State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Permit to Construct No. P-060447

Final

Idaho Fresh Pak, Incorporated

Rupert, Idaho

Facility ID No. 067-00010

February 8, 2007

Robert Baldwin

Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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Acronyms, Units, and Chemical Nomenclature

acfm	actual cubic feet per minute
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
NAAQS	National Ambient Air Quality Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator

STATEMENT OF BASIS		
Permittee:	Idaho Fresh Pak, Incorporated	**Permit No.:** P-060447
Location:	Rupert, Idaho	**Facility ID No.** 067-00010

1. FACILITY INFORMATION

1.1 Facility Description

Idaho Fresh Pak Inc. is a potato processing facility that produces dehydrated potato products. Process steam is provided by the cogeneration facility located adjacent to the potato facility. Two natural gas boilers provide steam when the cogeneration facility is not operating.

Potatoes are delivered to the plant by truck and unloaded into storage. The potatoes are then washed, peeled, and cooked. In the flake lines, the cooked potatoes are forced through slots, broken into small pieces (mash), and spread across the face of the drum dryers with applicator rolls. The Rupert facility operates two drum dryers; each has an hourly production rate of 970 pounds per hour of dried product. Only Flake Drum 2 is addressed in this permit application (Flake Drum 1 was installed in 1966, which is before PTC requirements were established; Flake Drum Dryers 3 and 4 were granted a Director's exemption on February 2, 1996).

The steam-heated drum dryers rotate and drive the moisture from the potato cells. The removed moisture is exhausted through the drum dryer (a.k.a., flaker) stacks. Flake Drum 2 has two uncontrolled exhaust stacks. The dried potato sheet is peeled from the drum and broken into smaller pieces, called flakes. The flakes are transported pneumatically to the silo or warehouse storage until transported offsite by railcar or truck.

The two baghouses control particulate exhaust from the product transfer equipment. Both baghouses vent to a single stack.

1.2 Permitting History

This is an initial PTC for these sources at this facility.

January 3, 1984	PTC (PTC-1020-0010) for two coal fired boilers later converted to be natural gas fired (A)
February 2, 1996	Director's exemption issued for flake drum dryers 3 and 4. (A)

2. APPLICATION SCOPE

The facility has proposed to obtain permits for the sources that indicate permits are required and are not eligible for an exemption. The Rupert facility operates four drum dryers. One flake dryer was installed in 1966. Flake dryers 3 and 4 were installed in 1984 with a director's exemption. Flake dryer 2 and the two baghouses (which vent to a single stack) are the sources requiring permits. The facility has two boilers that were permitted in 1982 to burn coal and later retrofitted to burn only natural gas to supply steam when the adjacent cogeneration facility is not operating.

2.1 Application Chronology

October 10, 2006	DEQ received the PTC application and application fee.
November 9, 2006	DEQ determined the PTC application complete.
February 6, 2007	DEQ sent draft permit to regional office for review.
February 6, 2007	DEQ sent draft permit to facility for review.
September 4, 2007	DEQ received a request to postpone permitting the Rupert facility.
September 13, 2007	DEQ granted the time extension requested to reevaluate the need for the Rupert facility to remain operating and the subsequent permit.
January 18, 2008	DEQ received comments from facility's consultant, Eric Hansen, regarding the draft permit.
January 31, 2008	DEQ held a conference call with facility representatives and consultant to discuss some conditions in the draft permit.
February 14, 2008	DEQ received an e-mail from Eric Hansen stating agreement with the conditions in the draft permit.

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Source Description	Emissions Control(s)
Flake drum dryer 2	None
Product transfers	Baghouses
Natural gas boilers	None

3.2 Emissions Inventory

The criteria pollutant from the flake drum dryer and baghouses is PM_{10}. The combined PM_{10} emissions from the flake drum dryer and baghouses are 0.98 lb per hr.

Table 3.2 states the potential to emit of all the permitted sources at the Rupert facility.

Table 3.2 POTENTIAL EMISSION INVENTORY WITHOUT CONTROLS ON DRYERS

EMISSION UNITS	PM_{10}	SOX	NOx	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
NG Boilers	1.3	0.1	16.8	14.1	0.14
Flaker Drum Dryer 2	2.41				
2-Baghouses through common stack	1.88				

*The NG boilers are used only when the steam from the cogeneration facility is not operating.
The flaker drum dryer is uncontrolled and is able to operate 8760 hours per year.
The two baghouses are operated at a maximum air flow rate of 5,000 cfm with an emitting of 0.01 gr/scfm.

