BISON
ENGINEERING, INC.

1400 11TH AVENUE • HELENA, MT 59601 • 406-442-5768
FAX: 406-449-6653 • E-MAIL: bison@bison-eng.com • www.bison-eng.com

June 20, 2016

RECEIVED
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DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE AQ PROGRAM

Bill Rogers
Stationary Source Permit Program Coordinator
Idaho Dept. of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, ID 83706

Dear Mr. Rogers:

On behalf of Idahoan Foods, LLC (Idahoan), Bison Engineering, Inc. (Bison) is pleased to submit this application for modification of PTC No. P-2010.0061, held by Idahoan Foods, LLC for their potato processing plant in Lewisville, Idaho (facility ID No. 051-0017).

This submittal is a follow-up to a draft permit issued in October 2015 for the facility. The draft permit issued for the facility included operational limits on usage of the boilers that could not be accepted by Idahoan. This application includes an additional operating scenario for the boilers which will allow for greater operational flexibility for Idahoan. With the exception of the additional operational scenario and revised modeling to demonstrate compliance under the operating scenario, this application provides the same materials which were previously submitted in support of the original application.

This submittal includes the application report, forms, emissions inventory and supporting materials, including the certification required under IDAPA.01.01.123 signed by Leo Herbert, Idahoan's corporate environmental manager. All relevant electronic files, including modeling files, will be uploaded to the IDEQ ftp site. Enclosed is a check for $1,000 for the permit application fee.

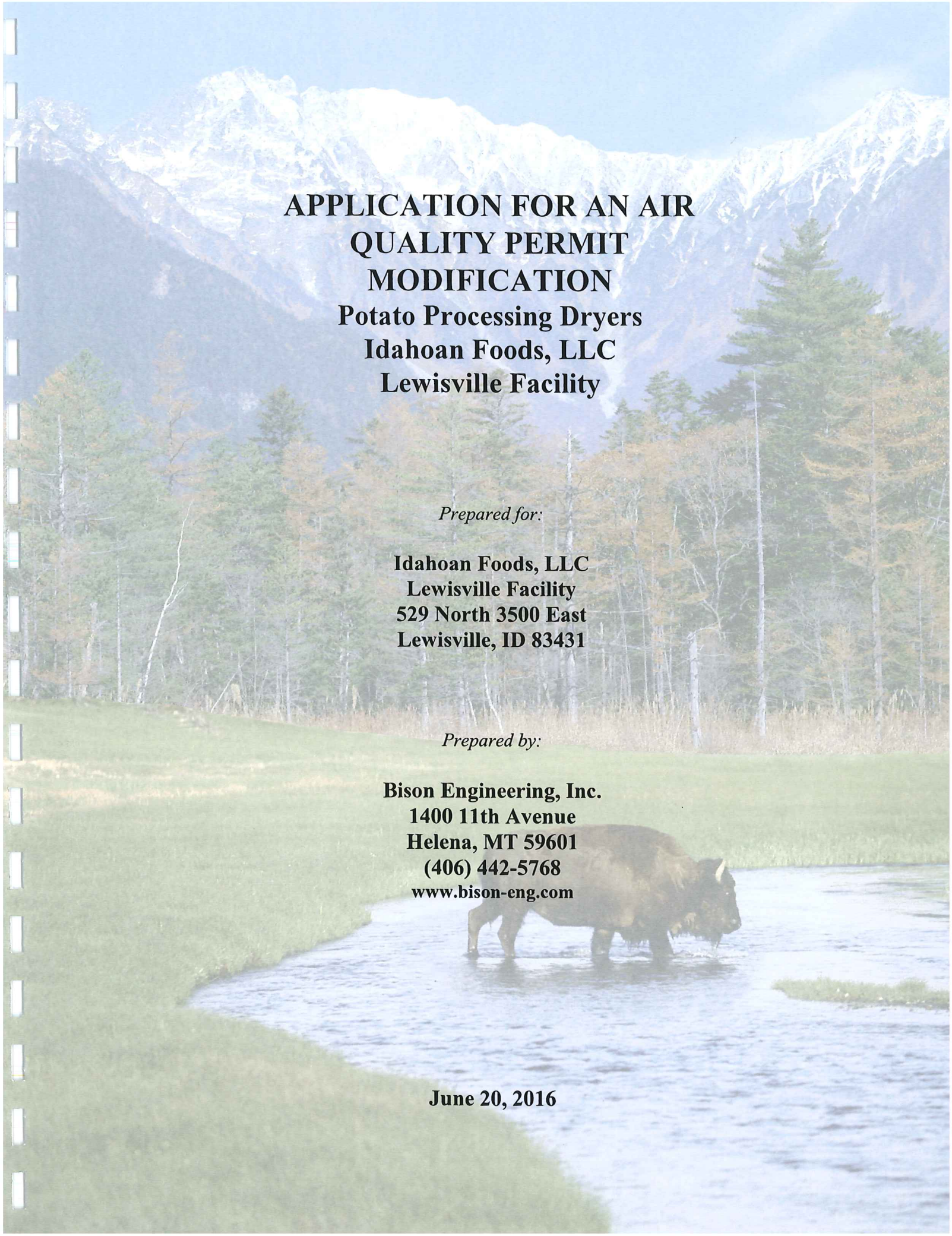
Please contact me at dfleming@bison-eng.com or 406-442-5768 if you have any questions about this application or the supporting materials.

