State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Tier II Operating Permit No. T2-040114

Final

Lake Pre-Mix Concrete, Inc.

Sandpoint, Idaho

Facility ID No. 777-00182

July 30, 2009

Mary Capiral MC

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.

Table of Contents

Acronyms, Units, and Chemical Nomenclature

AACC	Acceptable Ambient Concentration for a Carcinogen
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
HAP	hazardous air pollutant
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
$\mu g/m^3$	micrograms per cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	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
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAP	toxic air pollutant
T2	Tier II operating permit
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. FACILITY INFORMATION

1.1 Facility Description

Lake Pre-Mix Concrete, Inc. specializes in ready-mixed concrete. The facility operates a Johnson 630 portable concrete batch plant that consists of a cement storage silo, a fly ash storage silo, weigh hopper, and aggregate bucket elevator (see plot plan in Appendix C). Raw cement is delivered to the site by bulk delivery truck. The cement is pneumatically transported through a pipe to the cement storage silo. Cement is then delivered from the cement silo to the weigh hopper by an enclosed auger. Sized aggregate is conveyed from ground level to enclosed elevated storage bins by bucket elevator. Cement, fly ash, and sized aggregate are apportioned by the enclosed weigh hopper for delivery into mixer trucks. Water and the aggregate/cement/fly ash combination are introduced to the mixer trucks located below the overhead weigh hopper. Fugitive PM_{10} emissions resulting from the transfer of the aggregate/sand and cement mixture from the weigh hopper to the mixer trucks are controlled by a shrouding fogger unit. The mixer trucks blend the mixture and transport the concrete off-site.

Emissions from operation of the concrete batch plant include fugitive PM_{10} emissions resulting from loader and truck traffic on unpaved roads, aggregate drops, aggregate transport in the bucket elevator, and wind erosion of exposed storage piles. Point source emissions result from the pneumatic transport of cement from bulk truck to the storage silo and the venting of the weigh hopper during operation.

PM_{10} emissions from the cement silo and fly ash silo are controlled by baghouses. PM_{10} emissions from the transfer of cement and aggregate to the weigh hopper are controlled by a full enclosure. The enclosure vents to the same baghouse as the cement silo. Fugitive PM_{10} emissions resulting from the transfer of the aggregate/sand and cement mixture from the weigh hopper to the mixer trucks are controlled by a shrouding fogger unit.

Lake Pre-Mix also utilizes a NATCO A53G water boiler which uses natural gas as fuel. Emissions from operation of the boiler include PM_{10}, SO_x, NO_x, CO, and VOC.

1.2 Permitting Action and Facility Permitting History

This permit is a Tier II operating permit renewal. In addition, this permit incorporates the NATCO A53G water boiler used by the facility, which was not included in the previous permits.

The permitting history for this facility is closely tied to the Sandpoint Area PM_{10} nonattainment status, so key dates associated with the nonattainment area designation have been included below. 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).

1990	The Sandpoint area in Bonner County, Idaho was designated as a nonattainment area for PM_{10} and classified as moderate upon enactment of the Clean Air Act Amendments in 1990 (Sections 107(d)(4)(B) and 188(a) of the Act).

December, 1992	The *Industrial Point Source PM_{10} Emissions Inventory for Sandpoint, Idaho* was submitted to DEQ by Morrison Knudsen's Environmental Services Division.
May 14, 1993	DEQ submitted the *Sandpoint Area Particulate (PM_{10}) Air Quality Improvement Plan* (also called the Sandpoint State Implementation Plan or SIP) to EPA Region X. The EPA found that this submittal was complete, but deficiencies were identified during EPA's technical review.
December 10, 1993	Lake Pre-Mix, Inc. was established as a business entity in Idaho.
May 27, 1994	Receipt of Lake Pre-Mix's draft Tier II operating permit from DEQ's contractor, Bison Environmental Resources. Lake Pre-Mix' potential to emit for PM_{10} emissions was determined to be greater than 1 ton per year, so the required emissions reduction needed from this source was specifically included and modeled as part of developing the Sandpoint SIP.
July 7, 1995	DEQ issued Tier II Operating Permit No. 017-00040 to implement reasonably available control technology and measures (RACT/RACM) that were included in the Sandpoint PM_{10} Nonattainment SIP. (S)
May 17, 1996	DEQ issued Tier II Operating Permit No. 777-00182 to reflect relocation of the facility from the corner of Short Street and Fir in downtown Sandpoint to 1430 N. Boyer Avenue in Sandpoint, and to replace the stationary custom-built batch plant with a portable Johnson 630 batch plant. The permit expired on May 17, 2001, but the facility has continued to operate subject to the conditions contained in that permit. (S)
August 16, 1996	DEQ resubmitted the modified *Sandpoint Area Particulate (PM_{10}) Air Quality Improvement Plan* to EPA Region X.
June 26, 2002	EPA approved the Sandpoint PM_{10} SIP (67 FR 43006), which became effective on August 26, 2002.
August 6, 2009	DEQ issued Tier II Operating Permit No. T2-040114 as a renewal of Lake Pre-Mix's existing Tier II permit.

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

The purpose of this project is to renew the Tier II operating permit of Lake Pre-Mix Concrete, Inc. In addition, this permit incorporates the NATCO A53G water boiler used by the facility, which was not included in the previous permits, and the use of fly ash as a cement supplement.

2.2 Application Chronology

May 24, 2004	Receipt of letter from Lake Pre-Mix requesting that the Tier II operating permit No. 017-00040 be renewed.
June 23, 2004	DEQ determined the application complete.
July 6, 2004	DEQ denied the Tier II renewal request. The request referenced an incorrect permit number and did not include the required certification statement.
July 19, 2004	Receipt of revised letter from Lake Pre-Mix requesting renewal of expired Tier II operating permit No. 777-00182.
August 9, 2004	DEQ determined the application complete.
September 24, 2004	DEQ issued a request for additional required information, noting that DEQ representatives would conduct a site visit to collect some of the information.
September 21, 2004	DEQ Coeur d'Alene Regional Office staff conducted a site visit at the facility and collected UTM coordinate data and process information. Information was documented in a September 29, 2004 internal memorandum to the Source File from Tom Harmon.
April 19, 2005	DEQ issued a second request for additional information, and provided the applicant with a draft emissions inventory and a copy of AP-42 Section 11.12, Concrete Batching (10/01); and Section 13.2.2, Unpaved Roads (12/03).
May 12, 2005	Receipt of supplemental information: scaled plot plan, description of cement supplement usage, and comments on the DEQ emissions inventory assumptions. In their letter, Lake Pre-Mix indicated the intention to replace up to 15% of cement with fly ash.
October 1, 2005	Modeling analysis for issuance of Tier II operating permit to Lake Pre-Mix was conducted. The modeling analysis accounted for up to 15% of cement replaced with fly ash and the addition of a fly ash storage silo to the facility. Modeling results demonstrated that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

