Air Quality Permitting
Statement of Basis

March 8, 2007

Permit to Construct No. P-060124

Coeur d'Alene Fiber Fuels, Incorporated
Hauser, ID

Facility ID No. 055-00071

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AIR QUALITY DIVISION

FINAL

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Acronyms, Units, and Chemical Nomenclatures

AACC	Acceptable Ambient Concentration for Carcinogenic
AAC	Acceptable Ambient Concentration
acfm	actual cubic feet per minute
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
MMBtu	million British thermal units
mg/m^3	milligram per cubic meter
NAAQS	National Ambient Air Quality Standards
NOx	nitrogen oxides
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
SM	Synthetic Minor
SO_2	sulfur dioxide
TAP	Toxic Air Pollutant
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

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

2. FACILITY DESCRIPTION

Coeur d'Alene Fiber Fuels Incorporated wood pellet plant forms sawdust into pellet size fuel. Raw material, primarily sawdust, is trucked to the site from lumber mills. The stockpiled material is blended depending on wood species and moisture content. The sawdust is dried in a rotary drum dryer and sent to a metering bin for the pellet mills where the sawdust is compressed into fuel pellets. The fuel pellets are cooled, screened and conveyed to a storage bin. The stored pellets are bagged and shipped.

The heat for the drum dryer is generated from a 23 MMBtu/hr wood-fired vertical dry cell suspension burner. The particulate matter emissions from the dryer are controlled by a separation cyclone. The dust generated by the cooling, screening and transferring of the pellets are controlled by a baghouse.

3. FACILITY / AREA CLASSIFICATION

Coeur d'Alene Fiber Fuels, Inc. is classified as a minor facility because the potential to emit of all criteria pollutants is less than major source thresholds. The AIRS classification is "B".

The facility is located within AQCR 62 and UTM zone 11 The facility is located within Kootenai County, which is classified as attainment or unclassifiable for all criteria air pollutants.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at the facility. This required information is entered into the EPA AIRs database.

4. APPLICATION SCOPE

The facility has proposed to install a new wood pellet manufacturing plant at Hauser, Idaho. The facility consist of a wood-fired burner, single pass with multiple stages rotary drum dryer, hammer mill, pellet mill, pellet cooler and storage bins. The particulate emissions generated by the wood-fired burner and drum dryer are controlled by the cyclone. The particulate emissions generated by the hammer mill, pellet mill, pellet cooler and storage bins are controlled by the baghouse. Fugitive emissions are generated from the unloading and the transferring of wood-byproduct (shavings, chips, and/or sawdust) with a front-end loader into the plant building.

4.1 Application Chronology

July 5, 2006	DEQ received 15-day application.
July 19, 2006	DEQ determined the 15-day application incomplete
August 7, 2006	DEQ received the amended 15-day application
August 31, 2006	DEQ determined 15-day application complete.
December 6, 2006	DEQ sent a draft permit via e-mail to the CDA Fiber Fuels and the CDA Regional Office for review.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

Wood-fired Burner
Rotary Dryer
Material Grinder
Separation Cyclone
Baghouse

5.2 Emissions Inventory

Table 5.1 summarizes NO_X, VOC, CO, PM_{10} and SO_2 emissions resulting from the proposed project. TAP emissions have been included in Appendix B. The emission rate for each pollutant stated Table 5.1 is the potential to emit for that criteria pollutant.

Table 5.1 Criteria Pollutant Emission Estimates

Pollutant	Emission Rate	
	lb/hr	T/yr
NO_X	11.3	49
VOC	10.8	47
CO	13.8	60
PM_{10}	10.68	46.8
SO_2	0.58	2.5

5.3 Modeling

PM_{10} emissions were modeled as required by the CAA. A DEQ review of the submitted modeling analysis determined that PM_{10} concentrations would not exceed the 24hr or annual significant contribution level. A summary of the modeling results is given in Table 5.2. Table 5.3 contains a list of TAPs whose emissions estimates exceeded emission limits and required modeling.