Sincerely,
BISON ENGINEERING, INC.

Derek Fleming
Project Engineer

Attachment

cc: Leo Herbert – Idahoan Foods, LLC



# APPLICATION FOR AN AIR QUALITY PERMIT MODIFICATION

## Potato Processing Dryers
## Idahoan Foods, LLC
## Lewisville Facility

*Prepared for:*

**Idahoan Foods, LLC**
**Lewisville Facility**
**529 North 3500 East**
**Lewisville, ID 83431**

*Prepared by:*

**Bison Engineering, Inc.**
**1400 11th Avenue**
**Helena, MT 59601**
**(406) 442-5768**
**www.bison-eng.com**

**June 20, 2016**

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# 1.0 INTRODUCTION

Idahoan Foods, LLC (Idahoan) currently holds Idaho Air Quality Permit to Construct #P-2010.0061 for a potato processing facility (facility ID 051-00017), located near Lewisville, Idaho, in Jefferson County. The facility consists of various boilers, dryers, material handling, packaging, and other process equipment used to manufacture dehydrated potato products.

Idahoan is submitting this request for a minor modification to its air quality permit for the following changes: addition of two new dryers, removal of one existing dryer, inclusion of previously unpermitted drum dryer sniffer vents, and the installation of cyclones for particulate emissions control on these vents. Idahoan has discontinued the use of fuel oil and related liquid fuels in Boiler #1, and seeks to remove the permitted ability to burn fuels other than natural gas. Idahoan also proposes to install economizers on all three boilers at the facility. Installation of the economizers will increase boiler efficiency and will not increase emissions but will decrease the exhaust temperature of the boilers and require an increase in stack height, as well as some operational restrictions regarding the use of the economizers, which will be discussed in section 2.0 of this report. These changes to stack parameters have been addressed in the modeling of the facility.

## 1.1 Application

In accordance with Idaho Department of Environmental Quality (IDEQ) requirements, permit application forms have been completed and are included in Appendix A.

## 1.2 Site Location

The Idahoan Lewisville facility is situated approximately 0.25 mile northeast of Lewisville, Idaho. The plant is located in the SE¼ SE¼ of Section 5, Township 4 North, Range 38 East, Jefferson County, Idaho. A map of the facility location is included with this submittal in Appendix C.

## 1.3 Site Description

The Idahoan Lewisville facility is situated approximately 0.25 mile northeast of Lewisville, Idaho, and one mile south of Menan, Idaho. The surrounding area is a relatively flat plain at an elevation of approximately 4,800 feet with the nearest significantly elevated terrain approximately 20 miles east of the facility.

The air quality classification for the immediate area is "Unclassifiable or Better Than National Standards" (40 CFR 81.327) for all pollutants. The Portneuf Valley $PM_{10}$ maintenance area lies approximately 50 miles southwest of the facility.

# 2.0 PROJECT SUMMARY

## 2.1 Process Summary

Idahoan Foods, LLC is a potato processing company that dehydrates potatoes to make flakes, slices, dices, and shreds.

Trucks deliver potatoes to the plant and are unloaded into storage areas after much of the rock and silt is removed. The potatoes are transported and washed using cold water, and are then conveyed to a raw sort table where rot, sticks, and other debris are removed.

The washed and cleaned potatoes enter a steam peeler where they are exposed to steam for a brief period of time. This loosens the peel before the brush peeling and washing stage. Revolving brushes are used to fully remove peels by dry and wet scrubbing. The steam from the steam peeler is exhausted and quenched in a water bath. The peeled potatoes are sorted and transported to one of two flake lines or one of five belt dryers.

In the flake lines, the potatoes are sent to a pre-cooker to be blanched. The blanching process conditions the starch cells. The potatoes are then cooled and water transported into cookers where they are exposed to steam to be fully cooked. The potatoes are riced by being forced through slots and broken into smaller pieces like mash, and conveyed to the drum dryers. Flaker Line 1 is currently permitted to include two drum dryers, but an additional drum dryer is proposed. Flaker Line 2 has three drum dryers. Each dryer has its own main exhaust stack, as well as multiple sniffer vent stacks for each line. The mashed potatoes are spread across the surface of the drum dryers with applicator rolls. The steam-heated drum dryers rotate and drive the moisture out of the potato cells. The removed moisture is exhausted through the drum dryer (a.k.a., flaker) stacks, as well as the sniffer vents stacks. Sniffer vent emissions will be controlled by cyclones; one cyclone will be installed for each flaker line.