November, 2007	DEQ conducted site inspection and learned that Lake Pre-Mix discontinued the use of fly ash as a supplement. Thus, the project was processed only as a renewal of the facility's Tier II operating permit and to incorporate the NATCO A53G water boiler in use at the facility. A PTC for use of fly ash and construction of a storage silo for the fly ash was no longer addressed.
May 20, 2009	Drafts of the permit and statement of basis were sent to the facility for review.
May 20, 2009	Lake Pre-Mix informed DEQ via e-mail that while the facility was not utilizing fly ash during DEQ's last inspection (November 2007), it was not the facility's intent to preclude the use of fly ash. Lake Pre-Mix has been using fly ash as a substitute for cement at levels greater than 15%.
June 8, 2009	Updated drafts of the permit and statement of basis were sent to the facility for review. The updated documents incorporated the facility's ability to substitute up to 30% of cement with fly ash and the construction of a fly ash storage silo.
June 11, 2009	The facility did not suggest any revisions to be made to the 2nd permit draft sent on June 8, 2009.
June 23, 2009 to July 23, 2009	A public comment period on the Tier II renewal was provided.
August 6, 2009	The final Tier II permit and statement of basis were issued.

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Emission Unit/ ID No.	Emissions Unit Description	Control Device Description	Emissions Discharge Point ID No. and/or Description
Johnson 630 Concrete Batch Plant	Cement storage silo	Baghouse Manufacturer: Besser Model: DCS 260 Type: shaker Number of Bags: 42	Exit height: 31 ft Exit flow rate: 260 cfm
	Fly ash storage silo Diameter: 2.4 m (8 ft) Height: 6.1 m (20 ft)	Baghouse Manufacturer: Besser Model: DCS 260 Type: shaker Number of Bags: 42	Exit height: 34 ft Exit flow rate: 260 cfm
	All associated fugitive PM/PM_{10} emissions from the following: sand, aggregate, and cement transfer from batch mix plant into drum of concrete delivery truck, or equivalent	Shrouding fogger unit	N/A
	All associated fugitive PM/PM_{10} emissions from the following: sand and aggregate transfers, weigh hopper loading, vehicle traffic, and wind erosion of stockpiles	Reasonable control	N/A
NATCO A53G Water Boiler	Manufacturer: NATCO Model: A53G Manufacture date: unknown Maximum capacity: 2.5 MMBtu/hr Fuel: natural gas only	Reasonable control	Exit height: 14 ft

3.2 Emissions Inventory

Table 3.2 CONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS POTENTIAL TO EMIT

Emissions Unit	PM_{10}		SO_2		NOx		CO		VOC		LEAD
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/quarter
Point Sources Affected by this Permitting Action											
Johnson 630 Concrete Batch Plant (including a cement storage silo and fly ash storage silo)	0.034	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATCO A53G Water Boiler	0.018	0.079	0.02	0.088	0.24	1.043	0.202	0.876	0.013	0.057	0.0
Total, Point Sources	0.052	0.109	0.02	0.088	0.24	1.043	0.202	0.876	0.013	0.057	0.0
Process Fugitive/Volume Sources Affected by this Permitting Action											
Johnson 630 Concrete Batch Plant (Fugitive Emission Sources)	0.22	0.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total, Process Fugitives	0.22	0.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

3.3 Ambient Air Quality Impact Analysis

Modeling analysis, which accounted for up to 15% cement replaced with fly ash and the addition of a storage silo for fly ash, was conducted on October 1, 2005 (see Appendix D for modeling memo). Modeling results demonstrated that emissions from the facility would not cause or significantly contribute to a violation of any air quality standard. Since the facility requested to use fly ash at levels greater than 15% of cement on May 20, 2009, maximum predicted concentrations for arsenic and nickel from the October 1, 2005 modeling memo (Table 10, Appendix D) were corrected using the following equation to reflect the increase in fly ash substitute rate:

Corrected Concentration ($\mu g/m^3$) = [Max. Modeled Conc. from 2005 Modeling Analysis ($\mu g/m^3$) x (New Fly Ash Substitution Rate % ÷ 15 % fly ash)]

It was determined that up to 30% of cement can be replaced with fly ash without the facility exceeding AACC thresholds for arsenic and nickel.

Table 3.3 CORRECTED MAXIMUM MODELED TAP CONCENTRATIONS

TAP Name	Averaging Period	Max. Modeled Conc. ($\mu g/m^3$) (from Modeling Memo 10/01/05)	New Fly Ash Substitution Rate (%)	Corrected Conc. $\mu g/m^3$)	AACC ($\mu g/m^3$)
Arsenic (controlled)	annual	1.09E-04	30	2.18E-04	2.3E-04
Nickel (controlled)	annual	2.44E-04	30	4.88E-04	4.2E-03

Since the total pounds of cementious material will remain the same (i.e. 70 lbs of cement withheld and replaced by 70 lbs of fly ash), PM_{10} emissions limits were not increased as part of this permit.

3.4 Origin of Existing Emissions Limits

PM_{10} emissions from the cement storage silo baghouse exhaust stack shall not exceed shall not exceed 0.03 pounds per hour (lb/hr) or 0.03 tons per year (T/yr).

Origin: The PM_{10} emissions limit for the cement storage silo baghouse exhaust stack was initially established by Tier II No. 777-00182, issued May 17, 1996. The emissions limit has not been modified since the initial issuance.

The maximum daily concrete throughput during the months of November through March shall not exceed two hundred seventy cubic yards per day (270 cy/day). The maximum daily concrete throughput during the months of April through October shall not exceed four hundred cubic yards per day (400 cy/day).

Origin: The concrete throughput limits were initially established by Tier II No. 777-00182, issued May 17, 1996, to limit PM_{10} emissions from the cement storage silo as proposed by the Applicant. The throughput limits have not been modified since the initial issuance.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is located in Bonner County which is designated as attainment or unclassifiable for $PM_{2.5}$, CO, NO_2, SO_X, and Ozone and nonattainment for PM_{10}. Reference 40 CFR 81.313.

Lake Pre-Mix is listed in the Sandpoint SIP. This permit complies with the requirements of the Sandpoint SIP.

