



**Air Quality Permitting
Statement of Basis**

May 22, 2006

Permit to Construct No. P-050006

LJH HOLDINGS, INC., dba B and D FOODS, Boise, Idaho

Facility ID No. 001-00162

Prepared by:

Robert Baldwin, Associate Engineer
AIR QUALITY DIVISION

FINAL

Table of Contents

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURES	3
1.0 PURPOSE	4
2.0 FACILITY DESCRIPTION	4
3.0 FACILITY / AREA CLASSIFICATION	4
4.0 APPLICATION SCOPE	4
5.0 PERMIT ANALYSIS	4
6.0 PERMIT FEES	8
7.0 PERMIT REVIEW	9
8.0 RECOMMENDATION	9
APPENDIX A - AIRS INFORMATION	10
APPENDIX B - EMISSION INVENTORY	12
APPENDIX C - MODELING REVIEW	14

Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AP-42	Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition
AQCR	Air Quality Control Region
Btu	British thermal unit
CFR	Code of Federal Regulations
CO	carbon monoxide
dba	doing business as
DEQ	Department of Environmental Quality
EI	emissions inventory
EPA	U.S. Environmental Protection Agency
°F	degree Fahrenheit
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb	pound
lb/hr	pound per hour
MMBtu	million British thermal units
MMBtu/hr	million British thermal units per hour
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
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
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SO ₂	sulfur dioxide
T/yr	tons per year
µg/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

LJD Holdings Inc., dba B & D Foods (B&D Foods) is a food processing plant. The plant produces frozen battered meat and poultry. The plant's present capacity is 20,000 pounds of meat and poultry per day. The process consist of applying batter to meat or poultry, frying the battered product, recoating the product with batter, refrying the product, and freezing the product for distribution. The plant is presently operating 10 hours per day, 5.5 days a week and 49 weeks per year.

3. FACILITY / AREA CLASSIFICATION

B &D Foods is classified as a true minor facility because its potential to emit is less than all major source thresholds. The Aerometric Information Retrieval System (AIRS) classification is "B." The Standard Industrial Classification defining the facility is 2013.

The facility is located within Air Quality Control Region (AQCR) 64 and Universal Transverse Mercator (UTM) zone 11. The facility is located in Ada County which is designated as attainment for PM₁₀ and CO and unclassifiable for all other criteria pollutants. There are no Class I areas within 10 kilometers of the facility.

The AIRS information provided in Appendix A of this statement of basis defines the classification for each regulated air pollutant at B & D Foods. This required information is entered into the EPA AIRs database.

4. APPLICATION SCOPE

The application is required by a Consent Order issued November 30, 2004.

4.1 *Application Chronology*

March 11, 2005	DEQ received PTC application
April 10, 2005	DEQ declared the application incomplete
June 24, 2005	DEQ received revised application
December 14, 2005	DEQ declared the application complete
February 22, 2006	DEQ sent draft permit to facility
May 22, 2006	DEQ received facility's response to the draft permit

5. PERMIT ANALYSIS

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

5.1 Equipment Listing

1. Hot oil heater 1
2. Hot oil heater 2
3. Fryer 1
4. Fryer 2

- Hot oil heater 1 and Hot oil heater 2:

Hot oil heater 1 and Hot oil heater 2 are identical. Each heater has a rated heat input rate of 1.44 million British thermal units per hour (MMBtu/hr). Each oil heater is fired by natural gas. Each heater has a stack height of 33 feet, stack diameter of 10 inches, exit gas temperature of 785°F, and exit gas flow rate of 1852 actual cubic feet per minute (acfm.)

- Fryer 1 and Fryer 2:

Fryer 1 and Fryer 2 are conveyor type fryers. The cooking oil is heated to approximately 375°F. The exhaust stack for each fryer connects to form on common exhaust stack. The gases in this common stack pass through a mist eliminator and an incinerator. The common stack is 36 feet high, has 17.2 inches in diameter with an air flow of 3730 acfm, and the gases exit with a temperature of 535°F.

5. Incinerator

The incinerator has a burner rated at 1.5 MM Btu/hr. The incinerator is designed to combust the oil contained in the exiting gas stream from the fryers. The exhaust gases pass through a stack 17.2 inches in diameter and 36 feet high at a rate of 3730 acfm. The exhaust gas temperature is 535 °F.