Based on the information submitted, the facility has demonstrated to the satisfaction of DEQ that criteria air pollutant and TAP emissions will not cause or contribute to a violation of any applicable ambient air quality standard.

Table 5.2 Criteria Pollutant Concentrations

Pollutant	Averaging Period	Facility Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total ($\mu g/m^3$)	Percent of NAAQS
PM_{10}	24-hr	26.84	81	107.84	71.89
	Annual	3.05	27	30.45	60.9

Table 5.3 Toxic Pollutant Concentrations

Noncarcinogens	Averaging Period	Concentration (mg/m^3)	AAC (mg/m^3)	Percent of AAC
Acrolein	24-HR	3.15E-04	0.0125	2.52
Hydrogen Chloride	24-HR	1.50E-03	0.375	0.40
Methyl Isobutyl Ketone	24-HR	9.86E-05	10.25	0.00
Propionaldehyde	24-HR	1.32E-04	0.0215	0.61
Silver	24-HR	1.34E-04	0.005	2.68
Carcinogens	**Averaging Period**	**Concentration ($\mu g/m^3$)**	**AACC ($\mu g/m^3$)**	**Percent of AACC**
Acetaldehyde	Annual	0.0311	4.50E-01	6.9
Arsenic	Annual	1.01E-04	2.3E-04	43.8
Benzene	Annual	1.92E-02	1.20E-01	16.03
Benzo(a)pyrene	Annual	1.19E-05	3.0E-04	3.97
Cadmium	Annual	1.88E-05	5.6E-04	3.35
Carbon Tetrachloride	Annual	2.06E-04	6.70E-02	0.31
Chloroform	Annual	2.06E-04	4.3E-02	0.30
Chromium VI	Annual	1.60E-05	8.30E-05	19.31
1,2-Dichloroethane	Annual	1.33E-04	3.8E-02	0.35
Dichloromethane	Annual	1.3E-03	2.40E-01	0.55
Dioxins and Furans (TEQ)	Annual	1.06E-08	2.2E-08	48.25
Formaldehyde	Annual	5.97E-02	7.7E-02	77.56
Methylene Chloride	Annual	1.51E-03	2.40E-01	0.63
Nickel	Annual	1.51E-04	4.2E-03	3.6
PAH	Annual	1.34E-05	1.4E-02	4.48
2,3,7,8-Tetrachlorodibenso-p-dioxin	Annual	3.94E-11	2.2E-08	0.18

5.4 Regulatory Review

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 proposed project does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a PTC is required.

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 preconstruction compliance for all TAPs identified in the permit application.

IDAPA 58.01.01.213……...Pre-Permit Construction

The applicant has demonstrated compliance with eligibility and procedure requirements for pre-construction approval.

IDAPA 58.01.01.224.....Permit to Construct Application Fee

The applicant satisfied the PTC application fee requirement by submitting a fee of $1,000.00 at the time the original application was submitted, July 5, 2006.

IDAPA 58.01.01.225.....Permit to Construct Processing Fee

The total emissions from the proposed new facility are over 100 T/yr; therefore, the associated processing fee is $7,500.00. No permit to construct can be issued without first paying the required processing fee.

5.5 Permit Conditions Review

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

Permit Condition 2.3 and Table 2.2 have been designed to state the permitted limits of the criteria pollutants for the dryer stack and dust collection system baghouse stack.

Compliance demonstration of Permit Condition 2.3 and Table 2.2 is maintain in the monitoring of amount wood-byproduct burned and the moisture content of the wood-byproduct fuel established in Permit Condition 2.11. Permit Condition 2.10, performance testing of the wood burner, establishes the PM_{10} emissions to within the permit condition 2.3. The monitoring of the amount of fuel burned will establish the CO emissions are within the limit stated in Permit Condition 2.3. CO, the largest emitting pollutant, has a potential to emit of 60 T/yr. The CO emissions established the facility as a B rated facility.