4.2 Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Requirements

The facility is not applying for a PTC. Therefore, the requirements of IDAPA 58.01.01.201 do not apply.

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ..... Tier II Operating Permits

The facility is applying for renewal of an existing Tier II permit and is therefore subject to the requirements of IDAPA 58.01.01.401.

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

IDAPA 58.01.01.301 ..... Tier I Operating Permit

The facility is not a Tier I source in accordance with IDAPA 58.01.01.006.113. Therefore, the requirements of IDAPA 58.01.01.301 do not apply.

4.5 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), the PSD requirements do not apply.

4.6 NSPS Applicability (40 CFR 60)

40 CFR 60, Subpart Dc ..... Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

The requirements of 40 CFR 60, Subpart Dc - Standards of Small Industrial-Commercial-Institutional Steam Generating Units do not apply to the operations of Lake Pre-Mix Concrete, Inc. because the heat input capacity of the NATCO A53G water boiler is less than 10 MMBtu/hr. (The NATCO A53G water boiler has a rated heat input of 2.5 MMBtu/hr.)

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

4.7 NESHAP Applicability (40 CFR 61)

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

4.8 MACT Applicability (40 CFR 63)

The facility is not subject to any MACT requirements pursuant to 40 CFR 63 because it is not a source of HAPs.

4.9 CAM Applicability (40 CFR 64)

40 CFR 64 does not apply to this facility because it is not required to obtain a part 70 or 71 permit.

4.10 Permit Conditions Review

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

Old Permit Condition 1.1 (Baghouse Stack Emissions Limit) from T2 No. 777-00182 has been renumbered to Permit Condition 3.3.

Old Permit Condition 1.2 (Baghouse and All Other Point Source Opacity Limit) from T2 No. 777-00182 has been renumbered to Permit Condition 2.9 under Facility-Wide Conditions.

Old Permit Conditions 1.3 (Visible Fugitive Emission Limit at Property Boundary) from T2 No. 777-00182 has been deleted.

Old Permit Condition 2.1 (Maximum Throughput Limits) from T2 No. 777-00182 has been renumbered to Permit Condition 3.4.

Old Permit Condition 2.2 (Shrouding Fogger Unit) from T2 No. 777-00182 has been renumbered to Permit Condition 3.6.

Old Permit Condition 2.3 (Control of Fugitive Emissions) from T2 No. 777-00182 has been updated per current DEQ guidance and has been renumbered to Permit Conditions 2.1 under Facility-Wide Conditions.

Old Permit Conditions 2.4 and 3.2 (Pressure Drop across Baghouse and Baghouse Pressure Drop Monitoring, respectively) from T2 No. 777-00182 have been removed since the pressure drop requirements for the baghouse has been replaced by the requirement that the facility perform a daily see-no-see emissions check on the baghouse (see new Baghouse Procedures Permit Condition) per current DEQ guidance.

Old Permit Condition 2.5 (Mandatory Curtailment/Air stagnation Advisory Days) from T2 No. 777-00182 been has been renumbered to Permit Condition 3.8.

Old Permit Condition 3.1 (Concrete Throughput Monitoring) from T2 No. 777-00182 has been renumbered to Permit Condition 3.9. The condition that monitoring records shall be kept at the facility for the most recent two-year period has been changed to the most recent five-year period.

Old Permit Condition 3.3 (Relocation) from T2 No. 777-00182 has been renumbered to Permit Condition 3.10.

Old Permit Condition 3.4 (Certification of Documents) from T2 No. 777-00182 has been renumbered to Permit Condition 2.12 under Facility-Wide Conditions and under General Provision 9. Additionally, Permit Condition 2.11 requires that any reporting required, with the exception of a Portable Equipment Registration and Relocation form, shall be submitted to the Coeur d'Alene Regional Office.
Old Permit Condition 3.5 (Fugitive Control Monitoring) from T2 No. 777-00182 has been updated per current DEQ guidance and has been renumbered to Permit Condition 2.3 under Facility-Wide Conditions. Additionally, the condition that the most recent two years of data shall be kept on-site and be made available to Department representatives upon request has been changed to the most recent five years of data.

All Tier II Permit to Operate General Provisions have been updated per current DEQ guidance.

New Permit Conditions 2.1 to 2.13 establish facility-wide conditions per current DEQ guidance:

New Permit Condition 2.2 requires that the permittee shall establish and maintain a Fugitive Dust Control Plan which identifies potential sources of fugitive dust and which establishes good operating practices for limiting the formation and dispersion of dust from those sources.

New Permit Condition 2.4 requires that the permittee shall maintain records of all fugitive dust complaints received.

New Permit Condition 2.5 requires that the permittee shall conduct a facility-wide inspection of potential sources of fugitive emissions, during daylight hours and under normal operating conditions once each calendar day the facility operates, to ensure that the methods used to reasonably control fugitive emissions are effective.

New Permit Condition 2.6 requires that the permittee shall not allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids to the atmosphere in such quantities as to cause air pollution.

New Permit Condition 2.7 requires that the permittee shall maintain records of all odor complaints received.

New Permit Condition 2.9 requires that the permittee shall conduct a facility-wide inspection of potential sources of visible emissions during daylight hours and under normal operating conditions.

New Permit Condition 2.10 requires that the permittee shall comply with the requirements of the Rules for Control of Open Burning, IDAPA 58.01.01.600-623.

New Permit Condition 2.12 requires that receiving a Tier II operating permit shall not relieve any owner or operator of the responsibility to comply with all applicable local, state, and federal rules and regulations.

New Permit Condition 3.5 (Fly Ash Substitution Rate Limit) requires that the permittee shall not use more than 30% fly ash as cement supplement.

New Permit Condition 3.7 (Baghouse Procedures) requires that the permittee shall develop a Baghouse Procedures document for the inspection and operation of the baghouse.

New Permit Condition 4.3 (Boiler Emission Limits) has been added to incorporate emission limits from the NATCO A53G water boiler used at the facility.

New Permit Condition 4.4 (Grain Loading Limit) requires that the permittee shall not discharge to the atmosphere from the NATCO A53G water boiler stack PM in excess of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume for gas, as required by IDAPA 58.01.01.676.

New Permit Condition 4.5 (Opacity Limit) requires that visible emissions from the NATCO A53G water boiler stack, or any other stack, vent, or functionally equivalent opening associated with the boiler shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625.

New Permit Condition 4.6 (Allowable Fuels) requires that natural gas exclusively shall be combusted in the NATCO A53G Boiler.