The dried potato sheet is peeled from the drum, and is broken into smaller pieces. Flakes are pneumatically transferred to one of the two flake bins. From the flake bins, the flake is transferred to the packaging area to be packed per customer requirements, or is pneumatically transferred to Real Lines where further processing takes place. Real Lines used to be called 92 Lines.

Two Vaculifts (a brand name of cyclone) and two baghouses convey flakers from flake bins to Real Lines. The Vaculifts on Real Lines 1 and 2 directly exhaust air to the atmosphere, while Real Lines 3 and 4 exhaust air through their respective baghouses. After the addition of various ingredients, flakes are dried in four fluidized bed dryers. Each dryer has its own cyclone.

Correctly sized potatoes may also be pumped to the belt drying operation line where they are sliced, diced, shredded, and blanched. After blanching, the potato pieces are distributed across a large belt conveyor that moves through the heated oven. The potato pieces are dehydrated. The moisture driven from the potato is exhausted to atmosphere.

The products are transferred by bins to the packaging areas.

The packaging department receives potato flakes where additives can be added to flakes prior to packaging. Baghouses and cyclone are in place to reduce dust emissions from packaging. They are:

- Crusher vaculift over a small flake crusher,
- Flaker baghouse controlling dust associated with bagging flakes,
- Packaging baghouse to provide indoor air quality in the bagging room,
- Mixing room baghouse No. 6.

All finished potato product is shipped to distribution warehousing, customers, or other plants.

Idahoan operates three boilers to provide steam to the process. Idahoan uses a number of natural gas-fired space heaters in the facility. These units vent into the buildings.

## 2.2 Proposed Modification

Idahoan proposes the following modifications to the current permit:

1. Addition of one impingement dryer,
2. Addition of one additional drum dryer on Flaker Line #1,
3. Inclusion of existing sniffer vents,
4. Cease fuel oil and biofuel combustion in Boiler #1,
5. Remove one existing belt dryer (Belt Dryer #3),
6. Installation of cyclones for control of sniffer vents particulate emissions,
7. Installation of economizers on Boilers #1, #2 and #3.

## 2.3 Proposed Operational Scenarios

In order to achieve modeled compliance with the ambient air quality standards, Idahoan is proposing to limit operation of the boilers with economizers to two scenarios, which have been reflected through three modeling scenarios.

The first operational scenario is to limit the facility to only operating two boilers at one time, operating either Boilers #1 and #2, or Boilers #1 and #3 simultaneously, utilizing the economizers.

The second operational scenario would allow for unrestricted operation of all three boilers. However, in the scenario, the economizers on Boilers #2 and #3 would be bypassed, maintaining the high exhaust temperatures and flow rates or the boilers.

# 3.0 EMISSION INVENTORY

## 3.1 Facility-Wide Emissions

The existing and proposed emissions for this project are examined in this section.

Emission rates for new sources were calculated based upon a combination of past source testing results, manufacturer data and AP-42 factors for fuel combustion. The current permitted emission rates used to calculate the changes in emissions were taken from the rates listed in the statement of basis for Tier II Operating Permit and Permit to Construct No. P-2010.0061. A summary of the emission inventory is presented in Table 2-1. The proposed emissions levels listed in Table 3-1 are the total facility emissions considering the modifications addressed in Section 2.2. The current permitted scenario reflects emissions as listed in the statement of basis for PTC No. P-2010-0061. The net change reflects the difference between the proposed and current permitted scenarios. The increase associated with the modification scenario reflects the emissions for new equipment additions and the inclusion of sniffer vents, but does not consider reduction in emissions from changes in fuels or equipment removals.

**Table 3-1: Emission Inventory Summary**

| Emission Scenario | $PM_{2.5}$ | | $PM_{10}$ | | $SO_2$ | | NOx | | CO | | VOC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr |
| Proposed | 15.37 | 62.71 | 15.37 | 62.71 | 0.15 | 0.43 | 29.20 | 68.20 | 26.38 | 65.20 | 1.64 | 3.88 |
| Current Permitted | 20.72 | 69.87 | 20.88 | 70.15 | 27.69 | 44.68 | 31.39 | 84.11 | 24.34 | 61.60 | 1.60 | 4.07 |
| Net Change | -5.34 | -7.16 | -5.51 | -7.44 | -27.54 | -44.25 | -2.19 | -15.91 | 2.04 | 3.60 | 0.04 | -0.20 |
| Increase Associated with Modifications | 1.34 | 5.92 | 1.34 | 5.92 | 0.00 | 0.02 | 0.25 | 1.10 | 2.04 | 8.95 | 0.04 | 0.16 |

Emission calculations spreadsheets are presented in Appendix B. Detailed tables of individual unit emission rates are presented in Appendix B. Table B-1 presents the facility's current potential to emit. Table B-2 presents the proposed potential to emit. Table B-3 presents the increase/decrease in emissions.

