hp Engine
 Fuel Consumption Rate 0.00 gal/hr
 Calculated MMBtu/hr 0.0000 MMBtu/hr
 Max Daily Operation 0 hr/day
 Max Annual Operation 0 hrs/yr

Pollutant	Emission Factor ^a (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) Annual or 24-hr Average
PM ^b	0.1	0.000	0.00	
PM-10 (total) ^d	0.000	0.000	0.000	
PM-2.5	0.000	0.000	0.000	
CO ^b	0.00	0.000	0.00	
NOx ^b	0.000	0.000	0.00	
SO ₂ ^b (total SOx presumed)	0.001515	0.000	0.000	
VOC ^b (total TOC--> VOC)	0.000	0.000	0.000	
Lead				
HCl ^e				
Dioxins^a				
2,3,7,8-TCDD				
Total TCDD				
1,2,3,7,8-PeCDD				
Total PeCDD				
1,2,3,4,7,8-HxCDD^c				
1,2,3,6,7,8-HxCDD				
1,2,3,7,8,9-HxCDD^c				
Total HxCDD				
1,2,3,4,6,7,8-HpCDD^c				
Total HpCDD_c				
Octa CDD^c				
Total PCDD^c				
Furans^a				
2,3,7,8-TCDF				
Total TCDF^c				
1,2,3,7,8-PeCDF				
2,3,4,7,8-PeCDF				
Total PeCDF^c				
1,2,3,4,7,8-HxCDF				
1,2,3,6,7,8-HxCDF				
2,3,4,6,7,8-HxCDF				
1,2,3,7,8,9-HxCDF				
Total HxCDF^c				
1,2,3,4,6,7,8-HpCDF				
1,2,3,4,7,8,9-HpCDF				
Total HpCDF^c				
Octa CDF^c				
Total PCDF^c				
Total PCDD/PCDF^c				
Non-PAH HAPs				
Acetaldehyde^e	7.67E-04	0.00E+00	0.00E+00	0.00E+00
Acrolein ^c	9.25E-05	0.00E+00	0.00E+00	0.00E+00
Benzene^{c,a}	9.33E-04	0.00E+00	0.00E+00	0.00E+00
1,3-Butadiene^{c,a}	3.91E-05	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene ^a				
Formaldehyde^{c,a}	1.18E-03	0.00E+00	0.00E+00	0.00E+00
Hexane ^a				
Isooctane				
Methyl Ethyl Ketone ^a				
Pentane ^a				
Propionaldehyde ^a				
Quinone ^a				
Methyl chloroform ^a				
Toluene ^{c,a}	4.09E-04	0.00E+00	0.00E+00	0.00E+00
Xylene ^{c,a}	2.85E-04	0.00E+00	0.00E+00	0.00E+00
PAH, Total		0.00E+00		0.00E+00
POM (7-PAH Group)		0.00E+00	0.00E+00	0.00E+00

Pollutant	Emission Factor ^a (lb/MMBtu)	Emissions (lb/hr)	Emissions (T/yr)	TAPs Emissions (lb/hr) Annual or 24-hr Average
PAH HAPs				
2-Methylnaphthalene				
3-Methylchloranthrene^e				
Acenaphthene^{c1}	1.42E-06	0.00E+00	0.00E+00	0.00E+00
Acenaphthylene^{c1}	5.06E-06	0.00E+00	0.00E+00	0.00E+00
Anthracene^{c1}	1.87E-06	0.00E+00	0.00E+00	0.00E+00
Benzo(a)anthracene^{c1}	1.68E-06	0.00E+00	0.00E+00	0.00E+00
Benzo(a)fluoranthene^{c1,a}	1.88E-07	0.00E+00	0.00E+00	0.00E+00
Benzo(b)fluoranthene^{c1}	9.91E-08	0.00E+00	0.00E+00	0.00E+00
Benzo(e)pyrene				
Benzo(g,h,i)perylene^{c1}	4.89E-07	0.00E+00	0.00E+00	0.00E+00
Benzo(k)fluoranthene^{c1}	1.55E-07	0.00E+00	0.00E+00	0.00E+00
Chrysene^{c1}	3.53E-07	0.00E+00	0.00E+00	0.00E+00
Dibenzo(a,h)anthracene^{c1}	5.83E-07	0.00E+00	0.00E+00	0.00E+00
Dichlorobenzene				
Fluoranthene^{c1}	7.61E-06	0.00E+00	0.00E+00	0.00E+00
Fluorene^{c1}	2.92E-05	0.00E+00	0.00E+00	0.00E+00
Indeno(1,2,3-cd)pyrene^{c1}	3.75E-07	0.00E+00	0.00E+00	0.00E+00
Naphthalene^{c1,c}	8.48E-05	0.00E+00	0.00E+00	0.00E+00
Perylene				
Phenanthrene^{c1}	2.94E-05	0.00E+00	0.00E+00	0.00E+00
Pyrene^{c1}	4.78E-06	0.00E+00	0.00E+00	0.00E+00
Non-HAP Organic Compounds				
Acetone ^a				
Benzaldehyde				
Butane				
Butyraldehyde				
Crotonaldehyde ^a				
Ethylene				
Heptane				
Hexanal				
Isovaleraldehyde				
2-Methyl-1-pentene				
2-Methyl-2-butene				
3-Methylpentane				
1-Pentene				
n-Pentane				
Valeraldehyde				
Metals				
Antimony ^a				
Arsenic^a				
Barium ^a				
Beryllium^a				
Cadmium^a				
Chromium ^a				
Cobalt ^a				
Copper ^a				
Hexavalent Chromium^a				
Manganese ^a				
Mercury ^a				
Molybdenum ^a				
Nickel^a				
Phosphorus ^a				
Silver ^a				
Selenium ^a				
Thallium ^a				
Vanadium ^a				
Zinc ^a				

- a) Emission factors are from AP-42
- b) AP-42, Table 3.4-1, Gaseous Emission Factors for Large Stationary Diesel and All Stationary Dual Fuel Engines, 10/96
- c) AP-42, Table 3.4-3, Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines, Emission Factor Rating E, 10/96
- c1) AP-42, Table 3.4-4, PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines, Emission Factor Rating E, 10/96
- d) AP-42, Table 3.4-2, Particulate and Particle-Sizing Emission Factors for Large Uncontrolled Stationary Diesel Engines, Emission Factor Rating E, 10/96
- e) IDAPA Toxic Air Pollutant

TAPs lb/hr rates are 24-hr averages except for those in bold text. Lb/hr rates for bold TAPs (carcinogens) are annual averages.