3.3 Ambient Air Quality Impact Analysis

The facility has demonstrated compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The facility has also demonstrated compliance to DEQ's satisfaction that emissions increase due to this permitting action will not exceed any AAC or AACC for TAPs. A summary of the modeling analysis can be found in the modeling memo in Appendix C.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

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

4.2 Permit to Construct (IDAPA 58.01.01.201)

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

The facility's addition of the emission units increased emissions requiring a PTC.

IDAPA 58.01.01.203 ..... Permit Requirements for New and Modified Stationary Sources

The applicant has shown to the satisfaction of DEQ that the facility will comply with all applicable emissions standards, ambient air quality standards, and toxic increments.

IDAPA 58.01.01.210 ..... Demonstration of Preconstruction Compliance with Toxic Standards

The applicant has demonstrated compliance for all TAPs identified in the permit application. The applicant has demonstrated that the air toxic pollutants are below their applicable screening levels.

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

This facility is not a classified Title V facility.

4.4 PSD Classification (40 CFR 52.21)

This facility is not classified a PSD facility.

4.5 NSPS Applicability (40 CFR 60)

This facility is not subject to 40 CFR 60.

4.6 NESHAP Applicability (40 CFR 61)

This facility is not subject to 40 CFR Part 61.

4.7 MACT Applicability (40 CFR 63)

This facility is not subject to 40 CFR Part 63.

4.8 CAM Applicability (40 CFR 64)

This facility is not subject to 40 CFR Part 64.

4.9 Permit Conditions Review

This section describes only those permit conditions (PC) that have been added, revised, modified or deleted as a result of this permitting action. All other permit conditions remain unchanged.

Permit Condition 2.3 and Table 2.2 have been designed to state the permitted limits of the criteria pollutant PM_{10} for the flake drum dryer 2 and flake drum dryer 3 stacks.

Compliance demonstration of Permit Condition 2.3 and Table 2.2 is maintained in the monitoring of the dried potato product established in Permit Conditions 2.5.1 and 2.5.2. The PM_{10} emission rate used to determine the rate of emissions of the flake drum dryer was from a similar source tested at Idahoan Foods' Lewisville facility. The tested rate was raised 50% to allow flexibility and a safety factor for compliance. The emissions for the baghouse were determined from emitting PM_{10} at a rate of 0.01gr/scf with an air flow rate of 5,000 cfm. The establishment of an O&M manual for the baghouses will demonstrate the compliance with the baghouse emissions within this permit. The uncontrolled PM_{10} emissions established the facility as a "B" rated facility.

Permit Condition 2.4 is taken directly from IDAPA 58.01.01.625.02.

Compliance demonstration with the opacity standard is assumed as long as the air pollution control device is working properly and the reasonable fugitive emissions controls are being applied as needed.

Permit Condition 2.5 relates to the dry potato product rate limit produced from the dryer.

Compliance demonstration to these dry potato product rates shall be the monitoring and recordkeeping maintained in Permit Condition 2.7. Compliance demonstration of the baghouses shall be monitoring through the O&M manual Permit Condition 2.6.

Permit Condition 3.3 requires the particulate matter emissions from combustion to meet a grain loading standard for natural gas.

Compliance demonstration is established by requiring boilers that supply steam when the cogeneration facility is not operating to burn natural gas exclusively as required in Permit Condition 3.4.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The facility is subject to a processing fee of $2,500 because its permitted emissions are 4.29 tons per year. DEQ received the processing fee on March 6, 2007.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM_{10}	4.29	0	4.29
VOC	0.0	0	0.0
HAPS	0.0	0	0.0
Total:	4.29	0	**4.29**
Fee Due	**$ 2,500.00**		

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided from November 22, 2006, to December 22, 2006, in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

APPENDIX A

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Idaho Fresh Pak, Incorporated
Facility Location: Rupert, Idaho
AIRS Number: 067-00010

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	B							U
PM_{10}	B							U
PT (Particulate)	B							U
VOC	B							U
THAP (Total HAPs)	B							U
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

APPENDIX B

POTENTIAL EMISSION INVENTORY WITHOUT CONTROLS ON DRYERS

EMISSION UNITS	PM_{10}	SOX	NOx	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
NG Boilers	1.3	0.1	16.8	14.1	0.14
Flake Drum Dryer 2	2.41				
2-Baghouses through common stack	1.88				

*The NG boilers are used only when the steam from the cogeneration facility is not operating.
The flake drum dryer is uncontrolled and is able to operate 8760 hours per year.
The two baghouses are operated at a maximum air flow rate of 5,000 cfm with an emitting of 0.01 gr/scfm.