Permit Condition 2.4 is taken directly from IDAPA 58.01.01.625.02. **Permit Condition 2.5** states visible emissions are not to be observed leaving the property.

Compliance demonstration with the opacity standard and visible emissions observations are assumed as long as the air pollution control devices are working properly and the reasonable fugitive emissions controls are being applied as needed. Permit Conditions 2.15, 2.16, and 2.17 assist in the monitoring and recording of the opacity and fugitive emissions control.

Permit Condition 2.6 relates to the emission of odorous gases, liquids, and solids to the atmosphere in such quantities as to cause air pollution.

Compliance demonstration to the emitting of odorous emissions shall be monitored and records maintained of any odor complaints received and the remedy of any complaints received in Permit Condition 2.18.

Permit Condition 2.7 and Permit Condition 2.8 requires the combustion of only wood-products and the rate and moisture content of the wood-products.

Compliance demonstration is the monitoring and recording of the moisture and amount of wood-product combusted as required in Permit Condition 2.13.

Permit Condition 2.9 requires the inlet temperature not to exceed a maximum average temperature of 750^{o} F.

Compliance demonstration to this permit condition requires installation and monitoring of a system that will assure the requirements of Permit Condition 2.14.

Permit Condition 2.10 requires the efficiency of the air pollution controls devices to be maintain as stated within the permit application.

Compliance demonstration to this permit condition requires the O and M manual have manufacturer data stating the performance of the air pollution control equipment can reach the efficiencies stated.

Permit Condition 2.11 requires fugitive emission to be reasonable controlled.

Compliance demonstration is established through the monitoring and recording requirements of Permit Condition 2.17.

6. PERMIT FEES

Coeur d'Alene is a new non-major source with an emissions increase over 100 tons per year for combined criteria pollutants. The TAPs emission of 11 tons per year is a combined total of many TAPs. The process fees of $7,500 were received on March 1, 2007.

Table 6.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	49	0	49
SO_2	2.5	0	2.5
CO	60	0	60
PM_{10}	46.78	0	46.78
VOC	47	0	47
TAPS/HAPS	11	0	11
Total:	**216.28**	0	**216.28**
Fee Due	**$ 7,500.00**		

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The draft permit was made available for regional office review on December 6, 2006. Comments were received from the facility. The regional office raised concerns about the operational temperature and the possibility of creating blue haze. The operational temperature is limited to an average of 750^0 F in any 60-minute period which should solve the blue haze issue.

7.2 Public Comment

The draft permit was made available for facility review on December 6, 2006. Comments were received from the facility. The facility remodeled the PM_{10} emissions at a higher rate and resubmitted an amended application.

7.3 Public Comment

An opportunity for public comment on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. A public comment period was not requested.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Coeur d'Alene Fiber Fuels, Incorporated be issued final PTC No. P-060124 for the new wood pellet manufacturing facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

Appendix A

AIRS Information

P-060124

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

Facility Name: Coeur d'Alene Fiber Fuels
Facility Location: Hauser, Idaho
AIRS Number: 055-00071

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

Emissions Inventory

P-060124

Process Parameters	
Maximum burner size (MMBTU/hr)	23
Throughput (wet tons/hr)=	18.4
Moisture content (%)=	40
Dry sawdust @ 8% Moisture (ODT/hr)=	12
Exhaust Gas Flow Rate (dscfm)=	26,740
Exhaust Gas Flow Rate (acfm)=	43,419
Inlet dryer gas temperature (^{o}F)=	750
Exhaust Gas Temperature (^{o}F	225