## 3.2 Modified Source Emissions

### 3.2.1 Impingement Dryer

Particulate emissions from the impingement dryer were calculated using an emission factor of 0.5 lb/ton of product. This emission factor is based on the factor used for the existing Real Line dryers, which is the result of past source testing of these units. CO and NOx emissions from this unit are based on manufacturer data, included in Appendix E. All other

criteria pollutants emitted as a result of natural gas combustion are calculated using AP-42 emission factors.

### 3.2.2 Flaker Line #1 Additional Dryer

Particulate emissions from the additional dryer on Flaker Line #1 were calculated using the same emission factor used for the calculation of all other flaker line particulate emissions, lb/ton. This factor is used for PM, $PM_{10}$ and $PM_{2.5}$ emissions, as no current test method exists to determine size-apportioned particulate data from wet stacks. Particulate emissions are the only criteria pollutant emitted from this source.

### 3.2.3 Flaker Line #1 and #2 Sniffer Vents

Particulate emissions from the Flaker Line #1 and #2 sniffer vents are based on an average emission factor determined from testing of sniffer vents at the Idahoan Foods Idaho Falls Facility. The average particulate emission factor from testing is lb/ton, to which the manufacturer guaranteed control efficiency of 49.5% is applied. As with the flaker line emissions, all particulate emissions are assumed to be $PM_{2.5}$, as no current test method exists to determine size-apportioned particulate data from wet stacks. Manufacturer data for the emission control cyclones is included in Appendix E. Particulate emissions are the only criteria pollutant emitted from this source.

### 3.2.4 Boilers #1, #2 and #3

Emissions from Boiler #1 are based only on the combustion of natural gas, and not on the combustion of fuel oil, as was previously permitted. AP-42 emission factors are used to calculate all emissions rates. Emissions for Boilers #2 and #3 remain unchanged despite the change in exhaust parameters. Annual emissions are restricted by the natural gas fuel usage limit of 725 MMScf/yr in place for all three boilers.

# 4.0 REGULATORY ANALYSIS

Table 4.1 lists the potentially applicable rules for the Lewisville facility. The rules are addressed individually in the following sections as they pertain to the facility and proposed modification.

**Table 4.1: Potentially Applicable Rules**

| Rule Citation | Subject of the Rule |
|---|---|
| IDAPA 58.01.01.123 | Certification of Documents |
| IDAPA 58.01.01.130-136 | Excess Emissions |
| IDAPA 58.01.01.577 | Ambient Air Quality Standards for Specific Air Pollutants |
| IDAPA 58.01.01.210, 585 and 586 | Toxic Air Pollutants |
| IPADA 58.01.01.590 | New Source Performance Standards |
| IDAPA 58.01.01.591 | National Emission Standards for Hazardous Air Pollutants |
| IDAPA 58.01.01.600-616 | Open Burning |
| IDAPA 8.01.01.625 | Visible Emissions |
| IDAPA 58.01.01.650 | Rules for Control of Fugitive Dust |
| IDAPA 58.01.01.675-681 | Fuel Burning Equipment – Particulate Matter |
| IDAPA 58.01.01.701 | Particulate Matter – Process Weight Limitations |
| IDAPA 58.01.01.775-776 | Odors |

## 4.1 Certification of Documents

IDAPA 58.01.01.123 requires the submission of a certification of truth and accuracy to be signed by the facility responsible official and submitted with any application for a permit to construct. A certification is provided with this submittal to fulfill these requirements.

## 4.2 Excess Emissions

IDAPA 58-01-130-136 sets forth requirements pertaining to excess emissions from the facility. Idahoan will comply with all necessary requirements.

## 4.3 Ambient Air Quality Standards

IDAPA 58.01.01.577 contains ambient air quality standards with which Idahoan is required to demonstrate compliance. Section 6 of this report presents result of the analysis performed to demonstrate compliance with these requirements. Ambient impacts have also

been addressed through the submittal of a modeling protocol and Appendix D, the modeling report.

## 4.4 Toxic Air Pollutants

As required by IDAPA 58.01.01.210, an analysis has been performed to determine compliance with the TAPs Increments found in IDAPA 58.01.01.585 and 586

Methodology E of the Guideline for Performing Air Quality Impact Analyses was used to demonstrate compliance with the emissions levels located in Idaho Air Rules Sections 585 and 586. The net toxic emission rates from the proposed modification outlined in Section 2 were compared to the emission levels. Increases in TAP emissions come from natural gas combustion in the proposed impingement dryer and Boiler #1. Decreases in TAP emissions come from the cessation of fuel oil combustion in Boiler #1. As the analysis shows, the proposed net changes to this facility do not result in any exceedance of the ELs.

In addition to meeting the requirements of Section 210, the TAPs analysis demonstrates that the facility will remain a minor source of HAPs, with total HAP emissions less than 25 tpy and no single HAP greater than 10 tpy.

## 4.5 New Source Performance Standards

IPADA 58.01.01.590 references and requires compliance with 40 CFR Part 60, New Source Performance Standards. Idahoan has reviewed these standards and has determined that there are no standards that are applicable to the Lewisville facility.