New Permit Condition 4.7 (Monitoring and Recordkeeping) requires that the permittee shall comply with the monitoring and recordkeeping requirements of General Provision 7.

5. PERMIT FEES

A Tier II operating permit processing fee must be paid to DEQ in accordance with IDAPA 58.01.01.407 by the permittee receiving a Tier II operating permit or permit renewal. Lake Pre-Mix Concrete is subject to a processing fee of $2,500 because it is in the category of stationary source or facility with permitted emissions of one to less than ten tons per year, as shown in Table 5.1. The fee calculation shall not include fugitive emissions.

Table 5.1 TIER II PROCESSING FEE TABLE

Pollutant	Permitted Emissions (T/yr)
NO_X	1.043
SO_2	0.088
CO	0.876
PM_{10}	0.109
VOC	0.057
HAPS	0.0
Total:	**2.173**
Fee Due	**$ 2500.00**

6. PUBLIC COMMENT

A public comment period was made available to the public from June 23, 2009 to July 23, 2009. During this time, comments were not submitted in response to DEQ's proposed action.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification - Data Form

Facility Name: Lake Pre-Mix Concrete, Inc.

Facility Location: Portable (1430 N. Boyer Ave. Sandpoint, Idaho 83864)

Facility ID: 777-00182 **Date:** July 29, 2009

Project/Permit No.: T2-040114 **Completed By:** Mary Capiral

☒ Check if there are no changes to the facility-wide classification resulting from this action. (compare to form with last permit)
Comments:

☐ Yes, this facility is an SM80 source.

Identify the facility's area classification as A (attainment), N (nonattainment), or U (unclassified) for the following pollutants:

	SO2	PM10	VOC
Area Classification:			

DO NOT LEAVE ANY BLANK

Check one of the following:

☐ **SIP** [0] - Yes, this facility is subject to SIP requirements. (do not use if facility is Title V)

OR

☐ **Title V** [V] - Yes, this facility is subject to Title V requirements. (If yes, do not also use SIP listed above.)

For SIP or TV, identify the classification (A, SM, B, C, or ND) for the pollutants listed below. Leave box blank if pollutant is not applicable to facility.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:							

☐ **PSD** [6] - Yes, this facility has a PSD permit.

If yes, identify the pollutant(s) listed below that apply to PSD. Leave box blank if pollutant does not apply to PSD.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **NSR - NAA** [7] - Yes, this facility is subject to NSR nonattainment area (IDAPA 58.01.01.204) requirements.

Note: As of 9/12/08, Idaho has no facility in this category.

If yes, identify the pollutant(s) listed below that apply to NSR-NAA. Leave box blank if pollutant does not apply to NSR - NAA.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **NESHAP** [8] - Yes, this facility is subject to NESHAP (Part 61) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

☐ **NSPS** [9] - Yes, this facility is subject to NSPS (Part 60) requirements.

If yes, what CFR Subpart(s) is applicable?

If yes, identify the pollutant(s) regulated by the subpart(s) listed above. Leave box blank if pollutant does not apply to the NSPS.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **MACT** [M] - Yes, this facility is subject to MACT (Part 63) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

Appendix B – Emissions Inventory

B.1 NATCO A53G WATER BOILER CALCULATIONS:

Maximum Hourly Fuel Usage (MMscf/hr) = [Maximum Capacity of Boiler (2.5 MMBtu/hr) ÷ Heating Value of Fuel (1050 Btu/scf)]

Hourly Potential Emissions (lb/hr) = [Emission Factor (lb/MMscf) x Maximum Hourly Fuel Usage (MMscf/hr)]

Maximum Annual Fuel Usage (MMscf/yr) = [Maximum Capacity of Boiler (2.5 MMBtu/hr) ÷ Heating Value of Fuel (1050 Btu/scf) x 24 hrs/day x 365 days/yr]

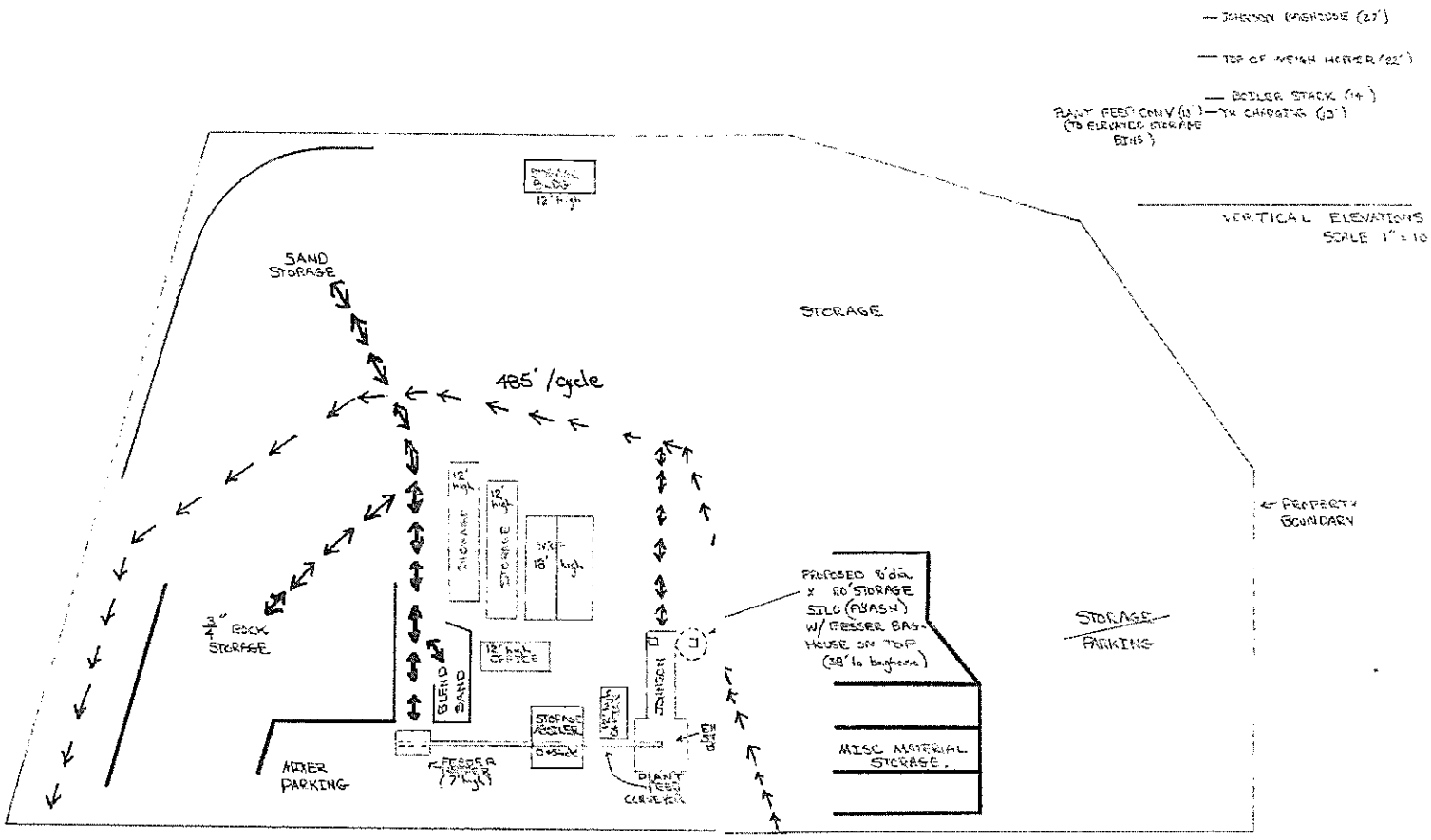
Annual Potential Emissions (T/yr) = [Emission Factor (lb/MMscf) x Maximum Annual Fuel Usage (MMscf/hr) x (1 Ton/2000 lb)]