	Emission Factors lb/MMBTU	Emissions	
Criteria Pollutant		**lb/hr**	**T/yr**
PM-10	0.464	10.68	46.78
SO2	0.025	0.575	2.519
NOx	0.49	11.27	49.363
CO	0.60	13.8	60.44
	ODT/hr		
VOC	0.9	10.8	47.304
TAPS Non-Carcigenic			
Acetone	8.40E-02	1.008E+00	4.415
Acrolein	4.5E-03	5.400E-02	2.365E-01
Carbon Disulfide	1.80E-05	2.16E-04	9.461E-04
Cumene	6.9E-05	8.28E-04	3.62E-03
Dibutyl phthalate	2.3E-05	2.760E-04	1.209E-03
Ethylbenzene	3.8E-06	4.56E-05	1.997E-04
Hexane	2.6E-05	3.12E-04	1.367E-03
Hydroquinone	6.0E-05	7.20E-04	3.154E-03
Methanol	7.3E-02	8.760E-01	3.837
Methy Choroform (1,1,1 Trchloroethane)	1.2E-05	1.44E-04	6.307E-04
Methyl ethyl ketone	0.0049	5.88E-02	2.575E-01
Methly isobutyl ketone	0.0024	2.88E-02	1.261E-01
Phenol	6.6E-03	7.92E-02	3.469E-01
Propionaldehyde	3.2E-03	3.84E-02	1.682E-01
Styrene	1.2E04	1.44E-03	6.3E-03
Toluene	2.1E-03	2.52E-02	1.104E-01
1,2,4-Trichlorobenzene	BDL		
Valeraldehyde	1.6E-03	1.92E-02	8.410E-02
m-.p-Xylene	505E-04	6.6E-03	2.891E-02
TAPS Carcigenic			
Acetaldehyde	1.3E-02	1.56E-01	6.833E-01
Benzene	9.9E-4	1.188E-02	5.203E-02
Bis(2-ethylhexyl)phthalate	3.2E-04	3.84E-03	1.682E-02
Carbon Tetrachloride	1.2E-05	1.440E-04	6.307E-04
1,2-Dichloroethane	BDL		
Formaldehyde	2.5E-02	3.00E-01	1.314E+00
Methylene Chloride	6.30E-04	7.560E-03	3.311E-02

Appendix C

Modeling Analysis

P-060124

M E M O R A N D U M

DATE: February 23, 2007

TO: Robert Baldwin, Permit Engineer, Air Program

FROM: Yayi Dong, Atmospheric Scientist, Technical Services

PROJECT NUMBER: P-060124

SUBJECT: Modeling Review for Coeur d'Alene Fiber Fuels, Inc. Pre-Permit To Construction. Application for construction of a wood pellet fuel plant at a location near Hauser, Idaho.

1.0 SUMMARY

Coeur d'Alene Fiber Fuels, Inc. (CdaFF) submitted a Permit to Construct (PTC) application to construct a plant located near Hauser, Idaho. The facility will manufacture pellet fuel from the raw material that is primarily the sawdust from fir, hemlock and pine. The sawdust is dried , screened and compressed into fuel pellets. The emissions include all criteria pollutants and Toxic Air Pollutants (TAPs) from wood combustion. The main sources are dryer and baghouse stacks.

Air quality analyses involving atmospheric dispersion modeling of emissions associated with the proposed plant were submitted in support of a permit application to demonstrate that the new plant would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02). Spidell and Associates, the CdaFF's consultant, conducted the ambient air quality analyses.

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses in combination with DEQ's staff 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 that predicted pollutant concentrations from emissions associated with the proposed facility, when appropriately combined with background concentrations, were below applicable air quality standards at all receptor locations. All criteria pollutants and TAPs that exceed the emission screening level (EL) listed in IDAPA 58.01.01.585 and 586 are included in this analysis. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY ASSUMPTIONS/RESULTS FROM MODELING ANALYSES

Assumption/Result	Explanation/Consideration
The site is determined to be in rural area	Auer's (1978) land-use classification method was applied. More than 50 percent of the land use within three kilometers around the proposed facility appears to be rural.
Model ISC-Prime was selected	This model was selected to evaluate the effects of building downwash
Modeling was run considering both simple and complex terrain	There are elevated terrain features near the facility.
Proper background concentrations are used	See footnote in section 2.2
five-year off-site meteorological data are used	DEQ provides five year meteorological data collected in the nearest NWS station when the on-site data are not available
Facility-wide NAAQS compliance was demonstrated.	