## 4.6 National Emission Standards for Hazardous Air Pollutants

IDAPA 58.01.01.591 references and requires compliance with 40 CFR Parts 61 and 63, National Emission Standards for Hazardous Air Pollutants. Idahoan has reviewed these standards and has determined that there are no standards that are applicable to the Lewisville facility.

## 4.7 Open Burning

IDAPA 58.01.01.600-616 sets forth requirements for open burning. No open burning is planned in association with this project. Idahoan will comply with all requirements should open burning be performed in the future.

## 4.8 Visible Emissions

IDAPA 8.01.01.625 provides limits on opacity for emission points. Idahoan is subject to general 20% opacity limits through this rule and will continue to comply with these requirements for all existing and proposed sources.

## 4.9 Rules for Control of Fugitive Dust

IDAPA 58.01.01.650 requires that Idahoan take reasonable precautions to prevent fugitive dust. The current permit for the Lewisville facility requires specific precautions to prevent fugitive emissions. Idahoan will continue to comply with these precautions as outlined in the permit. None of the proposed modifications changes these requirements or the inclusion of additional requirements.

## 4.10 Fuel Burning Equipment – Particulate Matter

IDAPA 58.01.01.675-681 limits particulate emissions from fuel burning equipment. Section 676 provides limits for sources constructed after October 1, 1979, which are over 10 MMBtu/hr. Section 677 provides limits for sources under 10 MMBtu/hr as well as sources constructed after October 1, 1979, which are over 10 MMBtu/hr. Both Sections 676 and 677 limit allowable particulate emissions from gas combustion to 0.015 gr/dscf. Based on AP-42 factors, natural gas combustion results in particulate emission rates of less than the 0.015 gr/dscf. All natural gas combustion sources at this facility meet the particulate matter limits for fuel burning equipment.

## 4.11 Particulate Matter – Process Weight Limitations

IDAPA 58.01.01.701 restricts particulate emissions from new process equipment. Emissions are limited based on the equation 0.045(PW)^0.6. The calculated limit for each new emitting unit is listed in Table 4.2 below, along with the proposed particulate limit for each emitting unit.

**Table 4.2: Process Weight Rule Demonstration**

| Emitting Unit | Process Rate (lb/hr) | Process Weight Rule Limit (lb/hr) | PM Emission Rate (lb/hr) | In Compliance with Process Weight Rule? |
|---|---|---|---|---|
| Impingement Dryer | 625 | 2.14 | 0.16 | Yes |
| Flaker Line #1 Additonal Dryer | 1610 | 3.76 | 0.91 | Yes |
| Flaker Line #1 Sniffer Vents | 4820 | 7.3 | 0.07 | Yes |
| Flaker Line #2 Sniffer Vents | 4820 | 7.3 | 0.07 | Yes |

## 4.12 Odors

IDAPA 58.01.01.775-776 provides restriction on the emission of odorous compounds from the facility. The current facility permit contains provisions regarding odors. Idahoan will continue to comply with these requirements. None of the proposed modifications changes these requirements or the inclusion of additional requirements.

# 5.0 AMBIENT AIR QUALITY ANALYSIS

An ambient air quality analysis has been performed in accordance with IDAPA 58.01.01.577. A detailed discussion of the analysis is presented in the modeling report included as Appendix D. A summary of the modeling results is shown in Table 5-1.

**Table 5-1: Air Quality Significance Levels and Modeling Results**

| Pollutant | Average | Met Data | Modeling Significance Level ($\mu g/m^3$) | Modeled Impact Level ($\mu g/m^3$) | Additional Model Analysis Yes/No |
|---|---|---|---|---|---|
| $PM_{10}$ | 24-hr | 2008-2012 | 5 | 1.3 | No |
| $PM_{10}$ | Annual | 2008-2012 | 1 | 0.0 | No |
| $PM_{2.5}$ | 24-hr | 2008-2012 | 1.2 | 0.7 | No |
| $PM_{2.5}$ | Annual | 2008-2012 | 0.3 | 0.0 | No |
| $NO_2$ | 1-hr | 2008-2012 | 7.5 | 11.5 | Yes |

Based upon the results of the significant impact analysis, an additional modeling demonstration was performed to show that the proposed project does not contribute to a violation of the 1-hr ambient standard for $NO_2$. Details of this analysis are presented in the modeling report included as Appendix D. A summary of the modeling results is shown in Table 5-2.