Pollutant	Emissions Factor (lb/MMscf)	Total Hourly Fuel Usage (MMscf/hr)	Total Annual Fuel Usage (MMscf/yr)	Hourly Emissions (lb/T)	Annual Emissions (T/yr)
CO	84[1]	0.0024	20.85	0.202	0.876
NO_x	100[1]			0.240	1.043
PM_{10}	7.6[2]			0.018	0.079
SO_x	0.6[2]			0.0015	0.0064
VOC	5.5[2]			0.013	0.057

1- From AP-42 Table 1.4-1. Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Natural Gas Combustion

2- From AP-42 Table 1.4-2. Emission Factors for Criteria Pollutants and Greenhouse Gasses from Natural Gas Combustion

Appendix C – Plot Plan



LAKE PRIX
SITE P

6' HIGH WALLS
8' HIGH WALLS
LOADER TRAFFIC
TRAFFIC

SCALE 1" = 20'
5/10/05. by [signature] for Lake Pr. Mix

Appendix D – Modeling Memo

MEMORANDUM

DATE: October 1, 2005

TO: Darrin Mehr, Permit Writer – Air Program Division

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

PROJECT NUMBER: T2-040114

SUBJECT: Modeling analysis for issuance of a Permit to Construct / Tier II operating permit to the Lake Pre-Mix Concrete facility located in Sandpoint, Idaho.

1.0 Summary

Lake Pre-Mix Concrete (Lake Premix) submitted a combination Permit to Construct (PTC) / Tier II operating permit application for their concrete batch plant located in Sandpoint, Idaho. The PTC portion addresses the addition of a cement supplement silo. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the modification were conducted in support of the PTC application to demonstrate that emissions from the modification would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02). Air quality analyses were also conducted in support of a Tier II operating permit to demonstrate that facility-wide emissions will not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.403.02). DEQ air quality modeling staff conducted the ambient air quality analyses.

The air quality analyses: 1) utilized appropriate methods and models; 2) were conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards. Impacts of Toxic Air Pollutants (TAPs) from the proposed modification were all below allowable increments of IDAPA 58.01.01.585 and 586. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
Fugitive emissions from material handling and vehicle traffic on plant roads account for the largest portion of PM_{10} impacts to ambient air.	Control of fugitive emissions should be required through the use of good management practices.
Emission controls are needed to demonstrate compliance with arsenic and nickel TAP increments for the addition of a cement supplement silo.	As per IDAPA 58.01.01.210.08, emission limits for arsenic and nickel must be included in the permit.

2.0 Background Information

2.1 Proposed Action

DEQ determined a facility-wide Tier II operating permit is needed for this facility. During this process, Lake Premix applied for the ability to use cement supplement (fly ash) and construct a storage silo for this material.

2.2 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.2.1 Area Classification

The Lake Premix facility is located in Sandpoint, Idaho, within Bonner County, designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), and ozone (O_3). Sandpoint is currently designated as a non-attainment area for particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}). There are no Class I areas within 10 kilometers of the facility.

The Sandpoint State Implementation Plan (SIP) requires the following of new sources:

> "In PM_{10} nonattainment areas, DEQ will consider PM_{10} emissions from all sources associated with the facility operations. This specifically includes all fugitive emission sources, such as material transfers, vehicle traffic and storage piles, in addition to the ducted sources of PM_{10}. This practice will provide continued consistency in the evaluation of ambient impacts from industrial processes and on emission inventories and dispersion modeling analysis."

2.2.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources of the proposed modification and associated emissions increases and decreases exceed the significant contribution levels (SCLs) of IDAPA 58.01.01.006.91, then a full impact analysis is typically necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. New sources within a non-attainment area are not allowed an impact greater than the SCLs for the non-attainment pollutant, since the background is presumably greater that the applicable standard. Table 2 lists applicable standards and SCLs, and specifies the modeled value that must be used for comparison to the NAAQS.

TABLE 2. APPLICABLE REGULATORY LIMITS				
POLLUTANT	**Averaging Period**	**Significant Contribution Levels[a] ($\mu g/m^3$)[b]**	**Regulatory Limit[c] ($\mu g/m^3$)**	**Modeled Value Used[d]**
PM_{10}[e]	Annual	1.0	50[f]	Maximum 1st highest[g]
	24-hour	5.0	150[h]	Maximum 6th highest[i]
Carbon monoxide (CO)	8-hour	500	10,000[j]	Maximum 2nd highest[g]
	1-hour	2,000	40,000[j]	Maximum 2nd highest[g]
Sulfur Dioxide (SO_2)	Annual	1.0	80[f]	Maximum 1st highest[g]
	24-hour	5	365[j]	Maximum 2nd highest[g]
	3-hour	25	1,300[j]	Maximum 2nd highest[g]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[f]	Maximum 1st highest[g]
Lead (Pb)	Quarterly	NA	1.5[h]	Maximum 1st highest[g]

a. IDAPA 58.01.01.006.91
b. Micrograms per cubic meter
c. IDAPA 58.01.01.577 for criteria pollutants
d. The maximum 1st highest modeled value is always used for significant impact analysis
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
f. Never expected to be exceeded in any calendar year
g. Concentration at any modeled receptor
h. Never expected to be exceeded more than once in any calendar year
i. Concentration at any modeled receptor when using five years of meteorological data
j. Not to be exceeded more than once per year

A facility-wide impact analysis is needed for the facility-wide Tier II operating permit. Recent PM_{10} monitoring data were used as an appropriate background concentration value to demonstrate the facility will not cause a PM_{10} violation, as explained in Section 2.3. PM_{10} is the only criteria pollutant emitted in quantities that could have a measurable affect on ambient air quality.