5.2 Emissions Inventory

Emissions calculations were determined by DEQ and are presumed to accurately reflect emissions from this facility. A summary of the EI is provided as Appendix B. Table 5.1 provides a summary of the EI.

Table 5.1 EMISSIONS ESTIMATES FOR CRITERIA POLLUTANTS^a

Emissions units	PM ₁₀	
	lb/hr	T/yr
Hot oil heater 1 (1.44 MM Btu/hr)	0.0111	0.018
Hot oil heater 2 (1.44 MM Btu/hr)	0.0111	0.018
Incinerator (1.5 MMBtu/hr)	0.0114	0.015
Fryers (Oil)	0.14	0.19
Total	0.174	0.24

a. The two oil heaters and the incinerator for the fryer's exhaust are all fired with natural gas.

5.3 Modeling

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 modeling output is included in Appendix C. A summary of the modeling analysis is presented in Tables 5.2.

Table 5.2 FULL IMPACT ANALYSIS RESULTS FOR PM₁₀

Pollutant	Averaging Period	Facility Ambient Impact (µg/m ³)	Background concentration (µg/m ³)	Total Ambient Concentration (µg/m ³)	NAAQS (µg/m ³)	Percent of NAAQS
PM ₁₀	24-hour	0.87	95	95.87	150	63.9%
	Annual	0.17	25.1	25.3	50	50.6%

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

This facility was issued a consent order in November 30, 2004, that required the issuance of a PTC.

IDAPA 58.01.01.203.02 NAAQS

“No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:02. NAAQS....”

The facility has demonstrated compliance, to DEQ’s satisfaction, that this project will not cause or significantly contribute to a violation of any ambient air quality standards.

IDAPA 58.01.01.203.03 Toxic Air Pollutants

“No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:03. Toxic Air Pollutants 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.”

The facility has documented compliance with Subsection 203.3 to the satisfaction of DEQ.

IDAPA 58.01.01.625 Visible Emissions

This regulation states that any point of emission shall not have a discharge of any air pollutant for a period aggregating more than three minutes in any 60-minute period of greater than 20% opacity.

The emissions points at this facility are subject to this regulation.

IDAPA 58.01.01 675 Fuel Burning Equipment

The two natural gas-fired oil heaters and the incinerator are fuel burning equipment and are therefore subject to IDAPA 58.01.01.677. The applicable grain loading emissions standard for gas is 0.015 grains per dry standard cubic foot (gr/dscf) corrected to 3% oxygen. The incinerator has the largest heat input requirement when compared to the oil heaters. Compliance with the incinerator grain loading emissions standard implies compliance with the oil heater grain loading emissions standard. Compliance has been demonstrated through calculations as follows:

From the application, the maximum PM emissions from the incinerator on an hourly basis is 0.065 lb at an average air steam oxygen content of 16%. Converting this value to gr/dscf at 3% oxygen yields the following result:

$$(0.065 \text{ lb PM/hr})(7,000 \text{ gr/lb})(1\text{hr}/60 \text{ min}) = 7.6 \text{ gr/min}$$

$$(7.6 \text{ gr/min}) \div (3,730 \text{ acf/min}) = 2.03\text{E-}03 \text{ gr/acf}$$

ACF to DSCF

$$\text{DSCF} = \text{ACF}(1 - \% \text{water}) (T_{\text{std}}/T_{\text{meas}}) (P_s/P_{\text{std}})$$

T_{meas} = actual measured stack temp (in degrees K or R)

T_{std} = 293 K or 528 R

P_s = Absolute stack pressure (P_{bar} + P_{gauge})

P_{std} = 29.92 in. Hg

$$\text{GR/DSCF} = (2.03\text{E-}03 \text{ gr/acf})(1 - 16)(293/553)(1.5/29.92) = 4.5\text{E-}05 \text{ gr/dscf}$$

Oxygen Correction:

Eq. 7-6a, Combustion Source Evaluation
Student Manual, APTI Course 427,
March 2004

$$\text{dscf @ 3\% O}_2 = \text{dscf}(\text{meas.}) \times \frac{20.9 - 3}{20.9 - \% \text{O}_2(\text{meas.})}$$

(4.5E-05 gr/dscf) x ((20.9 - 3) ÷ (20.9 - 16)) = 1.65E-04 gr/dscf corrected to 3% oxygen. The standard is 0.015 gr/dscf corrected to 3% oxygen. As is evident, none of the fuel burning equipment will exceed the applicable grain loading emissions standard.