Facility:

East Valley Cattle Batch Plant

P-2018.0036

8/30/2018 8:25

Permit/Facility ID:

Project 62091 031-00073

Greenhouse Gas Emissions when Combusting Natural Gas

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Water Heater #1 Emissions						
CO ₂	0	lb/MMscf	AP-42 Table 1.4-2	0.00	1	0.00
Methane	0	lb/MMscf	AP-42 Table 1.4-2	0.00E+00	21	0.00E+00
N ₂ O	0	lb/MMscf	AP-42 Table 1.4-2	0.00E+00	310	0.00E+00

* Water Heater #1 does not burn Natural Gas.

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Water Heater #2 Emissions						
CO ₂	0	lb/MMscf	AP-42 Table 1.4-2	0.00	1	0.00
Methane	0	lb/MMscf	AP-42 Table 1.4-2	0.00E+00	21	0.00E+00
N ₂ O	0	lb/MMscf	AP-42 Table 1.4-2	0.00E+00	310	0.00E+00

* Water Heater #2 does not burn Natural Gas.

Greenhouse Gas Emissions when Combusting #2 Diesel

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Water Heater #1 Emissions						
CO ₂		Molecular conversion from C to CO ₂		0.00	1	0.00
Methane	0	lb/10 ³ gal	AP-42 Table 1.3-3	0.00E+00	21	0.00E+00
N ₂ O	0	lb/10 ³ gal	AP-42 Table 1.3-8	0.00E+00	310	0.00E+00

* Water Heater #1 does not burn Diesel.

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Water Heater #2 Emissions						
CO ₂		Molecular conversion from C to CO ₂		0.00	1	0.00
Methane	0	lb/10 ³ gal	AP-42 Table 1.3-3	0.00E+00	21	0.00E+00
N ₂ O	0	lb/10 ³ gal	AP-42 Table 1.3-8	0.00E+00	310	0.00E+00

* Water Heater #2 does not burn Diesel.

Greenhouse Gas Emissions when Combusting LPG

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Water Heater #1 Emissions						
CO ₂	0	lb/10 ³ gal	AP-42 Table 1.5-1	0.00	1	0.00
Methane	0	lb/10 ³ gal	AP-42 Table 1.5-1	0.00E+00	21	0.00E+00
N ₂ O	0	lb/10 ³ gal	AP-42 Table 1.5-1	0.00E+00	310	0.00E+00

* Water Heater #1 does not burn Propane.

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Water Heater #2 Emissions						
CO ₂	0	lb/10 ³ gal	AP-42 Table 1.5-1	0.00	1	0.00
Methane	0	lb/10 ³ gal	AP-42 Table 1.5-1	0.00E+00	21	0.00E+00
N ₂ O	0	lb/10 ³ gal	AP-42 Table 1.5-1	0.00E+00	310	0.00E+00

* Water Heater #2 does not burn Propane.

Greenhouse Gas Emissions when Combusting Diesel Fuel

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Small Engine #1 Emissions ≤ 600 bhp						
CO ₂	1.15	lb/bhp-hr	AP-42 Table 3.3-1	0.00	1	0.00

* There are no engines at this facility.

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Small Engine #2 Emissions ≤ 600 bhp						
CO ₂	1.15	lb/bhp-hr	AP-42 Table 3.3-1	0.00	1	0.00

* There is no second small engine at this facility.

	Emission Factor (EF)	EF Units	EF Source	T/yr	Global Warming Potential	CO ₂ e (T/yr)
Large Engine #1 Emissions > 600 bhp						
CO ₂	1.16	lb/bhp-hr	AP-42 Table 3.4-1	0.00	1	0.00

* There is no large engine at this facility.

Total Greenhouse Gas Emissions

	CO ₂ e (T/yr)
CO ₂	0.00
Methane	0.00
N ₂ O	0.00
Total	0.00

Facility: **East Valley Cattle Batch Plant**
 8/30/2018 8:25 Permit/Facility ID: **031-00073 P-2018.0036 Project 62091**

Max Hourly Production 200 cy/hr **82% T/hr is Aggregate = 164 cy/hr**
 Max Daily Production 4,000 cy/day **82% T/hr is Aggregate = 3,280 cy/day**
 Max Annual Production 1,000,000 cy/yr **82% T/hr is Aggregate = 820,000 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 speed 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.dtr.edu/htmlfiles/westwind.html>)
 Moisture Content: 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 Cement plant in Roanoke, VA, 1994. (AP-42 11-12 06/06).

Wind Category	Wind speed Variation Factors for AERMOD modeling:			PM10		PM2.5	
	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 speed 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.dtr.edu/htmlfiles/westwind.html>)
 Moisture Content: 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

Wind Category	Wind speed Variation Factors for AERMOD modeling:			PM10		PM2.5	
	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	0.8984	2.24E-04	0.8984
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 Scaping 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 Aggregate (Sand) Transfer to Conveyor

Transfer from truck to conveyor: **164 cy/hr** **5 Transfer Points**

Pollutant	Emission Factor Table 11.12-5 CONVEYOR TRANSFER PT CONTROLLED (lb/cy)	Emissions Per Transfer Point				Total Emissions			
		Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	0.0015	0.080	0.067	2.00E-01	4.56E-02	0.399	0.333	9.98E-01	2.28E-01
PM-10 (total)	7.00E-04	0.037	0.031	9.32E-02	2.13E-02	0.186	0.155	4.66E-01	1.06E-01
PM-2.5 (total)	2.25E-04	0.012	0.010	3.00E-02	1.31E-01	0.050	0.050	1.50E-01	6.56E-01

0.186
1.256

Coarse Aggregate Transfer to Conveyor

Transfer from truck to conveyor: **164 cy/hr** **5 Transfer Points**

Pollutant	Emission Factor Table 11.12-5 CONVEYOR TRANSFER PT CONTROLLED (lb/cy)	Emissions Per Transfer Point				Total Emissions			
		Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average	Emissions (lb/hr) 1-hr Average	Emissions (lb/hr) 24-hr Average	Emissions (T/yr)	Emissions (lb/hr) Annual Average
PM (total)	0.0064	0.442	0.368	1.10E+00	2.52E-01	2.208	1.840	5.52E+00	1.26E+00
PM-10 (total)	3.10E-03	0.214	0.178	5.35E-01	1.22E-01	1.070	0.891	2.67E+00	6.10E-01
PM-2.5 (total)	9.60E-04	0.066	0.055	1.66E-01	7.25E-01	0.331	0.276	8.28E-01	3.63E+00

Final Concrete Batch Plant Emissions Inventory

Listed Below are the emissions estimates for the units selected.