2.2.3 Toxic Air Pollutant Impact Analysis

Toxic Air Pollutant (TAP) analysis requirements for PTCs are specified in IDAPA 58.01.01.210. If the uncontrolled emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of IDAPA 58.01.01.585 or IDAPA 58.01.01.586, then air dispersion modeling must be conducted to evaluate whether TAP impacts are below applicable TAP increments. If modeled impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of IDAPA 58.01.01.585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of IDAPA 58.01.01.586, then compliance with TAP requirements has been demonstrated.

Only arsenic and nickel are emitted from the proposed modification in quantities exceeding the ELs. The AACC for arsenic is 2.3E-4 $\mu g/m^3$, annual average, and the AACC for nickel is 4.2E-3 $\mu g/m^3$, annual average.

2.3 Background Concentrations

PM_{10} is the only criteria pollutant included in the modeling analyses. Recent monitoring data collected in Sandpoint were used for representative PM_{10} background concentrations.

Table 3. BACKGROUND CONCENTRATIONS		
POLLUTANT	**Averaging Period**	**Background Concentration ($\mu g/m^3$)[a]**
PM_{10}[b]	Annual	24.1
	24-Hour	74

a. Micrograms per cubic meter

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

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

Table 4 provides a summary of the modeling parameters used for DEQ's analyses.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Additional Description**
Model	ISC-PRIME	Version 04269
Meteorological data	Spokane surface data Spokane upper air data	1987-1992
Terrain	Terrain not considered	Because maximum impacts are along the facility property boundary, effects from elevated terrain can be neglected.
Building downwash	PRIME algorithm	Building dimensions obtained from the applicant
Receptor grid	Grid 1	10-meter spacing along boundary out to 50 meters
	Grid 2	50-meter spacing out to 500 meters
	Grid 3	100-meter spacing out to 1,000 meters
	Grid 4	250-meter spacing out to 2,000 meters

3.1.1 Model Selection

ISC-PRIME was used to conduct the ambient air analyses. ISCST3 cannot be used in this instance because numerous ambient air receptor locations exist within building recirculation cavities, and ISCST3 does not calculate concentrations within recirculation cavities. ISC-PRIME incorporates the PRIME downwash algorithm, which is also used in AERMOD, the proposed replacement model for ISCST3. The PRIME algorithm is superior to the existing downwash algorithms within ISCST3 and is capable of estimating concentrations within building recirculation cavities.

3.1.2 Land Use Classification

The area within a 3-kilometer radius is predominantly rural. Therefore, rural dispersion coefficients were used rather than urban coefficients.

3.1.3 Meteorological Data

Meteorological data from the Spokane airport were used for these analyses. Meteorological data have been collected for Sandpoint; however, those data have not yet been converted into a model-ready format. DEQ has determined Spokane data are the most representative data currently available.

PCRAMMET, the meteorological data preprocessor for ISCST-3, occasionally generates unrealistically low mixing heights as a result of interpolation algorithms used with the twice daily measured mixing heights. DEQ modeling was conducted using meteorological data corrected for low mixing heights. All mixing height values below 50 meters were replaced with a value of 50 meters.

3.1.4 Terrain Effects

The modeling analyses did not consider elevated terrain. Terrain effects can be neglected from the analyses because maximum impacts are located within a short distance of the property boundary, and the immediate area is effectively flat for dispersion modeling purposes.

3.1.5 Facility Layout

DEQ verified proper identification of the facility boundary and buildings on the site by comparing the modeling input to a facility plot plan submitted with the application and personal knowledge of the site.

3.1.6 Building Downwash

Plume downwash effects caused by structures present at the facility were accounted for in the modeling analyses. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters.

3.1.7 Ambient Air Boundary

The facility property line was used as the ambient air boundary. The property is not fenced to preclude public access. However, the small size of the facility's property allows staff to effectively control public access. This satisfies the requirements of preventing public access, as described in the *Idaho Air Quality Modeling Guideline*.

3.1.8 Receptor Network

The receptor grid used exceeded the minimum recommendations specified in the *Idaho Air Modeling Guideline*, and DEQ determined the receptor spacing used was sufficient to reasonably resolve the maximum modeled concentration.

3.1.9 Modeling Approach

The proposed project, as summarized in Section 2.1, involves changing the process to allow the use of flyash as a supplement to cement. This change requires a PTC and dispersion modeling of the increase in emissions associated with the change. Issuance of the Tier II operating permit requires facility-wide modeling to demonstrate compliance with NAAQS.

3.2 Emission Rates

Emissions rates used in the dispersion modeling analyses were calculated by DEQ permit writing staff.

3.2.1 *Emissions for PTC Modeling*

Only the emissions increases associated with the proposed modification are modeled for the PTC involving the use of fly ash as a cement supplement and the construction and operation of a cement supplement storage silo. The only new emissions source for this modification is the loading of the cement supplement silo. Emissions from this source are listed in Table 5, including TAP emissions from those TAPs having uncontrolled emissions exceeding the ELs.

TABLE 5. MODELED EMISSIONS FOR PROPOSED MODIFICATIONS		
Pollutant	**Averaging Period**	**Emissions Rate (lb/hr)[b]**
PM_{10}[a]	24-Hour	0.0029
	Annual	0.0029
Arsenic Uncontrolled	Annual	2.9E-5
Arsenic Controlled	Annual	5.9E-7
Nickel Uncontrolled	Annual	6.7E-5
Nickel Controlled	Annual	1.34E-6

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
b. Pounds per hour

3.2.2 *Emission Rates for Facility-Wide Modeling*

PM_{10} is the only criteria pollutant emitted from the facility in quantities that could have a measurable impact to concentrations in ambient air. Therefore, only impacts of PM_{10} were assessed in the Tier II ambient impact analyses.