**Table 5-2: Air Quality Significance Levels and Modeling Results**

| Pollutant | Average | Met Data | Ambient Standard ($\mu g/m^3$) | Modeled Impact Level ($\mu g/m^3$) | Background Concentration ($\mu g/m^3$) | Total Ambient Concentration ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| $NO_2$ | 1-hr | 2008-2012 | 188 | 50.2 | 26.3 | 76.5 |

# APPENDIX A: IDAHO PERMIT APPLICATION FORMS

**DEQ AIR QUALITY PROGRAM**
1410 N. Hilton, Boise, ID 83706
For assistance, call the
**Air Permit Hotline – 1-877-5PERMIT**

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**

*Please see instructions on page 2 before filling out the form.*

| COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER | | | |
|---|---|---|---|
| 1. Company Name | Idahoan Foods, LLC | | |
| 2. Facility Name | Lewisville Plant | 3. Facility ID No. | 051-00017 |
| 4. Brief Project Description - One sentence or less | Installation of new dryer, installation of economizers on existing boilers, permitting of existing sniffer vents, removal of existing dryer & boiler fuel oil combustion. | | |

**PERMIT APPLICATION TYPE**

5. ☐ New Source ☒ New Source at Existing Facility ☐ PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c
☒ Unpermitted Existing Source ☐ Facility Emissions Cap ☒ Modify Existing Source: Permit No.: P-2010.0061 Date Issued: 6/30/2010
☐ Required by Enforcement Action: Case No.:____

6. ☒ Minor PTC ☐ Major PTC

**FORMS INCLUDED**

| Included | N/A | Forms | | DEQ Verify |
|---|---|---|---|---|
| ☒ | ☐ | Form CSPTC – Cover Sheet | | ☐ |
| ☒ | ☐ | Form GI – Facility Information | | ☐ |
| ☒ | ☐ | Form EU0 – Emissions Units General | | ☐ |
| ☐ | ☒ | Form EU1– Industrial Engine Information | Please specify number of EU1s attached: ____ | ☐ |
| ☐ | ☒ | Form EU2– Nonmetallic Mineral Processing Plants | Please specify number of EU2s attached: ____ | ☐ |
| ☐ | ☒ | Form EU3– Spray Paint Booth Information | Please specify number of EU3s attached: ____ | ☐ |
| ☐ | ☒ | Form EU4– Cooling Tower Information | Please specify number of EU4s attached: ____ | ☐ |
| ☒ | ☐ | Form EU5 – Boiler Information | Please specify number of EU5s attached: 1 | ☐ |
| ☐ | ☒ | Form CBP– Concrete Batch Plant | Please specify number of CBPs attached: ____ | ☐ |
| ☐ | ☒ | Form HMAP – Hot Mix Asphalt Plant | Please specify number of HMAPs attached: ____ | ☐ |
| ☐ | ☒ | PERF – Portable Equipment Relocation Form | | ☐ |
| ☐ | ☒ | Form AO – Afterburner/Oxidizer | | ☐ |
| ☐ | ☒ | Form CA – Carbon Adsorber | | ☐ |
| ☐ | ☒ | Form CYS – Cyclone Separator | | ☐ |
| ☐ | ☒ | Form ESP – Electrostatic Precipitator | | ☐ |
| ☐ | ☒ | Form BCE– Baghouses Control Equipment | | ☐ |
| ☐ | ☒ | Form SCE– Scrubbers Control Equipment | | ☐ |
| ☐ | ☒ | Form VSCE – Venturi Scrubber Control Equipment | | ☐ |
| ☐ | ☒ | Form CAM – Compliance Assurance Monitoring | | ☐ |
| ☒ | ☐ | Forms EI— Emissions Inventory | | ☐ |
| ☒ | ☐ | PP – Plot Plan | | ☐ |
| ☒ | ☐ | Forms MI1 – MI4 – Modeling | (Excel workbook, all 4 worksheets) | ☐ |
| ☒ | ☐ | Form FRA – Federal Regulation Applicability | | ☐ |

**DEQ AIR QUALITY PROGRAM**
1410 N. Hilton, Boise, ID 83706
For assistance, call the
**Air Permit Hotline – 1-877-5PERMIT**

General Information - **Form GI**
4/7/16

*Please see instructions on second page before filling out the form.*

## FACILITY AND PERMIT INFORMATION

| 1. Facility Name: | 2. Facility ID Number: |
|---|---|
| Idahoan Foods, LLC - Lewisville Plant | 051-00017 |

| 3. Brief Project Description: | Installation of one new dryer, installation of boiler economizers, permitting of existing sniffer vents, removal of existing dryer & boiler #1 fuel oil combustion. |
|---|---|

| 4. Facility Contact Name: | 5. Facility Contact Title: |
|---|---|
| Leo Herbert | Corporate Environmental Manager |
| **6. Facility Contact Telephone Number:** | **7. Facility Contact Email:** |
| 208-754-8194 | lherbert@idahoan.com |
| **8. Mailing address where permit will be sent (street/city/state/zip code):** | **9. Physical address of facility (if different than mailing address) (street/city/state/zip code):** |
| P.O. Box 130<br>Lewisville, ID 83431 | 529 North 3500 East,<br>Lewisville, ID 83431 |