Company:	East Valley Cattle Batch Plant
Facility ID:	031-00073
Permit No.:	P-2018.0036 Project 62091
Source Type:	Stationary Concrete Batch Plant
Manufacturer/Model:	Liddell Industries, Comache

Production

Maximum Hourly Production Rate:	200 cy/hr
Proposed Daily Production Rate:	4000 cy/day
Proposed Maximum Annual Production Rate:	1000000 cy/year

		Tons/year								
Emissions Units		PM _{2.5}	PM ₁₀	SO ₂	NO _x	CO	VOC	Lead	THAPs	CO ₂ e
CBP Type:	Truck Mix	0.043	0.15	NA	NA	NA	NA	2.69E-06		N/A
Water Heater #1:	No water heater	0.000	0.000	0.00E+00	0.000	0.000	0.000	0.00E+00		0
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)		0.04	0.15	0.00E+00	0.00	0.00	0.00	2.69E-06	5.01E-03	0

		Pounds/hour								
Emissions Units		PM _{2.5}	PM ₁₀	SO ₂	NO _x	CO	VOC	Lead	THAPs	
CBP Type:	Truck Mix	1.985	3.33	NA	NA	NA	NA	5.17E-05		
Water Heater #1:	No water heater	0.000	0.000	0.00E+00	0.000	0.000	0.000	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)		1.99	3.33	0.00E+00	0.00	0.00	0.00	5.17E-05	1.80E-03	

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

HAPS & TAPS Emissions Inventory

Metals	HAP	TAP	lb/hr	T/yr	Averaging Period	EL lb/hr	Exceeded?
Arsenic	X	X	9.83E-05	4.31E-04	Annual	1.50E-06	Yes
Barium					24-hour	3.30E-02	No
Beryllium	X	X	1.98E-06	8.67E-06	Annual	2.80E-05	No
Cadmium	X	X	7.81E-06	3.42E-05	Annual	3.70E-06	Yes
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	1.93E-04	4.06E-04	24-hour	3.30E-02	No
Manganese	X	X	7.37E-04	2.17E-03	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	9.71E-05	4.25E-04	Annual	2.70E-05	Yes
Phosphorus	X	X	6.18E-04	1.35E-03	24-hour	7.00E-03	No
Selenium	X	X	3.08E-05	9.24E-05	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	1.85E-05	8.12E-05	Annual	5.60E-07	Yes
Non PAH Organic Compounds							
Pentane		X	0.00E+00	0.00E+00	24-hour	118	No
Methyl Ethyl Ketone		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
Isooctane	X	X	0.00E+00	0.00E+00	N/A	N/A	N/A
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-Methylanthracene	X	X	0.00E+00	0.00E+00	Annual	2.50E-06	No
7,12-Dimethylbenz(a)anthracene	X	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
Dibenz(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	X	0.00E+00	0.00E+00	N/A	N/A	N/A
Phenanthrene	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	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): 1.80E-03 5.01E-03

Uncontrolled Criteria Pollutants

Source	PM10/PM2.5		SO2		NOx		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Concrete Batch Plat	4.81E-01	2.11E+00	N/A							
Water Heater #1	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
Water Heater #2	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
Small Diesel Engine	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
Large Diesel Engine	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

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

Facility: East Valley Cattle Batch Plant
 8/20/2018 8:25 Permit P-2018.0026 Project 62091 Facility ID: 031-00073

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 hr/yr

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	20 hr/day
Max Annual Operation	0 hr/yr

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	20 hr/day
Max Annual Operation	0 hr/yr

Conversion Factors:	
Avg base specific fuel consumption (SFC) =	7000 lbu/hp-hr
1 hp =	0.746 kW
1 lb =	453.592 g

Rated Power of Large (hp):	
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

Rated Power of Small #1 (hp):	
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

Rated Power of Small #2 (hp):	
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

$$g/W-hr \times (lb/453g) \times (hp-hr/7000 Btu) \times (0.746 kW/hp) \times 10^5 Btu/MMBtu = lb/MMBtu$$

$$g/W-hr \times 0.23486 = lb/MMBtu$$

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

40 CFR 69 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	0.38	2.47	1.88	0.23
kW < 8	2	0	2005	0.00	0.38	1.76	1.88	0.19
kW < 8	4	0	2008	0.00	0.38	1.76	1.88	0.09
kW < 8	BlueSky	0	n/a	0.00	0.38	1.08	1.88	0.11
8 < kW < 19	1	0	2000	0.00	0.38	2.23	1.55	0.19
8 < kW < 19	2	0	2005	0.00	0.38	1.76	1.55	0.19
8 < kW < 19	4	0	2008	0.00	0.38	1.76	1.55	0.09
8 < kW < 19	BlueSky	0	n/a	0.00	0.38	1.06	1.55	0.11
19 < kW < 37	1	0	1999	0.00	0.38	2.23	1.29	0.19
19 < kW < 37	2	0	2004	0.00	0.38	1.76	1.29	0.14
19 < kW < 37	4	0	2008	0.00	0.38	1.10	1.29	0.007
19 < kW < 37	BlueSky	0	n/a	0.00	0.38	1.06	1.29	0.085
37 < kW < 75	1	0	1998	2.16	0.38	0.00	---	---
37 < kW < 75	2	0	2004	0.00	0.38	1.76	1.17	0.09
37 < kW < 75	3	0	2008	0.00	0.38	1.10	1.17	0.09
37 < kW < 75	4	0	2008	0.00	0.38	1.10	1.17	0.007
37 < kW < 75	BlueSky	0	n/a	0.00	0.38	1.10	1.17	0.056
75 < kW < 130	1	0	1997	2.16	0.38	0.00	---	---
75 < kW < 130	2	0	2003	0.00	0.38	1.55	1.17	0.07
75 < kW < 130	3	0	2007	0.00	0.38	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	0.38	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	2008	0.00	0.31	0.94	0.82	0.05
130 < kW < 560	4	0	2008	0.09	0.00	0.00	0.82	0.028
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	0.09	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 69 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	2008	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 – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM DRAFT

DATE: August 30, 2018

TO: Will Tiedemann, Permit Writer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT: P-2018.0036 PROJ 62091, Permit to Construct for East Valley Cattle, LLC, Concrete Batch Plant, located near Declo, Idaho.