PM_{10} emissions from material storage piles are a function of wind speed, primarily the speed of wind gusts or fastest mile wind speed. Wind gust data are not readily available for the specific data sets used in dispersion modeling. However, other sources indicated a fairly conservative ratio of 1.7 for gust wind speed to mean hourly wind speed[1]. Emission calculation methods from EPA's AP-42 were then used to calculate emissions as a function of fastest mile winds.[2] From this analysis it was estimated that particulate emissions from material storage piles would only occur during a 19.2 meters per second or greater fastest mile wind speed. Using the 1.7 ratio, this represents a 1-hour mean wind of 11.3 meters per second.

Emissions from storage piles are calculated in terms of mass per area of a pile that is active (frequently disturbed). For these analyses, it was assumed the active area for a given pile is 10 ft by 10 ft (1.86 m^2). Emissions were then calculated for five different wind speed classes as shown in Table 6. Wind Speed Category 2 was used as the base case, and adjustment factors were calculated for the other wind speed categories from this base case. The wind speed categories and the adjustment factor were then incorporated into ISC-PRIME such that emissions varied according to wind speed.

Fugitive emissions from vehicle traffic on site roads were modeled as a series of area sources, with each area 10 m by 2.5 m. Emissions were calculated on the basis of vehicle type and number of trips per day and per year. All plant traffic was distributed among 13 area sources as shown in Figure 1. Table 7 summarizes PM_{10} emissions for fugitive dust from vehicle traffic.

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1 Larry D. Stetler and Keith E. Saxton. Analysis of Wind Data Used for Predicting Soil Erosion. At http:www.weru.ksu/symposium/proceedings/stettler.pdf.
2 EPA TTN website. www.epa.gov/ttn/chief/ap42/ch13/final/c13s02-5.pdf

Table 6. WIND SPEED ADJUSTMENT FOR PM_{10} WIND EROSION EMISSIONS				
Wind Speed Category	**Upper Mean Wind Speed (m/sec)[a]**	**Fastest Mile Wind (m/sec)**	**PM_{10} Emissions (g/m^2-hr)[b]**	**Wind Speed Adjustment Factor[c]**
1	<11.3	19.2	0.0	0
2	12	20.4	1.7	1
3	13	22.1	5.1	3.0
4	14	23.8	9.3	5.5
5	15	25.5	14.6	8.5
6	>16	27.2	20.7	12.1

a. Meters per second

b. Grams per square meter per hour

c. Obtained by dividing the PM_{10} Emissions (g/m^2-hr) by the Category 2 emissions (1.7 g/m^2-hr)

TABLE 7. PM_{10} EMISSIONS FROM VEHICLE TRAFFIC ON SITE ROADS					
Vehicle type	**Emissions (lb/hr)[a]**		**Area Sources Used in Modeling**	**Emissions per Source (lb/hr-source)**	
	24-Hour	**Annual**		**24-Hour**	**Annual**
Mixer Trucks	0.141	0.056	11 (MIXRD1 – MIXRD9, MIXRD21)[b]	0.0128	0.0051
Haul Trucks	0.0192	0.0044	9 (MIXRD1 – MIXRD9)	0.0021	0.00049
Loader	0.067	0.067	6 (LOADER1 – LOADER6)	0.0112	0.0112

[a] Pounds per hour

[b] Emissions in MIXRD21 are two times that of the other sources because mixer trucks must travel both ways on this road segment (pulling in empty and leaving with concrete).

Other emissions from fugitive and point sources are provided in Table 8.

TABLE 8. PM_{10} EMISSIONS OTHER THAN ROADS AND WIND EROSION			
Source Code	**Description**	**Source type**	**Emissions Rate (lb/hr)[a]**
AGTRANS1	Aggregate and sand transfer from loader to hopper/conveyor.	Volume	0.025
AGTRANS2	Aggregate and sand transfer from conveyor to weigh hopper	Point	0.00025
CEMSILO	Cement unloading to silo	Point	0.00133
SUPSILO	Cement supplement unloading to silo	Point	0.0029
MIXLOAD	Mixer loading	Volume	0.088
AGTRAN3	Temporary sand pile transfer	Volume	0.00075
AGTRAN4	Daily active sand pile transfer	Volume	0.00075
AGTRAN5	Misc. material pile transfer	Volume	0.0064
AGTRAN6	Misc. material pile transfer	Volume	0.0064
AGTRAN7	Sand/rock pile transfer	Volume	0.0064
AGTRAN8	Daily active rock pile transfer	Volume	0.0057

[a] Pounds per hour

3.3 Emission Release Parameters

Table 9 provides emissions release parameters, including stack location, stack height, stack diameter, exhaust temperature, and exhaust velocity. Aggregate and sand transfer emissions were modeled as 2.0 m by 2.0 m volume sources. As per the ISC user's guide, the initial horizontal dispersion coefficient was calculated by dividing the width by 4.3, and the initial vertical dispersion coefficient was calculated by dividing the height by 2.15. Mixer loading was also modeled as a volume source, using an initial plume dimension equal to the mixer loading building (10 m lateral and 8.2 m high). Fugitive road dust from vehicle traffic and fugitive wind erosion emissions from storage piles were modeled as area sources. Road segments were modeled as 10 m by 2.5 m areas, and the initial vertical dispersion coefficient was set at 2.5 m to account for turbulence caused by movement of the mixers and loaders.

Table 9. EMISSIONS AND STACK PARAMETERS

Point Sources

Release Point	Source Type	Stack Height (m)[a]	Modeled Diameter (m)	Stack Gas Temp. (K)[b]	Stack Gas Flow Velocity (m/sec)[c]
AGTRANS2	Point	8.2	0.001[d]	0	0.001[d]
CEMSILO	Point	8.2	0.001[d]	0	0.001[d]
SUPSILO	Point	6.1	0.001[d]	0	0.001[d]

Volume Sources

Release Point	Source Type	Release Height (m)	Initial Horizontal Dispersion Coefficient σ_{y0} (m)	Initial Vertical Dispersion Coefficient σ_{y0} (m)	
AGTRANS1	Volume	2	0.47	0.93	
MIXLOAD	Volume	4	2.3	3.8	
AGTRAN3	Volume	2	0.47	0.93	
AGTRAN4	Volume	2	0.47	0.93	
AGTRAN5	Volume	2	0.47	0.93	
AGTRAN6	Volume	2	0.47	0.93	
AGTRAN7	Volume	2	0.47	0.93	
AGTRAN8	Volume	2	0.47	0.93	