APPENDIX C

M E M O R A N D U M DRAFT

DATE: August 12, 2007

TO: Bob Baldwin, Air Quality Permit Writer, Air Program

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

PROJECT NUMBER: P-060447

SUBJECT: Modeling Review for the Idaho Fresh Pak Inc. (Fresh Pak) Permit to Construct Application for sources at their facility in Rupert, Idaho

1.0 Summary

Idaho Fresh Pak, Inc. (Fresh Pak) submitted a Permit to Construct (PTC) application for their Flake Drum Dryer 2 and Product Transfer Baghouses at their facility to located in Rupert, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with operations of the facility were submitted to demonstrate that the modification would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 [Idaho Air Rules Section 203.02]). Geomatrix, Fresh Pak's consultant, conducted the submitted ambient air quality analyses. The application was submitted under the name of Idahoan Foods, Inc.

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses, with DEQ's verification analyses: 1) utilized appropriate methods and models; 2) was 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 either a) that predicted pollutant concentrations from emissions associated with the proposed facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all receptor locations. 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
Maximum modeled PM_{10} concentrations, close to the 24-hour PM_{10} NAAQS when combined with background concentrations, were located along the property boundary immediately northwest of the emissions sources, within building recirculation cavities.	Emissions from flakers and baghouses should be carefully reviewed. Emissions greater than those used in the modeling analyses could result in concentrations exceeding the 24-hour PM_{10} NAAQS.
Initial modeling files submitted did not accurately represent building elevations at the site.	Geomatrix submitted revised modeling that corrected building elevations.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

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

2.1.1 Area Classification

The Fresh Pak facility is located near Rupert, Idaho. The area is designated as attainment or unclassifiable for all criteria pollutants.

2.1.2 Significant and Full NAAQS Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed facility exceed the significant contribution levels (SCLs) of Idaho Air Rules Section 90, then a full impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02. A full NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, 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. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists 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[f]	1.0	50[g]	Maximum 1st highest[h]
	24-hour	5.0	150[i]	Maximum 6th highest[j]
$PM_{2.5}$	Annual	Not established	15	Use PM_{10} as surrogate
	24-hour	Not established	35	Use PM_{10} as surrogate
Carbon monoxide (CO)	8-hour	500	10,000[k]	Maximum 2nd highest[h]
	1-hour	2,000	40,000[k]	Maximum 2nd highest[h]
Sulfur Dioxide (SO_2)	Annual	1.0	80[g]	Maximum 1st highest[h]
	24-hour	5	365[k]	Maximum 2nd highest[h]
	3-hour	25	1,300[k]	Maximum 2nd highest[h]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[g]	Maximum 1st highest[h]
Lead (Pb)	Quarterly	NA	1.5[i]	Maximum 1st highest[h]

[a]Idaho Air Rules Section 006.90
[b]Micrograms per cubic meter
[c]Idaho Air Rules Section 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 ten micrometers
[f]The annual PM_{10} standard was revoked in 2006. The standard is still listed because compliance with the annual $PM_{2.5}$ standard is demonstrated by a PM_{10} analysis that demonstrates compliance with the revoked PM_{10} standard.
[g]Never expected to be exceeded in any calendar year
[h]Concentration at any modeled receptor
[i]Never expected to be exceeded more than once in any calendar year
[j]Concentration at any modeled receptor when using five years of meteorological data
[k]Not to be exceeded more than once per year

New source review requirements for assuring compliance with $PM_{2.5}$ standards have not yet been developed. EPA has asserted through a policy memorandum that compliance with $PM_{2.5}$ standards will be assured through an air quality analysis for the corresponding PM_{10} standard. Although the PM_{10} annual standard was revoked in 2006, compliance with the revoked PM_{10} annual standard must be demonstrated as a surrogate to the annual $PM_{2.5}$ standard.

2.1.3 Toxic Air Pollutant Analyses

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

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

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

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

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

2.2 Background Concentrations

Background concentrations are used in the full NAAQS impact analyses to account for impacts from sources not explicitly modeled. Background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources.

Table 3 lists appropriate background concentrations for the location of the proposed facility. Only PM_{10} background concentrations are listed because the flakers and baghouses do not emit other criteria pollutants. DEQ initially provided Geomatrix with conservative background concentration values that are intended as defaults for rural/agricultural areas. Geomatrix reevaluated PM_{10} background values during the application review period and determined alternate values would be more appropriate.