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

Contents

Acronyms, Units, and Chemical Nomenclature..... 3

1.0 Summary..... 5

2.0 Background Information..... 6

 2.1 Project Description..... 6

 2.2 Proposed Location and Area Classification..... 6

 2.3 Air Impact Analysis Required for All Permits to Construct 6

 2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses 7

 2.5 Toxic Air Pollutant Analysis 9

3.0 Analytical Methods and Data 10

 3.1 Emissions Source Data 10

 3.1.1. Modeling Applicability and Modeled Criteria Pollutant Emissions Rates..... 10

 3.1.2. Toxic Air Pollutant Emissions Rates 12

 3.1.3. Emissions Release Parameters..... 13

 3.2 Background Concentrations..... 14

 3.3 NAAQS Impact Modeling Methodology..... 14

 3.3.1. General Overview of Impact Analyses 14

 3.3.2 Modeling Methodology 15

 3.3.3 Model Selection 15

 3.3.4 Meteorological Data 15

 3.3.5 Effects of Terrain on Modeled Impacts 16

 3.3.6 Facility Layout 16

3.3.7 Ambient Air Boundary	16
3.3.8 Receptor Network.....	16
3.3.9 Good Engineering Practice Stack Height.....	17
4.0 NAAQS Impact Modeling Results	18
4.1 Results for NAAQS Analyses.....	18
4.2 Results for TAPs Impact Analyses	18
5.0 Conclusions.....	18
References	19

Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a non-carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
acfm	Actual cubic feet per minute
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
As	Arsenic
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
CBP	Concrete Batch Plant
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
Cr6+	Hexavalent Chromium
DEM	Digital Elevation Map
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
EVC	East Valley Cattle, LLC.
GEP	Good Engineering Practice
hr	hours
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
m	Meters
m/sec	Meters per second
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
NO	Nitrogen Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
NWS	National Weather Service
O ₃	Ozone
Pb	Lead
PM ₁₀	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
PM _{2.5}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
ppb	parts per million
PRIME	Plume Rise Model Enhancement
PTC	Permit to Construct

PTE	Potential to Emit
SIL	Significant Impact Level
SO ₂	Sulfur Dioxide
TAP	Toxic Air Pollutant
tpy	tons per year
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
µg/m ³	Micrograms per cubic meter of air

1.0 Summary

East Valley Cattle, LLC (EVC) submitted a Permit to Construct (PTC) application for a proposed temporary stationary concrete batch plant (CBP), located at their dairy and cattle feedlot near Declo, Idaho. Idaho Administrative Procedures Act 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03) requires that no permit be issued unless it is demonstrated that applicable emissions do not result in violation of a National Ambient Air Quality Standard (NAAQS) or Toxic Air Pollutant (TAP) increment. Emissions of criteria pollutants were below levels defined as Below Regulatory Concern (BRC) for permit exemption purposes, so no NAAQS compliance demonstrations were required for permit issuance. Emissions of some TAPs exceeded specific screening Emissions Levels (ELs), and associated air impact analyses were performed to demonstrate compliance with TAP increments. This memorandum provides a summary of the applicability assessment for analyses and air impact analyses used to demonstrate compliance with applicable NAAQS and TAP increments, as required by Idaho Air Rules Section 203.02 and 203.03.

DEQ review of submitted data and DEQ analyses summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that estimated emissions associated with operation of the facility will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not address/evaluate compliance with other rules or analyses not pertaining to the air impact analyses. Evaluation of emissions estimates was the responsibility of the DEQ permit writer and is addressed in the main body of the DEQ Statement of Basis, and emissions calculation methods were not evaluated in this modeling review memorandum.

Table 1 presents key assumptions and results to be considered in the development of the permit. Idaho Air Rules require air impact analyses be conducted in accordance with methods outlined in 40 CFR 51, Appendix W *Guideline on Air Quality Models* (Appendix W). Appendix W requires that air quality impacts be assessed using atmospheric dispersion models with emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

The submitted information and DEQ analyses: 1) showed either a) that estimated potential/allowable emissions are at a level defined as BRC and do not require a NAAQS compliance demonstration, or b) that criteria pollutant emissions increases resulting from the proposed project are below site-specific modeling applicability thresholds, developed to assure that emissions below such levels will not result in ambient air impacts exceeding Significant Impact Levels (SILs); 2) showed that TAP emissions increases associated with the project will not result in increased emissions above ELs or ambient air impacts exceeding allowable TAP increments. This conclusion assumes that conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition. The DEQ permit writer should use Table 1 and other information presented in this memorandum to generate appropriate permit provisions/restrictions to assure the requirements of Appendix W are met regarding emissions representative of design capacity or permit allowable rates.

Summary of Submittals and Actions

- July 26, 2018: Application received by DEQ.
- August 6, 2018: Application determined complete by DEQ.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	Explanation/Consideration
General Emissions Rates. Total non-fugitive allowable emissions rates of all criteria pollutants are below levels defined as BRC.	A NAAQS compliance demonstration would be required for any criteria pollutant emissions above BRC levels. Applicable emissions are function of annual throughput.
Operational Life. The CBP will be a temporary source at the East Valley Cattle facility, with total operations not exceeding 5 years.	Idaho Air Rules Section 210 allow use of a short-term factor of 10 to be multiplied by the AACC for sources with operational life of no more than 5 years.
TAP Emissions Sources. Allowable emissions of TAPs other than arsenic (As), cadmium (Cd), hexavalent chromium (Cr6+), and nickel (Ni) are below ELs. Analyses demonstrating compliance with As, Cd, Cr6+, and Ni TAP increments were performed.	A TAP increment compliance demonstration would be required for any other TAPs with emissions above ELs.
Plant Setback Requirements from Site Boundary. The plant may be positioned anywhere on the EVC site, provided a minimum setback distance of 90 meters (295 feet) is maintained between the truck loadout release point and the ambient air boundary (typically the property boundary).	Compliance with TAP increments is not assured if the CBP is operated at a location where the distance between the emission points and the ambient air boundary is less than 90 meters. For compliance with AACCs, a roadway transecting the facility is not considered as ambient air.
Public Access Exclusion. Public (anyone not under the control of the permittee) access is legally and effectively precluded from areas inside the ambient air boundary.	Compliance with TAP increments is only assured if public access is precluded from areas inside this boundary. Roadways accessible by those not associated with the plant are considered as ambient air, except for AACC compliance where the roadway transects the facility.

2.0 Background Information

This section provides background information applicable to the project and the site proposed for the facility. It also provides a brief description of the applicable air impact analyses requirements for the project.

2.1 Project Description

The EVC plant is a stationary concrete batch plant (CBP). Pollutant-emitting processes conducted at the CBP will include material handling of cement and aggregate. The PTC addresses all air pollutant emitting activities associated with the CBP.

2.2 Proposed Location and Area Classification

The facility is proposed for a location on the EVC dairy and feedlot site, near Declo, Idaho, within Cassia county. This area is designated as an attainment or unclassifiable area for sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), lead (Pb), ozone (O₃), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM_{2.5}). The area is not classified as non-attainment for any criteria pollutants.