5.5 Permit Conditions Review

The following permit conditions describe the requirements of a new PTC.

5.5.1 Emissions Unit – Hot Oil Heater 1 and Hot oil heater 2

- Permit Condition 2.3 limits visible emissions from each oil heater stack to 20% opacity as required by IDAPA 58.01.01.675. Compliance is reasonably assumed by requiring that only natural gas be combusted in the heaters (Permit Condition 2.4).

5.5.2 Emissions Unit – Hot Oil Fryers

- Permit Condition 3.3 limit PM₁₀ emissions from the fryers. The fryer exhaust gases were modeled at their maximum throughput rate to assess compliance with the PM₁₀ NAAQS. At the maximum throughput rate, both the 24-hour and annual PM₁₀ NAAQS demonstrate compliance. Compliance with the limits is reasonably assumed by requiring emissions be controlled by a mist eliminator followed by an incinerator.
- Permit Condition 3.4 limits visible emissions from the fryers' common stack to 20% opacity as required by IDAPA 58.01.01.675. Compliance with the limits is reasonably assumed by requiring emissions be controlled by a mist eliminator followed by an incinerator.

- Permit Condition 3.5 requires that only natural gas be combusted in the incinerator.
- Permit Condition 3.6 requires the pressure drop across the mist eliminator be within the manufacturer's specifications and recommendations.
- Permit Condition 3.7 requires the incinerator be operated according to the manufacturer's specifications and recommendations and that the incinerator be operated whenever the fryers operate.
- Permit Condition 3.8 requires visible emissions observations weekly for one year to demonstrate compliance with the opacity limit. If no exceedances are observed during the year, the monitoring frequency changes to monthly. If an exceedance occurs, immediate corrective action is required and the monitoring frequency reverts back to weekly for a four week period. If no exceedances are observed during the four week period, the observation frequency reverts to monthly, and so on. Records of each observation and corrective action are required.
- Permit Condition 3.9 requires weekly pressure drop monitoring to demonstrate compliance with Permit Condition 3.6.
- Permit Conditions 3.10 and 3.11 require the permittee to develop O&M manuals for the mist eliminator and the incinerator to demonstrate compliance with Permit Conditions 3.3, 3.4, and 3.6.

6. PERMIT FEES

DEQ received B & D Foods \$1,000 PTC application fee on March 11, 2005, which was required in accordance with IDAPA 58.01.01.224. B & D Foods emissions increase is greater than one ton and less than 10 tons per year. In accordance with IDAPA 58.01.01.225, the PTC processing fee is \$2,500. The process fee of \$2,500 was received on March 3, 2006.

Table 5.6 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	0.663	0	0.663
SO ₂	0.004	0	0.004
CO	0.557	0	0.557
PM ₁₀	0.24	0	0.24
VOC	0.036	0	0.036
TAPS/HAPS		0	
Total:	1.5	0	1.5
Fee Due	\$ 2,500.00		

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The draft permit was provided to DEQ's Boise Regional Office for review on February 22, 2006. No comments were received from the Boise Regional Office.

7.2 Facility Review of Draft Permit

The draft permit was provided to the facility for its review February 22, 2006. The facility responded that it had no comments.

7.3 Public comment

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were not comments on the application and no requests for a public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that LJD Holdings Inc., dba B & D Foods be issued final PTC No. P-050006 for its food processing facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

REB/bf Permit No. P-050006

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APPENDIX A

AIRS Information

Facility ID No. 001-00162

P-050006

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

Facility Name: LJD Holdings, Inc., dba B & D Foods
Facility Location: Boise, Idaho
AIRS Number: 001-00162

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								A
PM ₁₀	B								A
PT (Particulate)	B								U
VOC	B								U
THAP (Total HAPs)	B								
			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