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 Coeur d'Alene Fiber Fuels, Inc. is located near Hauser, Idaho, designated as attainment or unclassifiable area for sulfur dioxide (SO_2). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed modification exceed the "significant contribution" levels (SCLs) of IDAPA 58.01.01.006.90, then a full impact analysis is 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. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS).

2.1.3 Applicable Air Quality Impact Limits

The applicable regulatory limits are presented in Table 2.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels ($\mu g/m^3$)[a, b]	Regulatory Limit ($\mu g/m^3$)[c]	Modeled Value Used[d]
PM_{10}[e]	Annual	1	50[f]	Maximum 1st highest
	24-hour	5	150[g]	Highest 2nd highest
CO	8-hour	500	10,000[h]	Highest 2nd highest
	1-hour	2000	40,000[h]	Highest 2nd highest
SO_2	Annual	1	80[h]	Maximum 1st highest
	24-hour	5	365[h]	Highest 2nd highest
	3-hour	25	1,300[h]	Highest 2nd highest
NO_2	Annual	1	100[f]	Maximum 1st highest
Pb	Quarterly	NA	1.5	Maximum 1st highest

a. IDAPA 58.01.01.006.93

b. Micrograms per cubic meter

c. IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.

d. The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants. Concentration at any modeled receptor.

e. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

f. Never expected to be exceeded in any calendar year.

g. Never expected to be exceeded more than once in any calendar year.

h. Not to be exceeded more than once per year.

2.2 Background Concentrations

Ambient 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. The criteria pollutants background concentrations used in these analyses were based on default values for "small town/suburban" areas, they are listed in Table 3.

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration (µg/m^3)[a]
PM_{10}[b]	24-hour	81
	Annual	27
NO_2[c]	Annual	32
CO[d]	1-hour	10,200
	8-hour	3,400
SO_2[e]	3-hour	24
	24-hour	26
	Annual	8
Pb[g]	Quaterly	0.03

a. Micrograms per cubic meter
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
c. Nitrogen dioxide
d Carbon dioxide
f Sulfur dioxide
g Lead

3.0 MODELING IMPACT ASSESSMENT

3.1 Modeling Methodology

Table 4 provides a summary of the modeling setups used in the modeling analyses. More detailed information are described in the following subsections.

Table 4. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Additional Description
Model	ISCST3-prime	Version 04269, BEEST for Windows BEE-Line Software
Meteorological data	Surface data and upper air data from the National Weather Station, Spokane, WA for five years from 1987 through 1991.	There is no on-site data available. Spokane is the nearest station.
Model options	Regulatory Default	
Land use	Rural	Population density in area is not sufficient for urban classification and there is a large fraction of unimproved land within three kilometers
Terrain	Simple and complex terrain	
Building downwash	Modeled	BPIP and ISC-Prime were used
Receptor grid	Approximately 25 meter spacing from the fence line out to100 meters; 50 m out to 500m; 100m out to 1000 m; 200 m out to 2,000m	
Facility location (UTM)[a]	Easting W 499.200 Zone #12	Kilometers
	Northing N 5287.800 Zone #12	Kilometers

a. Universal Transverse Mercator

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

3.1.1 Modeling Approach and Review

BEEST for Windows BEE-Line Software was used to run the Industrial Source Complex ISC-Prime Version 04269 air dispersion modeling analysis. Two sources, dryer cyclone stack and dust collection baghouse, were included in the modeling. The BPIP (Building profile Input Program) was used to calculate direction-specific building dimensions and GEP stack height information. Both simple and complex terrain were considered in the modeling. Five year meteorological data were applied. All default settings were applied.