2.3 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03:

No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:

02. NAAQS. The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.

03. Toxic Air Pollutants. Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

02. Estimates of Ambient Concentrations. All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

If specific criteria pollutant increases associated with the proposed permitting project cannot qualify for a BRC exemption as per Idaho Air Rules Section 221, then the permit cannot be issued unless the application demonstrates that applicable emission increases will not cause or significantly contribute to a violation of NAAQS, as required by Idaho Air Rules Section 203.02.

The first phase of a NAAQS compliance demonstration is to evaluate whether the proposed facility/project could have a significant impact to ambient air. Section 3.1.1 of this memorandum describes the applicability evaluation of Idaho Air Rules Section 203.02. The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted in accordance with methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a "significant contribution" in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

If modeled maximum pollutant impacts to ambient air from the emission sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from facility-wide potential/allowable emissions, and emissions from any nearby co-contributing sources, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also

lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

Table 2. APPLICABLE REGULATORY LIMITS				
Pollutant	Averaging Period	Significant Impact Levels ^a ($\mu\text{g}/\text{m}^3$) ^b	Regulatory Limit ^c ($\mu\text{g}/\text{m}^3$)	Modeled Design Value Used ^d
PM ₁₀ ^e	24-hour	5.0	150 ^f	Maximum 6 th highest ^g
PM _{2.5} ^h	24-hour	1.2	35 ⁱ	Mean of maximum 8 th highest ^j
	Annual	0.2	12 ^k	Mean of maximum 1 st highest ^j
Carbon monoxide (CO)	1-hour	2,000	40,000 ^m	Maximum 2 nd highest ⁿ
	8-hour	500	10,000 ^m	Maximum 2 nd highest ⁿ
Sulfur Dioxide (SO ₂)	1-hour	3 ppb ^o (7.8 $\mu\text{g}/\text{m}^3$)	75 ppb ^p (196 $\mu\text{g}/\text{m}^3$)	Mean of maximum 4 th highest ^q
	3-hour	25	1,300 ^m	Maximum 2 nd highest ⁿ
	24-hour	5	365 ^m	Maximum 2 nd highest ⁿ
	Annual	1.0	80 ^r	Maximum 1 st highest ⁿ
Nitrogen Dioxide (NO ₂)	1-hour	4 ppb (7.5 $\mu\text{g}/\text{m}^3$)	100 ppb ^s (188 $\mu\text{g}/\text{m}^3$)	Mean of maximum 8 th highest ^t
	Annual	1.0	100 ^r	Maximum 1 st highest ⁿ
Lead (Pb)	3-month ^u	NA	0.15 ^r	Maximum 1 st highest ⁿ
	Quarterly	NA	1.5 ^r	Maximum 1 st highest ⁿ
Ozone (O ₃)	8-hour	40 TPY VOC ^v	70 ppb ^w	Not typically modeled

- ^a Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
- ^b Micrograms per cubic meter.
- ^c Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
- ^d The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
- ^e Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
- ^f Not to be exceeded more than once per year on average over 3 years.
- ^g Concentration at any modeled receptor when using five years of meteorological data.
- ^h Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
- ⁱ 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
- ^j 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
- ^k 3-year mean of annual concentration.
- ^l 5-year mean of annual averages at the modeled receptor.
- ^m Not to be exceeded more than once per year.
- ⁿ Concentration at any modeled receptor.
- ^o Interim SIL established by EPA policy memorandum.
- ^p 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
- ^q 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
- ^r Not to be exceeded in any calendar year.
- ^s 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
- ^t 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
- ^u 3-month rolling average.
- ^v An annual emissions rate of 40 ton/year of VOCs is considered significant for O₃.
- ^w Annual 4th highest daily maximum 8-hour concentration averaged over three years.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. If project-specific impacts are below the SIL, then the project does not have a significant contribution to the specific violations.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) applicable specific criteria pollutant emission increases are at a level defined as BRC, using the criteria established by DEQ regulatory interpretation¹; or b) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.5 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.

Per Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP. The DEQ permit writer evaluates the applicability of specific TAPs to the Section 210.20 exclusion.

Idaho Air Rules Section 210.15 allows the AACC to be increased by a factor of 10 for short-term sources. Idaho Air Rules Section 007.11 defines a short-term source as a source with an operational life no greater than five years from the inception of any operations to the cessation of actual operations.

3.0 Analytical Methods and Data

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements. The DEQ Statement of Basis provides a discussion of the methods and data used to estimate criteria and TAP emissions rates.

3.1 Emission Source Data

Emissions of criteria pollutants and TAPs resulting from operation of the EVC CBP were calculated by DEQ for various applicable averaging periods. The calculation of potential emissions is the responsibility of the DEQ permit writer, and the representativeness and accuracy of emission estimates is not addressed in this modeling memorandum. DEQ air impact analysts are responsible for assuring that potential emission rates provided in the emission inventory are properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emission rates used in the dispersion modeling analyses, as listed in this memorandum, should be reviewed by the DEQ permit writer and compared with those in the final emission inventory. All modeled criteria air pollutant and TAP emission rates must be equal to or greater than the facility's potential emissions calculated in the PTC emission inventory or proposed permit allowable emission rates.

3.1.1 Modeling Applicability and Modeled Criteria Pollutant Emissions Rates

If project-specific emission increases for criteria pollutants would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then a NAAQS compliance demonstration may not be required for those pollutants with emissions below BRC levels. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant."¹ The interpretation policy also states that the exemption criteria of uncontrolled potential to emit (PTE) not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year. The BRC exemption cannot be used to exempt a project from a pollutant-specific NAAQS compliance demonstration in most cases where a PTC is required for the action regardless of emissions quantities, such as the modification of an existing emissions or throughput limit.

A NAAQS compliance demonstration must be performed for pollutant increases that would not qualify for the BRC exemption from the requirement to demonstrate compliance with NAAQS. The EVC CBP emission inventory indicates that facility-wide controlled PTE emissions of specific non-fugitive criteria pollutants are below BRC levels, as listed in Table 3. Only non-fugitive emissions are considered in permit applicability (as specified in the definition of Stationary Source in Idaho Air Rules Section 006.121) and, correspondingly, in the applicability of NAAQS compliance demonstration requirements. Emissions from truck loadout, which are controlled by a boot/shroud, are considered as fugitive and were excluded from the BRC calculation. Therefore, emissions from cement storage silo filling, fly ash storage silo filling and the weigh hopper loading baghouse were the only emission sources considered in the

evaluation of whether a NAAQS compliance demonstration is required for permit issuance. This inventory was based on the requested annual concrete production of 1,000,000 yard³/year from the CBP.

