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
Craig Woodruff
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.
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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

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<thead>
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<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAC</td>
<td>acceptable ambient concentrations</td>
</tr>
<tr>
<td>AACC</td>
<td>acceptable ambient concentrations for carcinogens</td>
</tr>
<tr>
<td>acfm</td>
<td>actual cubic feet per minute</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>BMP</td>
<td>best management practices</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CBP</td>
<td>concrete batch plant</td>
</tr>
<tr>
<td>cfm</td>
<td>cubic feet per minute</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>CO₂𝑒</td>
<td>CO₂ equivalent emissions</td>
</tr>
<tr>
<td>DEQ</td>
<td>Department of Environmental Quality</td>
</tr>
<tr>
<td>dscf</td>
<td>dry standard cubic feet</td>
</tr>
<tr>
<td>EL</td>
<td>screening emission levels</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>GHG</td>
<td>greenhouse gases</td>
</tr>
<tr>
<td>HAP</td>
<td>hazardous air pollutants</td>
</tr>
<tr>
<td>hr/yr</td>
<td>hours per consecutive 12 calendar month period</td>
</tr>
<tr>
<td>IDAPA</td>
<td>a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act</td>
</tr>
<tr>
<td>km</td>
<td>kilometers</td>
</tr>
<tr>
<td>lb/hr</td>
<td>pounds per hour</td>
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<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standard</td>
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<tr>
<td>NESHAP</td>
<td>National Emission Standards for Hazardous Air Pollutants</td>
</tr>
<tr>
<td>NO₂</td>
<td>nitrogen dioxide</td>
</tr>
<tr>
<td>NOₓ</td>
<td>nitrogen oxides</td>
</tr>
<tr>
<td>NSPS</td>
<td>New Source Performance Standards</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>operation and maintenance</td>
</tr>
<tr>
<td>PC</td>
<td>permit condition</td>
</tr>
<tr>
<td>PERF</td>
<td>Portable Equipment Relocation Form</td>
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<tr>
<td>PM</td>
<td>particulate matter</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers</td>
</tr>
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<td>PM₁₀</td>
<td>particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
</tr>
<tr>
<td>PTC</td>
<td>permit to construct</td>
</tr>
<tr>
<td>PTE</td>
<td>potential to emit</td>
</tr>
<tr>
<td>PW</td>
<td>process weight rate</td>
</tr>
<tr>
<td>Rules</td>
<td><em>Rules for the Control of Air Pollution in Idaho</em></td>
</tr>
<tr>
<td>scf</td>
<td>standard cubic feet</td>
</tr>
<tr>
<td>SCL</td>
<td>significant contribution limits</td>
</tr>
<tr>
<td>SM</td>
<td>synthetic minor</td>
</tr>
<tr>
<td>SO₂</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>SOₓ</td>
<td>sulfur oxides</td>
</tr>
<tr>
<td>T/yr</td>
<td>tons per consecutive 12 calendar month period</td>
</tr>
<tr>
<td>TAP</td>
<td>toxic air pollutants</td>
</tr>
<tr>
<td>VOC</td>
<td>volatile organic compounds</td>
</tr>
<tr>
<td>yd³</td>
<td>cubic yards</td>
</tr>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Source ID No.</th>
<th>Sources</th>
<th>Control Equipment</th>
<th>Emission Point ID No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials Handling</strong></td>
<td>Material Transfer Points: Materials handling Concrete aggregate transfers Truck unloading of aggregate Aggregate conveyors Aggregate handling</td>
<td>Maintaining the moisture content in ¼&quot; or smaller aggregate material at 1.5% by weight, using water sprays, using shrouds, or other emissions controls</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Concrete Mixer</strong></td>
<td>Concrete Batch Plant—Central Mix: Manufacturer: Erie Strayer Model: MG-12CP Manufacture Date: Unknown Max. production: 200 yd³/hr, 2,500 yd³/day, and 494,064 yd³/yr Cement Storage Silo (two compartments): All emissions are routed through a central baghouse</td>
<td>Weigh Batchers Baghouse: Manufacturer: C&amp;W Model: RA-200 PM₁₀/PM₂.₅ control efficiency: 99.0% Cement Storage Silo Bin Vent Filter/Baghouse: All emissions are routed through a central baghouse PM₁₀/PM₂.₅ control efficiency: 99.0%</td>
<td>Weigh Batchers Baghouse Exhaust: 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)</td>
</tr>
<tr>
<td></td>
<td>Cement Batchers: Storage capacity: 14 cubic yards (yd³) All emissions are routed through a central baghouse Aggregate Storage Silo (4 compartments): All emissions are routed through a central baghouse</td>
<td>Fly Ash Storage Silo Bin Vent Filter/Baghouse: All emissions are routed through a central baghouse PM₁₀/PM₂.₅ control efficiency: 99.0%</td>
<td>Fly Ash Storage Silo Bin Vent Filter/Baghouse Exhaust: All emissions are routed through a central baghouse</td>
</tr>
<tr>
<td></td>
<td>Aggregate Batchers: Storage capacity: 12 cubic yards (yd³) All emissions are routed through a central baghouse</td>
<td>Central Mix Baghouse: All emissions are routed through a central baghouse PM₁₀/PM₂.₅ control efficiency: 99.0%</td>
<td>Central Mix Baghouse Exhaust: All emissions are routed through a central baghouse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Material Transfer Points: Control: Water sprays or Surfactants PM₁₀/PM₂.₅ control efficiency: 73.0%</td>
<td></td>
</tr>
</tbody>
</table>