Facility ID No. 001-00162

P-050006

Actual emission of LDJ Holdings Inc. dba B & D Foods

SOURCE	SIZE	Hours/yr	Ft3/yr	PM10	NOx	CO	Sox	VOC
				7.6	100	84	0.6	5.5
	mm Btu/hr			T/yr	T/yr	T/yr	T/yr	T/yr
Hot oil heater	1.44	3234	4656960	0.018	0.233	0.196	0.001	0.013
Hot oil heater	1.44	3234	4656960	0.018	0.233	0.196	0.001	0.013
Incinerator	1.5	2630	3945000	0.015	0.197	0.166	0.001	0.011
Fryers (Oil)				0.19				
Pollutant entering the atmosphere (T/yr)				0.240	0.663	0.557	0.004	0.036

Oil exhausted = 4482 lb/wk / 55 hr/wk = 81.5 lbs/hr

amt smaller than 5 microns = 1% = 0.815 lbs/hr passes by the mist eliminator
 passes through 99.9% efficient mist eliminator = 0.0815 lbs/hr

total going into incinerator = 0.815 + 0.0815 = 0.9 lbs/hr

total exiting 85% efficient incinerator = 0.9 * 0.15 = 0.135 lbs/hr

0.14 lbs/hr for a conservative figure
0.19 T/yr

Potential emission of LDJ Holdings Inc. dba B & D Foods

SOURCE	SIZE	Hours/yr	Ft3/yr	PM10	NOx	CO	Sox	VOC
				7.6	100	84	0.6	5.5
	mm Btu/hr			T/yr	T/yr	T/yr	T/yr	T/yr
Hot oil heater	1.44	8760	12614400	0.048	0.631	0.530	0.004	0.035
Hot oil heater	1.44	8760	12614400	0.048	0.631	0.530	0.004	0.035
Incinerator	1.5	8760	13140000	0.050	0.657	0.552	0.004	0.036
Fryers (Oil)				3.9				
Pollutant entering the atmosphere (T/yr)				4.046	1.918	1.611	0.012	0.106

Oil exhausted = 4482 lb/wk / 55 hr/wk = 81.5 lbs/hr

amt smaller than 5 microns = 1% = 0.815 lbs/hr passes by the mist eliminator
 passes through 99.9% efficient mist eliminator = 0.0815 lbs/hr

total going into incinerator = 0.815 + 0.0815 = 0.9 lbs/hr

0.9 lb/hr * 8760 hr/yr / 2000 lb/T = 3.9 T/yr Potential to emit from oil

APPENDIX C

Modeling Output

Facility ID No. 001-00162

P-050006

02/02/06
11:05:07
*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

B & D PM10 Screen 3 Model

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = 0.302000E-01
STACK HEIGHT (M) = 10.9728
STK INSIDE DIAM (M) = 0.4359
STK EXIT VELOCITY (M/S) = 11.7977
STK GAS EXIT TEMP (K) = 568.1500
AMBIENT AIR TEMP (K) = 293.1500
RECEPTOR HEIGHT (M) = 0.0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = 0.0000
MIN HORIZ BLDG DIM (M) = 0.0000
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 2.660 M**4/S**3; MOM. FLUX = 3.411 M**4/S**2.

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST CONC U10M USTK MIX HT PLUME SIGMA SIGMA
(M) (UG/M**3) STAB (M/S) (M/S) (M) HT (M) Y (M) Z (M) DWASH

1. 0.000 1 1.0 1.0 320.0 55.31 1.18 1.12 NO
100. 1.722 2 5.0 5.0 1600.0 19.84 19.43 10.90 NO
200. 2.162 3 4.5 4.5 1440.0 20.80 23.79 14.31 NO
300. 2.058 3 2.5 2.5 800.0 28.66 34.66 20.95 NO
400. 1.900 4 4.0 4.1 1280.0 21.97 29.62 15.59 NO
500. 1.820 4 3.0 3.0 960.0 25.64 36.39 18.77 NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
217. 2.173 3 4.0 4.0 1280.0 22.03 25.76 15.50 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** INVERSION BREAK-UP FUMIGATION CALC. ***
CONC (UG/M**3) = 0.000
DIST TO MAX (M) = 722.14

DIST TO MAX IS < 2000. M. CONC SET = 0.0

*** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION MAX CONC DIST TO TERRAIN
PROCEDURE (UG/M**3) MAX (M) HT (M)

SIMPLE TERRAIN 2.173 217. 0.