

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

**Permit to Construct No. P-2007.0002  
Project ID 61681**

**Staker & Parson dba Idaho Materials and Construction  
Pocatello, Idaho**

**Facility ID 777-00366**

**Final**

**May 10, 2016**  
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**Permit Writer**

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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.

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## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
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acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BMP	best management practices
CAA	Clean Air Act
CBP	concrete batch plant
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalent emissions
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
HAP	hazardous air pollutants
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
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
PC	permit condition
PERF	Portable Equipment Relocation Form
PM	particulate matter
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
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
SM	synthetic minor
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
U.S.C.	United States Code
VOC	volatile organic compounds
yd <sup>3</sup>	cubic yards
µg/m <sup>3</sup>	micrograms per cubic meter

## **FACILITY INFORMATION**

### ***Description***

Staker & Parson dba Idaho Materials and Construction has proposed an equipment revision to a portable central mix concrete batch plant consisting of aggregate stockpiles, a cement storage silo, a cement supplement (fly ash) storage silo, a weigh batcher, and conveyors. The facility combines aggregate, sand, fly ash, and cement and then transfers the mixture into a central drum mixer, along with water, for stationary mixing of the concrete. When using a central mix drum, concrete is transferred to trucks for transport off-site.

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***

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

February 5, 2007            P-2007.0002, Permit to Construct revision, Permit status (A, but will become S upon issuance of this permit)

January 5, 2006            P-050043, Initial Permit to Construct a Portable Concrete Batch Plant, Permit status (S)

### ***Application Scope***

This is the revised PTC for an existing facility that was constructed in January, 2006.

The Applicant has proposed to replace some equipment with like kind equipment. The central mix concrete batcher and the weigh batcher baghouse are being replaced. There is no proposed change to the throughput and no associated increase in emissions. The replacement of the weigh batcher baghouse offers the same amount of control as previously permitted.

The Applicant has proposed concrete production rate throughput limits of 200 cubic yards per hour, 2,500 cubic yards per day, and 494,064 cubic yards per year.

### ***Application Chronology***

March 22, 2016            DEQ received an application and an application and processing fee.

April 18, 2016            DEQ determined that the application was complete.

May 10, 2016            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	<u>Material Transfer Points:</u> Materials handling Concrete aggregate transfers Truck unloading of aggregate Aggregate conveyor transfers Aggregate handling	Maintaining the moisture content in ¼” or smaller aggregate material at 1.5% by weight, using water sprays, using shrouds, or other emissions controls	N/A
Concrete Mixer	<u>Concrete Batch Plant –Central Mix:</u> Manufacturer: Erie Strayer Model: MG-12CP Manufacture Date: Unknown Max. production: 200 yd <sup>3</sup> /hr, 2,500 yd <sup>3</sup> /day, and 494,064 yd <sup>3</sup> /yr  <u>Cement Storage Silo (two compartments):</u> All emissions are routed through a central baghouse  <u>Cement Batcher:</u> Storage capacity: 14 cubic yards (yd <sup>3</sup> ) All emissions are routed through a central baghouse  <u>Aggregate Storage Silo (4 compartments):</u> All emissions are routed through a central baghouse  <u>Aggregate Batcher:</u> Storage capacity: 12 cubic yards (yd <sup>3</sup> ) All emissions are routed through a central baghouse	<u>Weigh Batchers Baghouse:</u> Manufacturer: C&W Model: RA-200 PM <sub>10</sub> /PM <sub>2.5</sub> control efficiency: 99.0%  <u>Cement Storage Silo Bin Vent Filter/Baghouse:</u> All emissions are routed through a central baghouse PM <sub>10</sub> /PM <sub>2.5</sub> control efficiency: 99.0%  <u>Fly Ash Storage Silo Bin Vent Filter/Baghouse:</u> All emissions are routed through a central baghouse PM <sub>10</sub> /PM <sub>2.5</sub> control efficiency: 99.0%  <u>Central Mix Baghouse:</u> All emissions are routed through a central baghouse PM <sub>10</sub> /PM <sub>2.5</sub> control efficiency: 99.0%  <u>Material Transfer Points:</u> Control: Water sprays or Surfactants PM <sub>10</sub> /PM <sub>2.5</sub> control efficiency: 75.0%	<u>Weigh Batchers Baghouse Exhaust:</u> Exit height: 23 ft (7.01 m) Exit diameter: 1.05 ft (0.32 m) Exit flow rate: 10,000 acfm Exit temperature: 68 °F (20 °C)  <u>Cement Storage Silo Bin Vent Filter/Baghouse Exhaust:</u> All emissions are routed through a central baghouse  <u>Fly Ash Storage Silo Bin Vent Filter/Baghouse Exhaust:</u> All emissions are routed through a central baghouse  <u>Central Mix Baghouse Exhaust:</u> All emissions are routed through a central baghouse

- a. Both the storage silo baghouse and supplement storage silo flyash baghouse are considered process equipment and therefore there is no associated control efficiency. Controlled PM<sub>10</sub> emission factors were used when determining PTE and for modeling purposes.