Criteria Pollutant	BRC Level (ton/year)	Applicable Facility Wide PTE Emissions (ton/year)	Air Impact Analyses Required?
PM ₁₀ ^a	1.5	<0.2	No
PM _{2.5} ^b	1.0	<0.1	No
Carbon Monoxide (CO)	10.0	0.0	No
Sulfur Dioxide (SO ₂)	4.0	0.0	No
Nitrogen Oxides (NOx)	4.0	0.0	No
Lead (Pb)	0.06	<0.03	No
Volatile Organic Compounds (VOCs)	4.0	0.0	No

^a Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

^b Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

Site-specific air impact modeling analyses may not be necessary for some pollutants, even where such emissions do not qualify for the BRC exemption. DEQ has developed modeling applicability thresholds, below which a site-specific modeling analysis is not required. DEQ generic air impact modeling analyses that were used to develop the modeling thresholds provide a conservative SIL analysis for projects with emissions below identified threshold levels. Project-specific modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*². These thresholds were based on assuring an ambient impact of less than the established SIL for specific pollutants and averaging periods.

If total project-specific emission rate increases of a pollutant are below Level I Modeling Applicability Thresholds, then project-specific air impact analyses are not necessary for permitting. Use of Level II Modeling Applicability Thresholds are conditional, requiring DEQ approval. DEQ approval is based on dispersion-affecting characteristics of the emission sources such as stack height, stack gas exit velocity, stack gas temperature, distance from sources to ambient air, presence of elevated terrain, and potential exposure to sensitive public receptors.

DEQ analyses performed by the permit writer concluded that facility-wide emissions of all criteria pollutants were below BRC thresholds at the originally requested production limit of 1,000,000 yard³/year, and a NAAQS compliance demonstration was therefore not required for permit issuance. A comparison of emissions with modeling applicability thresholds was not necessary since NAAQS compliance demonstrations were not required by Idaho Air Rules Section 203.02.

Ozone (O₃) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O₃ is formed in the atmosphere through reactions of VOCs, NOx, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses cannot be used to estimate O₃ impacts resulting from VOC and NOx emissions from an industrial facility. O₃ concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting. Addressing secondary formation of O₃ within the context of permitting a new stationary source has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to

Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

... footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."

The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."

DEQ determined it was not appropriate or necessary to require a quantitative source specific O₃ impact analysis because allowable emissions estimates of VOCs and NO_x are below the 100 tons/year threshold. Additionally, both VOC and NO_x emissions satisfied BRC exemption criteria.

3.1.2 Toxic Air Pollutant Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 210 are only applicable for new or modified sources constructed after July 1, 1995. TAP compliance for the EVC CBP was demonstrated on a facility-wide basis.

Facility-wide emissions of arsenic (As), cadmium (Cd), hexavalent chromium (Cr6+), and nickel (Ni) exceed the applicable emission screening levels (ELs) of Idaho Air Rules Section 586. Air impact modeling analyses were then required to demonstrate that maximum impacts of As, Cd, Cr6+, and Ni are below applicable ambient increment standards expressed in Idaho Air Rules Section 585 and 586 as AACs and AACCs.

Emissions of As, Cd, CR6+, and Ni occur from the handling of dry cement. Emissions from the filling of storage silos are controlled by a filtration system and emissions from truck loadout are controlled by a boot/shroud.

As, Cd, Cr6+, and Ni are carcinogenic TAPs that are regulated on a long-term averaging basis. Therefore, the appropriate emission rates for impact analyses are maximum annual emissions, expressed as an average pound/hour value over an 8,760-hour period.

Table 4 lists the TAP modeled emission rates for As, Cd, Cr6+, and Ni. Rates used in the model were increased by a factor of 1,000 to prevent truncation of small values in the model. Model output values were then divided by a factor of 1,000 to offset the increase in emissions (impacts are directly proportional to emissions).

Table 4. EMISSIONS RATES MODELED FOR TAP IMPACT ANALYSES					
Source ID	Description	Annual Emission Rates (lb/hr ^a)			
		Arsenic	Cadmium	Chromium 6+	Nickel
SILO	Cement storage silo filling	1.365 E-7	7.533 E-6	1.867 E-7	1.346 E-6
UCTRKLOAD	Truck loadout (controlled by shroud)	9.818 E-5	2.752 E-7	1.835 E-5	9.577 E-5

^a Pounds per hour for listed averaging period.

3.1.3 Emissions Release Parameters

Table 5 lists emission release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for emission sources modeled in the air impact analyses. Emission point release parameters were based on information provided by the applicant. The silo vents were modeled as a capped stack, thereby eliminating momentum induced plume rise. The vents were also modeled using an exhaust temperature of 0 Kelvin, which triggers the model to set the release temperature equal to the ambient air temperature. This eliminates thermal buoyancy of the plume. The accuracy of flow parameters (other than stack height) for these vents is not important since they are modeled as a capped release at ambient temperature. Therefore, DEQ set the flow velocity at 1.0 meters/second and the stack diameter at 1.0 meters.

Table 5. POINT SOURCE STACK PARAMETERS USED IN MODELING					
Point Source Parameters					
Release Point	Description	Stack Height (m)^a	Stack Gas Flow Temp. (K)^b	Stack Flow Velocity (m/sec)^c	Stack Dia. (m)
SILO ^d	Cement storage silo filling	21.3 (70.0 ft)	0 ^e	1.0	1.0
Volume Source Parameters					
Release Point	Description	Release Height (m)	Int. Horz. Dimension σ_{y0}^f (m)	Int. Vert. Dimension σ_{z0}^g (m)	
UCTRKLOAD	Truck loadout	3.75 (12.3 ft)	2.33	3.49	

^a Meters.

^b Kelvin.

^c Meters per second.

^d The source was using a 1.0 m/sec release velocity and 1.0 m stack diameter. This value is of no consequence since the source is capped release at ambient temperature – thereby eliminating both plume momentum flux and buoyancy flux.

^e Set to 0 to direct model to use a release temperature equal to the ambient air temperature specified in the meteorological data input file.

^f Initial horizontal dimension of plume.

^g Initial vertical dimension of plume.

Emissions from the truck loadout of dry concrete and aggregate were modeled as a volume source. The release height was set at 3.75 meters, the typical height of cement truck feed chutes. The initial horizontal dimension (σ_{y0}) was set at a value equal to the length of the source's side divided by 4.3, as directed by EPA guidance for AERMOD³. The length of side was set to 10 meters to represent the structure of the plant and any adjacent building, and σ_{y0} was calculated at 2.33 meters. The initial vertical dimension (σ_{z0}) was set at a value equal to the vertical extent of the source or the height of an adjacent building divided by 2.15, as directed by EPA guidance for AERMOD. The vertical extent was set at two times the release height or 7.5 meters, giving a σ_{z0} of 3.49 meters.