Siginificant impact levels were carried out first for the criteria pollutants. The facility wide modeling was conducted only for those pollutants which maximum impact exceeded the significant contribution level of IDAPA 58.01.01.006.93. Three pollutants: PM_{10}, NO_2 and Pb were found to exceed the significant contribution levels.

DEQ has reviewed the input data, output data and re-run the model using the files provided by Spidell and Associates, but did not conduct an independent assessment of the analyses.

3.1.2 Modeling protocol

A modeling protocol was submitted to DEQ on August 4, 2006. The Modeling report was submitted on July 5, 2006.

3.1.3 Model Selection

The most recent version of ISC-PRIME was used for the analyses. DEQ determined use of this model is appropriate.

3.1.4 Land Use Classification

Well over 50% of the landuse of the surrounding area is rural. Therefore, rural dispersion coefficients were used in the modeling analyses.

3.1.5 Meteorological Data

The surface data and upper air meteorological data collected from Spokane airport by the National Weather Service for the period from year 1987 through 1991 were used. These data are considered to cover the worst case meteorology.

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. 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.

3.1.6 Simple and Complex Terrain

DEM data from the post Falls, Idaho, Rathdrum, Idaho, Liberty Lake, Washington and Newman Lake, Washington Quadrangles was used to calculate the elevations for the sources, structures and receptors.

3.1.7 Facility Layout and Ambient Air Boundary

Facility layout was provided by Cda FF and processed by Spidell and Associates.

3.1.8 Building Downwash

Spidell and Associates used BPIP-prime and ISC-Prime to evaluate the downwash effects. The elevation of sources and structures were determined as described in the section 3.1.6.

3.1.9 Receptor Network

The receptor setup is summarized in the Table 4. It is adequate to cover the location of the highest concentrations.

3.2 Emission Release Parameters and Emission Rates

Table 5 provides emissions release parameters and emission rates, including stack height, stack diameter, exhaust temperature, and exhaust velocity.

Table 5. EMISSION STACK PARAMETERS

Source	Source ID	Source Base Elevation (m)	Source Type	Stack Height (ft)	Modeled Diameter (ft)	Stack Gas Temp. (°F)	Stack Gas Flow Velocity (m/sec)	Location (m)	
Dryer Cyclone Stack	DRYSTK	2124.0	Point	75.0	3	225.0	31.2	499186.5(E)	5287702.8(N)
Dust Collection System Baghouse	DSTBGH	2124.0	Point	27.0	15.8	100.0	0.0001	499204.6(E)	5297677.3 (N)

The criteria pollutants emission rates are shown in the Table 6.

Table 6. EMISSION RATE OF CRITERIA POLLUTANTS THAT ARE MODELED

Criteria Pollutant	Emission rate (lb/hour)	Emission rate (Tons /year)
PM-10	10.6801	46.778
SO2	0.575	2.519
NO2	11.270	49.363
CO	13.800	60.444
Lead	1.10E-03	4.84E-03

Table 7 shows the emission rates of TAPs (toxic air pollutants) that exceed the EL and need modeling analysis.

Table 7. EMISSION RATES OF TOXIC AIR POLLUTANTS THAT EXCEED THE EL			
Pollutants	Emission (lb/hr)	Emission (T/yr)	Screen Level (lb/hr)
Non-Carcinogenic Toxic Air Pollutants			
Acrolein	7.20E-02	0.315	0.017
Hydrogen Chloride	3.42E-01	1.498	0.05
Methyl Isobutyl Ketone	2.40E-02	0.105	0.01
Propionaldehyde	3.20E-02	0.140	0.0287
Silver	3.06E-02	0.134	0.001
Carcinogenic Toxic Air Pollutants			
Acetaldehyde	1.30E-01	5.69E-01	3.00E-03
Arsenic	3.96E-04	1.73E-03	1.50E-06
Benzene	7.56E-02	3.31E-01	8.00E-04
Benzo(a)pyrene	4.68E-05	2.05E-04	2.00E-06
Cadmium	7.38E-05	3.23E-04	3.70E-06
Carbon Tetrachloride	8.10E-04	3.55E-03	4.40E-04
Chloroform	5.04E-04	2.21E-03	2.80E-04
Chromium VI	6.30E-05	2.76E-04	5.60E-07
1,2-Dichloroethane	5.22E-04	2.29E-03	2.50E-04
Dichloromethane	5.22E-03	2.29E-02	1.60E-03
Dioxins and Furans (TEQ)[1]	4.17E-08	1.83E-07	1.50E-10
Formaldehyde	2.50E-01	1.09E+00	5.10E-04
Methyene Chloride	6.30E-03	2.76E-02	1.60E-03
Nickel	5.94E-04	2.60E-03	2.70E-05
Polyaromatic Hydrocarbons (PAH or POM)	5.28E-05	2.31E-04	2.00E-06
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.55E-10	6.78E-10	1.50E-10
TEQ: Toxicity Equivalent			