PM_{10} background concentrations were refined by Geomatrix based on monitoring data collected at Rupert, Idaho, for January 1995 through June 2002. Six monitored values were excluded from the data set on the basis of increased levels of dust resulting from high winds being a "rare natural event." These data were then sorted by season and seasonal background concentrations were calculated as the upper 95th percentile. Geomatrix used the DEQ default annual rural/agricultural value of 26 $\mu g/m^3$. The Rupert annual PM_{10} background concentration was measured at 27.0 $\mu g/m^3$.

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a]
PM_{10}[b]	24-hour	winter = 32.0; spring = 45.2; summer = 55.7; fall = 45.0; all data = 46.6 73[c]

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

	Annual	26[c] 27.0[d]

[a] Micrograms per cubic meter
[b] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
[c] Default rural/agricultural background value
[d] Monitored value for Rupert

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

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

3.1.1 Overview of Analyses

Table 4 provides a brief description of parameters used in the submitted modeling analyses.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description**
Model	ISC-PRIME	ISCST3 with the PRIME downwash algorithm, version 01228
Meteorological data	Heyburn	Surface data from Heyburn from September 2000 through August 2001, with upper air data from Boise
Terrain	Considered	Receptor, building, and emissions source elevations were determined using Digital Elevation Model (DEM) files
Building downwash	Considered	The building profile input program (BPIP) was used
Receptor Grid	Grid 1	25-meter spacing along the property boundary out to 1,000 meters
	Grid 1	100-meter spacing out to 2,000 meters
	Grid 2	500-meter spacing out to 4,000 meters
	Grid 3	250-meter spacing out to 1,000 meters
	Grid 4	500-meter spacing out to 5,000 meters

3.1.2 Modeling protocol and Methodology

The submitted air impact analyses were conducted by Geomatrix. A modeling protocol was not submitted to DEQ prior to the application. Modeling was generally conducted using methods and data presented in the *State of Idaho Air Quality Modeling Guideline*.

The permitting action only involves Flaker Drum Dryer 2 and two product transfer baghouses. PM_{10} is the only criteria pollutant emitted from these sources, and PM_{10} was the only pollutant included in the modeling analyses. Geomatrix performed full NAAQS impact analyses for PM_{10} and submitted those without showing results of significant impact analyses. This was presumably done because Geomatrix determined impacts from the proposed project would easily exceed SCLs.

3.1.3 Model Selection

Idaho Air Rules Section 202.02 require that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. EPA provided a 1-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer
- Improved plume rise and buoyancy calculations
- Improved treatment of terrain affects on dispersion
- New vertical profiles of wind, turbulence, and temperature

The Fresh Pak application was received prior to the December 2006 deadline requiring exclusive use of AERMOD. DEQ allowed ISCST3 to be used for this application because the readily available meteorological data are not in a format usable by AERMOD. The version of ISCST3 with the PRIME downwash algorithm was used because some receptors were located within building recirculation cavities, and the version of ISCST3 without the PRIME algorithm does not calculate concentrations within recirculation cavities.

3.1.4 Meteorological Data

Surface meteorological data collected at the Simplot facility in Heyburn, Idaho, from September 1, 2000 through August 31, 2001, were used for the modeling analyses, along with upper air data from Boise, Idaho. DEQ determined these data are the most representative data reasonably available.

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in the analyses. Receptor elevations were obtained by Geomatrix using Digital Elevation Model (DEM) 7.5-minute files.

3.1.6 Facility Layout

The facility layout used in the modeling analyses, including the ambient air boundary, buildings, and emissions units, were checked against the layout provided in the application. The layout used in the model was sufficiently representative of the site layout.

3.1.7 Building Downwash

Downwash effects potentially caused by structures at the facility were accounted for in the dispersion modeling analyses. The Building Profile Input Program (BPIP) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for ISCST3.

3.1.8 Ambient Air Boundary

Geomatrix used the Fresh Pak property boundary as the ambient air boundary in most locations. DEQ assumed reasonable measures will be taken to preclude public access to all areas of the property. The western boundary and buildings of the facility are located within a portion of railroad right-of-way leased by Fresh Pak. In this area, the ambient air boundary was established as the western edge of those buildings within the righ-of-way.