## **Registration Procedures and Requirements for Portable Equipment (IDAPA 58.01.01.500)**

IDAPA 58.01.01.500

Registration Procedures and Requirements for Portable Equipment

Section 01 requires that all existing portable equipment shall be registered within ninety (90) days after the original effective date of this Section 500 and at least ten (10) days prior to relocating, using forms provided by the Department, except that no registration is required for mobile internal combustion engines, marine installations and locomotives. This requirement is assured by Permit Condition 2.3.

### **Visible Emissions (IDAPA 58.01.01.625)**

IDAPA 58.01.01.624

Visible Emissions

The sources of PM<sub>10</sub> emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 3.4.

### **Fugitive Emissions (IDAPA 58.01.01.650)**

IDAPA 58.01.01.650

Rules for the Control of Fugitive Emissions

The sources of fugitive emissions at this facility are subject to the State of Idaho fugitive emissions standards. These requirements are assured by Permit Conditions 2.1, 2.2, and 2.6.

### **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:

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

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

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

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

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

As discussed previously in the Emissions Inventory Section, concrete has a density of 4,024 lb per cubic yard. Thus, for the new Concrete Batch Plant proposed to be installed as a result of this project with a proposed throughput of 200 yd<sup>3</sup>/hr, E is calculated as follows:

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

Therefore, E is calculated as:

$$E = 1.10 \times PW^{0.25} = 1.10 \times (804,800)^{0.25} = 32.9 \text{ lb-PM/hr}$$

Because the previous permitting actions did not include a lb-PM<sub>10</sub>/hr limit a conservative approach is used to derive a lb-PM<sub>10</sub>/hr value. Given that the annual PM<sub>10</sub> limit is 0.263 T/yr and assuming 10 hours of operation, 5 days a week, and 52 weeks per year a lb/hr limit could be calculated (10 hours/day\*5 days/week \*52 weeks/year=2600 hr/yr). Taking 0.263 T/yr (the annual T/yr limit) multiplied by 2,000 lb/T and divided by 2,600 hr/yr, yields 0.202 lb-PM<sub>10</sub>/hr. Assuming PM is 50% PM<sub>10</sub> means that PM emissions will be 0.404 lb-PM/hr (0.202lb-PM<sub>10</sub>/hr ÷ 0.5 lb-PM<sub>10</sub>/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 2.8.

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

IDAPA 58.01.01.301

Requirement to Obtain Tier I Operating Permit

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

### ***PSD Classification (40 CFR 52.21)***

40 CFR 52.21

Prevention of Significant Deterioration of Air Quality

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

### ***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 or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Permit condition 1.1 establishes the permit to construct scope.

Permit condition 1.2 identifies the citations used to show a revision or modification to a permit condition.

Permit condition 1.3 states this permit replaces the previously issued permit upon issuance.

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

## ***FACILITY-WIDE CONDITIONS***

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.

As discussed previously, permit condition 2.3 establishes that the permittee notify DEQ when the permitted portable equipment is relocated. This requirement is based upon imposing reasonable permit conditions for portable concrete batch plants.

Permit condition 2.4 establishes a restriction on locating the portable concrete batch plant to non-attainment areas. The location restrictions are based upon parameters used during the ambient air quality modeling analysis performed for this project.

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.

Permit condition 2.7 establishes that the permittee record the date and location of the concrete batch plant each time it is relocated to demonstrate compliance with the Relocation Restriction permit condition.

As discussed previously, permit condition 2.8 establishes that the permittee monitor and record odor complaints to demonstrate compliance with the facility-wide permit requirements.

Permit Condition 2.9 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<sub>10</sub> emissions from the concrete production operation at this facility.

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

Permit Condition 3.5 establishes an annual concrete production limit for the concrete production operation as proposed by the Applicant.

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

Permit condition 3.7 requires that the Applicant employ industry specific water sprays on material transfer points to control fugitive emissions as proposed by the Applicant.

Permit condition 3.8 establishes that the Permittee monitor and record monthly concrete production to demonstrate compliance with the Concrete Production Limits permit condition.

Permit condition 3.9 establishes that the Permittee shall establish procedures for operating the weigh batcher and central loadout baghouses. This is a DEQ imposed standard requirement for operations using baghouses to control particulate emissions.

Permit Condition 3.10 establishes that the permittee shall maintain records as required by the Recordkeeping General Provision.

## **PUBLIC REVIEW**

### ***Public Comment Opportunity***

Because this permitting action does not authorize an increase in emissions, an opportunity for public comment period was not required or provided in accordance with IDAPA 58.01.01.209.04 or IDAPA 58.01.01.404.04.

## APPENDIX A – FACILITY DRAFT COMMENTS

**The following comments were received from the facility on May 1, 2016:**

**Facility Comment:** Typically on the fugitive dust inspection referenced in 2.1 and 2.6 we have been seeing weekly intervals (see T2-2013.0049 and .0059). The concrete batch person is extremely busy during plant operations, and having to do a daily formal documented fugitive dust inspection would be onerous. Any way we can go weekly on this?

**DEQ Response:** For operation of dusty sources, like a concrete batch plant, DEQ has been requiring the daily fugitive dust inspection. This is done to help the facility stay in compliance with fugitive dust limits such as opacity. Note that the permit condition does not specify exactly how the inspection must take place. If no problems are present, the check should be fairly quick to do. This is a standard permit condition for newly issued concrete batch plant permits.