The submitted application provided stack heights for the storage silo vents. The submitted plot plan provided the general location of the proposed plant, but the precise location of the CBP in relation to the ambient air boundary was not provided. DEQ performed air impact modeling by using a generic layout that DEQ asserts reasonably represents the equipment configuration and will likely result in conservative estimates of impacts. A 10-meter square building, 10 meters tall, was used to represent structures at the plant. The truck loadout source was positioned at the center of the building and the silos were positioned at corners of the building. Since the truck loadout source overwhelmingly drives results of the analyses, positioning of the other sources relative to the truck loadout is rather inconsequential.

The distance between the truck loadout source and the nearest point of ambient air (area where public access is not precluded) is critical to results and assuring impacts are below AACCs. The results presented in Section 4 show that a minimum setback separation distance of 70 meters (230 feet) between the truck loadout point and the nearest point of ambient air (as defined in Section 3.3.8 of this memorandum) is needed to assure compliance with the As, Cd, Cr6+, and Ni AACCs.

3.2 Background Concentrations

Background concentrations are used if a cumulative NAAQS impact analysis is needed to demonstrate compliance with applicable NAAQS. Cumulative NAAQS analyses were not required for this project because emissions of all criteria pollutants were below levels defined as BRC, and as such, a NAAQS compliance demonstration was not required for these emissions.

3.3 Impact Modeling Methodology

This section describes the modeling methods used by the applicant and/or DEQ to demonstrate preconstruction compliance with applicable air quality standards.

3.3.1 General Overview of Impact Analyses

DEQ generated the project-specific air pollutant emission inventory and performed air impact analyses based on information submitted from the applicant. The submitted information/analyses, in combination with results from DEQ's air impact analyses, demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

The EVC CBP is a stationary facility proposed for a single site as described in the submitted application. The estimated location of the facility at the site was provided in the application materials. However, DEQ performed an impact analysis to determine a minimum setback distance, between emission points and the closest point of ambient air, necessary to assure compliance with applicable air quality standards and increments. The general method used to determine a setback distance was the following:

1. Use a polar receptor grid with the emission points located at the center in a conservatively tight grouping.
2. Run the model for the representative meteorological dataset and applicable pollutant.
3. For each model run and pollutant, identify the controlling receptor. The controlling receptor is the one just beyond (further from the emission points) the most distant receptor showing a concentration value over 95 percent of the applicable standard.
4. Determine the distance between the controlling receptor and the primary emission point for each model run.
5. The minimum setback requirement distance is the furthest distance between the controlling receptor and primary emission point, considering all model runs.
6. Compliance with identified applicable standards is assured provided the CBP operates as described and the minimum setback between the primary emission source and the nearest point of ambient air is maintained.

Table 6 provides a brief description of parameters used in the modeling analyses.

3.3.2 Modeling Methodology

Project-specific modeling and other required impact analyses were generally conducted using data and methods described in the *Idaho Air Quality Modeling Guideline*³.

Table 6. MODELING PARAMETERS		
Parameter	Description/Values	Documentation/Addition Description
General Facility Location	EVC site, southern Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 18081.
Meteorological Data	Burley surface data; Boise upper air data	See Section 3.3.4 of this memorandum for additional details of the meteorological data.
Terrain	Not Considered	Immediate area is effectively flat for dispersion effect consideration.
Building Downwash	Considered	There were no identified substantial structures that could cause plume downwash.
Receptor Grid	Grid 1	Polar grid as defined in Section 3.3.9

3.3.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in Appendix W. The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight-line trajectory of ISCST3, but it includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 18081 was used by DEQ for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

3.3.4 Meteorological Data

DEQ processed a meteorological dataset from Burley, Idaho (KBYI; station ID 725867-24133) covering the years 2011-2012 and 2014-2016. The year 2013 was not included because there was significant missing 1-minute Automated Surface Observing Systems (ASOS) data in that period. The upper air soundings required by AERMET were obtained from the Boise airport station (site ID 24131). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. DEQ modeling staff evaluated annual moisture conditions for the AERSURFACE runs based on thirty years of Burley airport precipitation data. Conditions were determined to be “wet” for 2014 and 2016. The years 2011, 2012, and 2015 were determined to be “average” for precipitation. Average moisture content is defined as within a 30 percentile of the 30-year mean of 15.8 inches. Calms were relatively low at 1 percent, and less than 1 percent of the data were missing from the 3-year record. AERMINUTE version 15272 was used to process Automated Surface Observing Systems (ASOS) wind data for use in AERMET. AERMET version 16216 was used to process surface and upper air data and to generate a model-ready meteorological data input file. The “adjust u star” (ADJ_U*) option was applied in AERMET to enhance model performance during low wind speeds under stable conditions. DEQ determined that these data are adequately representative of the meteorology at the EVC stie for minor source permitting.

3.3.5 Effects of Terrain on Modeled Impacts

Terrain effects on dispersion were not considered in the non-site-specific analyses. DEQ contends that assuming flat terrain is not a critical limitation of the analyses because most substantial emission points associated with CBPs are near ground-level and the immediate surrounding area is typically flat for dispersion modeling purposes. Emissions sources near ground-level typically have maximum pollutant impacts near the source, minimizing the potential effect of surrounding terrain to influence the magnitude of maximum modeled impacts.

3.3.6 Facility Layout and downwash

The general location of the CBP at the EVC site was provided to DEQ by the applicant through an aerial photograph shown in Figure 1. The ambient air boundary (typically the facility property boundary) was not identified in the plot plan provided in the application, so DEQ performed an emission point setback analysis. The facility may be placed anywhere within the specified site, provided the minimum setback distance between the truck loadout source and the ambient air boundary is maintained.

DEQ's analyses used a conservative generic facility layout. This was done because the specific layout could vary depending on product needs and specific characteristics of the site and equipment. To provide conservative results, DEQ used a tight grouping of emissions sources. Sources were positioned within 7 meters of the center of the facility. The truck loadout source was placed at the center of the facility. Because impacts are primarily driven by the truck loadout source, the positioning of other sources relative to the truck loadout is of lesser importance.

DEQ accounted for potential plume downwash, caused by nearby structures, in the model by placing a 10-meter square building, 10 meters tall, at the center of the plant. DEQ determined this was a reasonably conservative method for structures typically associated with CBPs.