3.1.9 Receptor Network

Table 4 describes the receptor grid used in DEQ's refined analyses. The receptor grid met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. DEQ determined the receptor grid was adequate to reasonably resolve maximum modeled concentrations.

3.2 Emission Rates

Geomatrix emissions rates used in the modeling analyses were equal to or somewhat greater than those presented in other sections of the permit application or the DEQ Statement of Basis.

3.2.1 Criteria Pollutant Emissions Rates

Table 5 provides Geomatrix criteria pollutant emissions rates used in the modeling analyses for both long-term and short-term averaging periods.

Table 5. EMISSIONS RATES USED FOR FULL NAAQS IMPACT MODELING

Emissions Point	Description	PM_{10}[a] Emissions Rates (lb/hr)
BOILE	Boiler – east	0.182
BOILW	Boiler – west	0.182
FLAKE1W	Flake Drum 1	0.297[b]
FLAKE1E	Flake Drum 1	0.297[b]
FLAKE2W	Flake Drum 2	0.297[b]
FLAKE2E	Flake Drum 2	0.297[b]
FLAKE3C	Flake Drum 3	0.306[b]
FLAKE3E	Flake Drum 3	0.306[b]
FLAKE3W	Flake Drum 3	0.306[b]
FLAKE4C	Flake Drum 4	0.306[b]
FLAKE4E	Flake Drum 4	0.306[b]
FLAKE 4W	Flake Drum 4	0.306[b]
BHMAC1	Baghouse 1 and 2	0.857

[a] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[b] Includes emissions from air make-up units which exhaust inside buildings.

3.2.2 TAP Emissions Rates

There are no TAP emissions associated with the proposed permitting action.

3.3 Emission Release Parameters

Table 6 provides emissions release parameters for the submitted analyses including stack height, stack diameter, exhaust temperature, and exhaust velocity. Stack parameters are within reasonably expected values for the type of source.

Table 6. EMISSIONS RELEASE PARAMETERS					
Release Point /Location	*Source Type*	*Stack Height (m)[a]*	*Modeled Diameter (m)*	*Stack Gas Temp. (K)[b]*	*Stack Gas Flow Velocity (m/sec)[c]*
BOILE	Point	7.9	0.81	483	2.6
BOILW	Point	7.9	0.81	483	2.6
FLAKE1W	Point	10.7	1.15	328	17.0
FLAKE1E	Point	10.7	1.15	328	17.0
FLAKE2W	Point	10.7	1.15	328	18.8
FLAKE2E	Point	10.7	1.15	328	18.8
FLAKE3C	Point	10.7	1.24	328	4.2
FLAKE3E	Point	10.7	1.24	328	4.2
FLAKE3W	Point	10.7	1.24	328	4.2
FLAKE4C	Point	10.7	1.24	328	4.2
FLAKE4E	Point	10.7	1.24	328	4.2
FLAKE 4W	Point	10.7	1.24	328	4.2
BHMAC1	Point	3.7	0.58	294	17.9

[a]Meters
[b]Kelvin

3.4 Results for Full Impact Analyses

Geomatrix did not submit results for significant impact analyses. Results of the full NAAQS impact analyses are listed in Table 7. DEQ does not consider using the upper 95th percentile for 24-hour background concentrations as a conservative measure, especially because both high monitored values and high modeled values are associated with higher winds. DEQ considered the use of this background value as acceptable for this project because of the following:

- The area where modeled concentrations approach levels that could result in an exceedance of the standard is only along the property boundary, immediately northwest of the emissions sources.
- There is a very low potential for public exposure at the locations of maximum impact. There are no homes, schools, parks, neighboring businesses, or other sensitive receptors in this area. The area is a railroad right-of-way servicing the facility.

Table 7. RESULTS FOR FULL IMPACT ANALYSES						
Pollutant	**Averaging Period**	**Maximum Modeled Concentration[a] (µg/m³)[b]**	**Background Concentration (µg/m³)**	**Total Ambient Impact (µg/m³)**	**NAAQS[c] (µg/m³)**	**Percent of NAAQS**
PM_{10}[d]	24-hour	87.2 (87.8)	45.0[e]	132.2 (132.8)	150	89
	Annual	20.1 (20.3)	27.0	47.1 (47.3)	50	95

[a]Values in parentheses are those obtained by DEQ verification analyses. Values for the 24-hour averaging period are maximum 2nd highest modeled concentrations
[b]Micrograms per cubic meter
[c]National ambient air quality standards
[d]Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
[e]Fall season (modeled value was for October 28) upper 95th percentile

4.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.