| | | |
|---|---|---|
| 10. County Facility is located | Jefferson | |
| 11. Is the equipment portable? | ☒ No ☐ Yes | |
| 12. NAICS codes | Primary NAICS: 311423 | Secondary NAICS (if applicable): |
| 13. Brief business description and principal product produced: | Dehydrated potato products | |
| 14. Describe any contiguous or adjacent facility this company owns or operates: | N/A | |
| 15. Permit Application Type. Provide Permit Number for existing permit. For a PTC, an application fee is required. | ☐ Initial Permit to Construct (PTC) ☒ PTC Modification | PTC No. _____ Issued Date _____ |
| | ☐ Initial Tier II ☐ Tier II Modification ☐ Tier II Renewal | Tier II No. _____ Issued Date _____ |
| | ☐ Initial Tier I ☐ Tier I Administrative Amendment<br>☐ Tier I Minor Modification ☐ Tier I Significant Modification<br>☐ Tier I Renewal | Tier I No. _____ Issued Date _____ |

| | |
|---|---|
| 16. **For Tier I permitted facilities only:** If you are applying for a PTC then you must specify how the PTC will be incorporated into the Tier I permit. | ☐ Incorporate PTC at the time of Tier I renewal (IDAPA 58.01.01.209.05.a)<br>☐ Co-process PTC with Tier I Modification (IDAPA 58.01.01.209.05.b)<br>☐ Administrative amend the Tier I to incorporate PTC upon applicant's request (IDAPA 58.01.01.209.05.c) |

17. ☒ Check here to request facility draft permit before final issuance.

**Certification of Truth, Accuracy, and Completeness (by Responsible Official)**
I hereby certify that based on information and belief formed after reasonable inquiry, the statements and information contained in this and any attached and/or referenced document(s) are true, accurate, and complete in accordance with IDAPA 58.01.01.123 124.

Leo Herbert — *Responsible Official Signature*

Corporate Environmental Manager — *Responsible Official Title*

6/13/2016 — *Date*

Leo Herbert
*Print or Type Responsible Official Name*

**DEQ AIR QUALITY PROGRAM**
1410 N. Hilton, Boise, ID 83706
For assistance, call the
**Air Permit Hotline – 1-877-5PERMIT**

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

*Please see instructions on page 2 before filling out the form.*

## IDENTIFICATION

| 1. Company Name: | 2. Facility Name: | 3. Facility ID No: |
|---|---|---|
| Idahoan Foods, LLC | Lewisville Plant | 051-00017 |

| 4. Brief Project Description: | Addition of new dryer, permitting of existing vents, removal of existing dryer & boiler fuel oil use. |
|---|---|

## EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

| | | |
|---|---|---|
| 5. | Emissions Unit (EU) Name: | FLAKER LINE #1 |
| 6. | EU ID Number: | FLAKER LINE #1 |
| 7. | EU Type: | ☐ New Source ☐ Unpermitted Existing Source<br>☒ Modification to a Permitted Source -- Previous Permit #:P-2010.001 Date Issued: 6/30/2010 |
| 8. | Manufacturer: | HARTZELL |
| 9. | Model: | 35-36-EWE |
| 10.. | Maximum Capacity: | 2.41 TONS/HR |
| 11. | Date of Construction: | |
| 12. | Date of Modification (if any): | TBD |
| 13. | Is this a Controlled Emission Unit? | ☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22. |

## EMISSIONS CONTROL EQUIPMENT

| | | | |
|---|---|---|---|
| 14. Control Equipment Name and ID: | N/A | | |
| 15. Date of Installation: | N/A | 16. Date of Modification (if any): | N/A |
| 17. Manufacturer and Model Number: | N/A | | |
| 18. ID(s) of Emission Unit Controlled: | N/A | | |
| 19. Is operating schedule different than emission units(s) involved? | ☐ Yes ☐ No | | |
| 20. Does the manufacturer guarantee the control efficiency of the control equipment? | ☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee) | | |

| | Pollutant Controlled | | | | | |
|---|---|---|---|---|---|---|
| | PM | PM10 | $SO_2$ | NOx | VOC | CO |
| Control Efficiency | | | | | | |

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

## EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

| | | |
|---|---|---|
| 22. | Actual Operation: | TBD |
| 23. | Maximum Operation: | 8760 hours/yr |

## REQUESTED LIMITS

| | | |
|---|---|---|
| 24. | Are you requesting any permit limits? | ☒ Yes ☐ No (If Yes, indicate all that apply below) |
| | ☐ Operation Hour Limit(s): | |
| | ☒ Production Limit(s): | INCREASE TOTAL FLAKER 1&2 LIMIT TO 231,360 LBS/DAY |
| | ☐ Material Usage Limit(s): | |
| | ☐ Limits Based on Stack Testing: | Please attach all relevant stack testing summary reports |
| | ☒ Other: | INCREASE TOTAL FLAKER 1&2 LIMIT TO 231,360 LBS/DAY |
| 25. | Rationale for Requesting the Limit(s): | MODIFICATION TO EXISTING LIMITS TO ALLOW FOR INCLUSION OF ADDITIONAL FLAKER 1C |