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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.

For this permit revision potential to emit calculations were not performed because it was assumed hourly and annual emissions were staying the same as the result of the project. There is no emissions increase because equipment is being replaced with like kind equipment. Throughputs will not change as a result of this permitting action.

Ambient Air Quality Impact Analyses

An Ambient Air Quality Impact Analysis was not performed for this project because it was assumed all criteria pollutant emissions were staying the same as a result of this project.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

This concrete batch plant is currently permitted to operate as portable throughout the state. The previous permitting actions did not allow this concrete batch to operate in non-attainment areas. Since a modelling review was not performed for this project, as stated previously, these requirements will be included in the new permit. These previous permit requirements are assured by Permit Conditions 2.3 and 2.4.

Facility Classification

This facility was previously classified as “Synthetic Minor” for PM$_{10}$ emissions because PM$_{10}$ emissions would exceed 100 tons per year without controls or enforceable permit limits. There is no change in permitted emissions as a result of this project. Therefore, this facility will continue to be classified as “Synthetic Minor” for PM$_{10}$ emissions.

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 modified 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.
Registration Procedures and Requirements for Portable Equipment (IDAPA 58.01.01.500)

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)

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

Fugitive Emissions (IDAPA 58.01.01.650)

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

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

IDAPA 58.01.01.701.01.a: If PW is < 9,250 lb/hr; E = 0.045 (PW)^{0.60}
IDAPA 58.01.01.701.01.b: If PW is ≥ 9,250 lb/hr; E = 1.10 (PW)^{0.25}

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

IDAPA 58.01.01.702.01.a: If PW is < 17,000 lb/hr; E = 0.045 (PW)^{0.60}
IDAPA 58.01.01.702.01.b: If PW is ≥ 17,000 lb/hr; E = 1.12 (PW)^{0.27}

As discussed previously in the Emissions Inventory Section, concrete has a density of 4,024 lb per cubic yard. Thus, for the new Concrete Batch Plant proposed to be installed as a result of this project with a proposed throughput of 200 yd³/hr, E is calculated as follows:

Proposed throughput = 4,024 lb per cubic yard x 200 yd³/hr = 804,800 lb/hr

Therefore, E is calculated as:

E = 1.10 x PW^{0.25} = 1.10 x (804,800)^{0.25} = 32.9 lb-PM/hr
Because the previous permitting actions did not include a lb-PM$_{10}$/hr limit a conservative approach is used to derive a lb-PM$_{10}$/hr value. Given that the annual PM$_{10}$ 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 2,600 lb/T and divided by 2,600 hr/yr, yields 0.202 lb PM$_{10}$/hr. Assuming PM is 50% PM$_{10}$ means that PM emissions will be 0.404 lb-PM/hr (0.202 lb-PM$_{10}$/hr ÷ 0.5 lb-PM$_{10}$/lb-PM). Therefore, compliance with this requirement has been demonstrated.

**Rules for Control of Odors (IDAPA 58.01.01.775)**

IDAPA 58.01.01.750 Rules for Control of Odors

Section 776.01 states that no person shall allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids into the atmosphere in such quantities as to cause air pollution. These requirements are assured by Permit Conditions 2.5 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$_{10}$ 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.