3.3.7 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." Ambient air is considered as areas external to the identified site boundary. To exclude areas of the site from consideration as ambient air, the permittee must have the legal and practical ability to control access to such areas of the site.

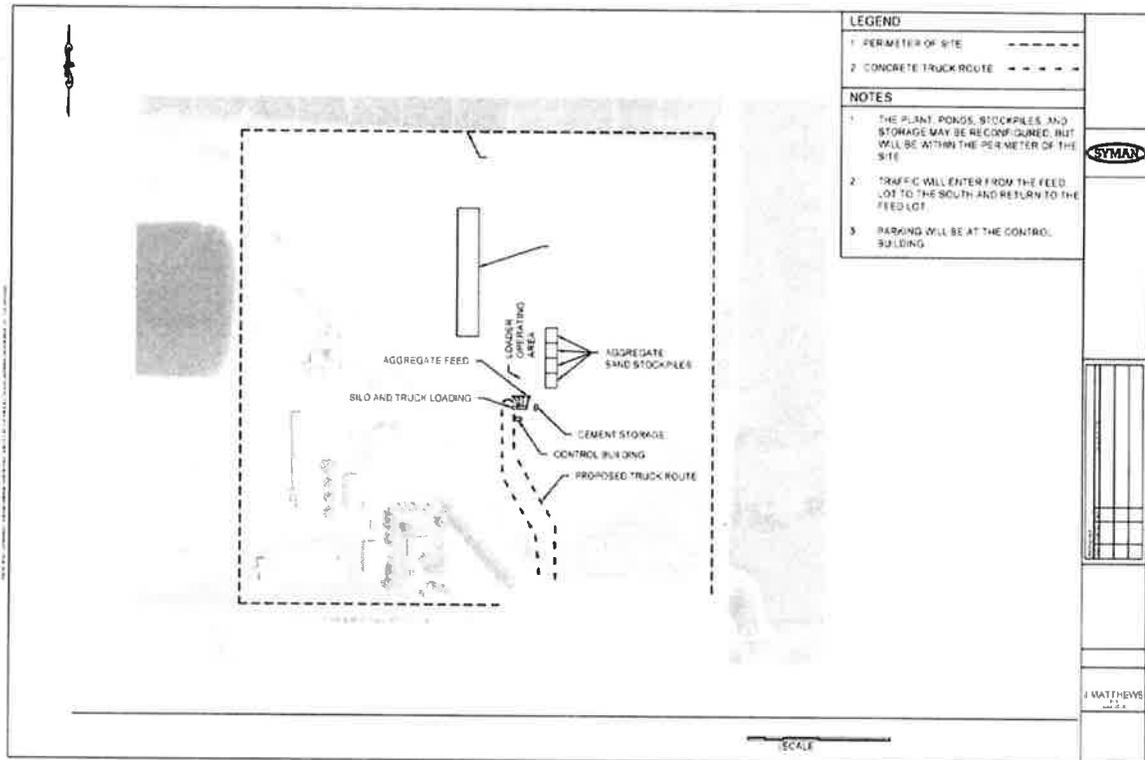
For carcinogenic TAPs listed in Idaho Air Rules Section 586, locations on a road, highway, or other transportation corridor transecting the facility are excluded from consideration as ambient air, as provided in Idaho Air Rules Section 210.03.b.

3.3.8 Receptor Network

The receptor grid used in DEQ's analyses met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*² and DEQ determined that it was adequate to resolve maximum modeled impacts.

A polar grid with 10-meter receptor spacing extending out to 100 meters, 25-meter spacing extending out to 250 meters, 50-meter spacing extending out to 300 meters, 100-meter spacing extending out to 800 meters, and 200-meter spacing extending out to 1,200 meters was used in the setback determination modeling performed by DEQ.

Figure 1: Proposed position of the CBP at the EVC site.



3.3.9 Good Engineering Practice Stack Height

An allowable good engineering practice (GEP) stack height may be established using the following equation in accordance with Idaho Air Rules Section 512.03.b:

$$H = S + 1.5L, \text{ where:}$$

H = good engineering practice stack height measured from the ground-level elevation at the base of the stack.

S = height of the nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of the nearby structure.

All EVC CBP sources are below GEP stack height. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 NAAQS and TAPs Impact Modeling Results

4.1 Results for NAAQS Analyses

A NAAQS impact analysis was not performed for the EVC CBP. Idaho Air Rules Section 203.02, requiring air impact analyses demonstrating compliance with NAAQS, is not applicable to pollutants having project-emissions increase that are less than BRC levels, provided the project would have qualified for a BRC permitting exemption except for the emissions levels of another criteria pollutant or TAP exceeding the applicable BRC threshold.

4.2 Results for TAPs Impact Analyses

Dispersion modeling was required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with facility-wide emissions exceeding emissions screening levels (ELs). The results of the TAPs setback requirement analyses are listed in Table 7. The emission point setback distances are the minimum allowable distance between the truck loadout point and the nearest point of ambient air, and these were calculated for an allowable throughput of 1,000,000 yard³/year of concrete produced.

Table 7. RESULTS OF TAPs ANALYSES			
Toxic Air Pollutant	Averaging Period	AAC/AACC^b (µg/m³)	Setback Distance needed to Assure TAP Increment Compliance
Carinogenic TAPs			
Arsenic	Annual	2.3 E-3	90 meters (295 feet). Max impact at setback = 2.1 E-3 µg/m ³ .
Cadmium	Annual	5.6 E-4	<70 meters (230 feet). Max impact at setback = 1.3 E-5 µg/m ³ .
Chromium 6+	Annual	8.3 E-4	<70 meters (230 feet). Max impact at setback = 5.6 E-4 µg/m ³ .
Nickel	Annual	4.2 E-3	<70 meters (230 feet). Max impact at setback = 2.9 E-3 µg/m ³ .

^a Micrograms per cubic meter

^b Acceptable ambient concentration for non-carcinogens/acceptable ambient concentration for carcinogens. The AACC was increased by a factor of 10 to account for the CBP qualifying as a short-term source.

5.0 Conclusions

The information submitted with the PTC application, combined with DEQ air impact analyses, demonstrated to DEQ's satisfaction that emissions from the EVC CBP facility will not cause or significantly contribute to a violation of any applicable ambient air quality standard or TAP increment.

References

1. *Policy on NAAQS Compliance Demonstration Requirements*. Idaho Department of Environmental Quality Policy Memorandum. July 11, 2014.
2. State of Idaho Guideline for Performing Air Quality Impact Analyses. Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at <http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf>.
3. *User's Guide for the AMS/EPA Regulatory Model – AERMOD*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division. EPA-454/B-03-001. September 2004. (Section 3.3.2.2)