3.3 Results

3.3.1 Significant Impact Analysis

This section summarizes the dispersion modeling results for the criteria pollutants PM_{10}, NO_2 and Pb that were found to exceed the significant contribution levels, and the TAPs which emission rates are higher than the screen levels.

Table 8. MODELING RESULTS FOR THE CRITERIA POLLUTANTS						
Pollutant	**Averaging Period**	**Modeled Result ($\mu g/m^3$)**	**Background Concentration ($\mu g/m^3$)**	**Total Concentration ($\mu g/m^3$)**	**NAAQS**	**Percentage of NAAQS**
PM_{10}	24-hour	26.8*	81	107.8	150	71.9
	Annual	3.0	27	30.0	50	60.0
NO_2	Annual[d]	1.4	32	33.4	100	33.4
Pb	Quarterly	2.28E-03	0.03	3.23E-02	1.5	2.2

*6^{th} highest 24 hour average ambient concentration.

Table 9 MODELING RESULTS FOR THE TAPS			
Pollutants	**Modeled (µg/m^3)**	**AAC/AACC (µg/m^3)**	**Percentage of AAC or AACC**
Non-Carcinogenic Toxic Air Pollutants			
Acrolein	3.15E-04	0.0125	2.52
Hydrogen Chloride	1.50E-03	0.375	0.4
Methyl Isobutyl Ketone	9.86E-05	10.25	0.00
Propionaldehyde	1.32E-04	0.0215	0.61
Silver	1.34E-04	0.005	2.68
Carcinogenic Toxic Air Pollutants			
Acetaldehyde	3.11E-02	4.50E-01	6.90
Arsenic	1.01E-04	2.30E-04	43.80
Benzene	1.92E-02	1.20E-01	16.03
Benzo(a)pyrene	1.19E-05	3.00E-04	3.97
Cadmium	1.88E-05	5.60E-04	3.35
Carbon Tetrachloride	2.06E-04	6.70E-02	0.31
Chloroform	1.28E-04	4.30E-02	0.30
Chromium VI	1.60E-05	8.30E-05	19.31
1,2-Dichloroethane	1.33E-04	3.80E-02	0.35
Dichloromethane	1.33E-03	2.40E-01	0.55
Dioxins and Furans (TEQ)[1]	1.06E-08	2.20E-08	48.25
Formaldehyde	5.97E-02	7.70E-02	77.56
Methyene Chloride	1.51E-03	2.40E-01	0.63
Nickel	1.51E-04	4.20E-03	3.60
Polyaromatic Hydrocarbons (PAH or POM)	1.34E-05	3.00E-04	4.48
2,3,7,8-Tetrachlorodibenzo-p-dioxin	3.94E-11	2.20E-08	0.18
1. TEQ: Toxicity Equivalent			

4.0 CONCLUSIONS

Dispersion modeling of the proposed modification, conducted by the applicant, demonstrated to the satisfaction of DEQ that the proposed modification will not cause or significantly contribute to a violation of any ambient air quality standard.