Area Sources

Release Point	Source Type	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North	Vertical Dimen. (m)
MIXRD1	Area	0	2.5	10	0	2.5
MIXRD2	Area	0	2.5	10	-30	2.5
MIXRD3	Area	0	2.5	10	-30	2.5
MIXRD4	Area	0	2.5	10	-50	2.5
MIXRD5	Area	0	2.5	10	-90	2.5
MIXRD6	Area	0	2.5	10	-90	2.5
MIXRD7	Area	0	2.5	10	-110	2.5
MIXRD8	Area	0	2.5	10	-150	2.5
MIXRD9	Area	0	2.5	10	-150	2.5
MIXRD21	Area	0	2.5	10	0	2.5
LOADER1	Area	0	2.5	10	0	2.5
LOADER2	Area	0	2.5	10	0	2.5
LOADER3	Area	0	2.5	10	0	2.5
LOADER4	Area	0	2.5	10	-30	2.5
LOADER5	Area	0	2.5	10	30	2.5
LOADER6	Area	0	2.5	10	30	2.5
WINDER1	Area	1	3.05	3.05	0	2
WINDER2	Area	1	3.05	3.05	0	2
WINDER3	Area	1	3.05	3.05	0	2
WINDER4	Area	1	3.05	3.05	0	2
WINDER5	Area	1	3.05	3.05	0	2
WINDER6	Area	1	3.05	3.05	0	2

a. Meters
b. Kelvin
c. Meters per second
d. Source does not vent uninterrupted in the vertical direction, so exit velocity and diameter are set to 0.001 to effectively eliminate momentum induced plume rise

3.4 Results

3.4.1 Significant Impact Analyses and TAP Analyses for PTC

Table 10 summarizes the results of the PTC significant impact analyses and the TAP increment analyses for adding the cement supplement silo. The PTC modeling analyses conducted demonstrated to DEQ's satisfaction that operation of the proposed modification will not have a significant contribution to any violation of an ambient air quality standard, as required by IDAPA 58.01.01.203.02. The analyses also adequately demonstrated that impacts of TAPs will not exceed any applicable TAP increments specified in IDAPA 58.01.01.585 and 586, as required by IDAPA 58.01.01.203.03. However, since compliance with TAPs could not be demonstrated using uncontrolled emissions, TAP emission limits must be incorporated into the permit as per IDAPA 58.01.01.210.08.

Table 10. RESULTS OF PTC SIGNIFICANT IMPACT ANALYSES AND TAP ANALYSES

Significant Impact Analyses					
Pollutant	**Averaging Period**	**Year**	**Maximum Modeled Concentration ($\mu g/m^3$)[b]**	**Significant Contribution Level ($\mu g/m^3$)**	**Impact Less than SCL**
PM_{10}[a]	24-Hour	1987	3.6	5	Yes
	Annual	1991	0.53	1	Yes
TAP Increment Analyses					
TAP	**Averaging Period**	**Year**	**Maximum Modeled Concentration ($\mu g/m^3$)**	**AACC[c] ($\mu g/m^3$)**	**Impacts Less than AACC**
Arsenic (uncontrolled)	Annual	1991	5.35E-3	2.3E-4	No
Arsenic (controlled)	Annual	1991	1.09E-4	2.3E-4	Yes
Nickel (uncontrolled)	Annual	1991	1.22E-2	4.2E-3	No
Nickel (controlled)	Annual	1991	2.44E-4	4.2E-3	Yes

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
b. Micrograms per cubic meter
c. Acceptable ambient concentration for carcinogens

3.4.2 Full Impact Analyses

Table 11 summarizes the PM_{10} full impact analyses needed for issuance of the Tier II operating permit. All modeled concentrations, when combined with a conservative background concentration, were below the applicable NAAQS. However, the 24-hour PM_{10} analysis showed impacts at 99 percent of the 150 $\mu g/m^3$ NAAQS.

Considering the uncertainty associated with the modeling analyses, the 24-hour PM_{10} result, by itself, does not adequately demonstrate compliance. DEQ reviewed the time of year associated with the high-modeled values and assessed the contribution of specific source types to the high-modeled values to further evaluate the adequacy of the analysis. Table 12 shows source type contributions to maximum ambient 24-hour PM_{10} concentrations. Fugitive emissions from vehicle traffic on site roadways had the largest contribution to maximum 24-hour PM_{10} concentrations, followed by fugitive emissions from weigh hopper loading and material transfer operations. The modeling analysis also indicated that highest modeled concentrations occurred during wintertime and during moderate winds. Considering these characteristics, the maximum 24-hour modeled values likely overestimate impacts because: 1) actual production, and associated emissions, during winter months is substantially less than maximum allowable rates; 2) during winter months the site roadways are frequently covered with snow or are damp, thereby reducing fugitive emissions from vehicle traffic to negligible quantities; 3) material handled frequently has a higher moisture content during winter months, further reducing

actual emissions.

Table 11. RESULTS OF THE PM_{10} FULL IMPACT ANALYSES						
Averaging Period	**Year**	**Maximum Modeled Concentration[a] ($\mu g/m^3$)[b]**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient Concentration ($\mu g/m^3$)**	**NAAQS ($\mu g/m^3$)**	**Percent of NAAQS**
24-Hour	1991	75.9	74	149.9	150	99
Annual	1991	13.8	24.1	37.9	50	76

a. Nitrogen dioxide values assumed to be 75% of the modeled NOx value - values in parentheses are modeling results obtained by Coal Creek

b. Micrograms per cubic meter

Table 12. SPECIFIC SOURCE CONTRIBUTIONS				
Source Type	**Description**	**Sources Included**	**Total Emissions**	**Maximum Impact**
ROADS	Fugitive dust from vehicle traffic on site roadways	MIXRD1 - MIXRD9, MIXRD21, LOADER1 - LOADER6	0.23	73
AGTRANS	Fugitive emissions from material transfer	AGTRANS1, AGTRANS3 – AGTRANS8	0.051	42
AGTRANS2	Point emissions from conveyor to weigh hopper at top of building	AGTRANS2	0.00025	0.25
MIXLOAD	Fugitive emissions from mixer loading	MIXLOAD	0.088	42
SILOC	Point emissions from cement silo loading	CEMSILO	0.00133	0.93
SILOS	Point emissions from cement supplement silo loading	SUPSILO	0.0029	3.6
WINDEROS	Fugitive emissions from storage pile wind erosion	WINDER1 – WINDER6	Varies with wind	19

Considering the modeling analyses and the additional assessment of site conditions during periods of high-modeled impacts, the analyses demonstrate to the satisfaction of DEQ that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard, as required by IDAPA 58.01.01.403.