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08/28/08

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## IDENTIFICATION

| 1. Company Name: | 2. Facility Name: | 3. Facility ID No: |
|---|---|---|
| Idahoan Foods, LLC | Lewisville Plant | 051-00017 |

| 4. Brief Project Description: | Addition of new dryer, permitting of existing vents, removal of existing dryer & boiler fuel oil use. |
|---|---|

## EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

| | | |
|---|---|---|
| 5. | Emissions Unit (EU) Name: | FLAKER LINE #1 SNIFFER VENTS |
| 6. | EU ID Number: | FLAKER LINE #1 SNIFFER VENTS |
| 7. | EU Type: | ☐ New Source ☒ Unpermitted Existing Source<br>☐ Modification to a Permitted Source -- Previous Permit #: Date Issued: |
| 8. | Manufacturer: | HARTZELL |
| 9. | Model: | 35-36-EWE |
| 10.. | Maximum Capacity: | 2.41 TONS/HR |
| 11. | Date of Construction: | |
| 12. | Date of Modification (if any): | 2014 |
| 13. | Is this a Controlled Emission Unit? | ☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22. |

## EMISSIONS CONTROL EQUIPMENT

| | | | |
|---|---|---|---|
| 14. Control Equipment Name and ID: | FLAKER LINE #1 SNIFFER VENT CYCLONE | | |
| 15. Date of Installation: | TBD | 16. Date of Modification (if any): | N/A |
| 17. Manufacturer and Model Number: | IDAHO STEEL, ISP6000HR | | |
| 18. ID(s) of Emission Unit Controlled: | FLAKER LINE #1 SNIFFER VENTS | | |
| 19. Is operating schedule different than emission units(s) involved? | ☐ Yes ☒ No | | |
| 20. Does the manufacturer guarantee the control efficiency of the control equipment? | ☒ Yes ☐ No (If Yes, attach and label manufacturer guarantee) | | |

| | Pollutant Controlled | | | | | |
|---|---|---|---|---|---|---|
| | PM | PM10 | $SO_2$ | NOx | VOC | CO |
| Control Efficiency | | 49.5% | | | | |

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. N/A

## EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

| | | |
|---|---|---|
| 22. | Actual Operation: | TBD |
| 23. | Maximum Operation: | 8760 hours/yr |

## REQUESTED LIMITS

| | | |
|---|---|---|
| 24. | Are you requesting any permit limits? | ☐ Yes ☒ No (If Yes, indicate all that apply below) |
| | ☐ Operation Hour Limit(s): | |
| | ☐ Production Limit(s): | |
| | ☐ Material Usage Limit(s): | |
| | ☐ Limits Based on Stack Testing: | Please attach all relevant stack testing summary reports |
| | ☐ Other: | |
| 25. | Rationale for Requesting the Limit(s): | |

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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

*Please see instructions on page 2 before filling out the form.*

## IDENTIFICATION

| 1. Company Name: | 2. Facility Name: | 3. Facility ID No: |
|---|---|---|
| Idahoan Foods, LLC | Lewisville Plant | 051-00017 |

| 4. Brief Project Description: | Addition of new dryer, permitting of existing vents, removal of existing dryer & boiler fuel oil use. |
|---|---|

## EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

| | | |
|---|---|---|
| 5. | Emissions Unit (EU) Name: | FLAKER LINE #2 SNIFFER VENTS |
| 6. | EU ID Number: | FLAKER LINE #2 SNIFFER VENTS |
| 7. | EU Type: | ☐ New Source ☒ Unpermitted Existing Source<br>☐ Modification to a Permitted Source -- Previous Permit #: Date Issued: |
| 8. | Manufacturer: | HARTZELL |
| 9. | Model: | 35-36-EWE |
| 10.. | Maximum Capacity: | 2.41 TONS/HR |
| 11. | Date of Construction: | |
| 12. | Date of Modification (if any): | 2014 |
| 13. | Is this a Controlled Emission Unit? | ☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22. |

## EMISSIONS CONTROL EQUIPMENT

| | | | |
|---|---|---|---|
| 14. Control Equipment Name and ID: | FLAKER LINE #2 SNIFFER VENT CYCLONE | | |
| 15. Date of Installation: | TBD | 16. Date of Modification (if any): | N/A |
| 17. Manufacturer and Model Number: | IDAHO STEEL, ISP6000HR | | |
| 18. ID(s) of Emission Unit Controlled: | FLAKER LINE #2 SNIFFER VENTS | | |
| 19. Is operating schedule different than emission units(s) involved? | ☐ Yes ☒ No | | |
| 20. Does the manufacturer guarantee the control efficiency of the control equipment? | ☒ Yes ☐ No (If Yes, attach and label manufacturer guarantee) | | |

| | Pollutant Controlled | | | | | |
|---|---|---|---|---|---|---|
| | PM | PM10 | $SO_2$ | NOx | VOC | CO |
| Control Efficiency | | 49.5% | | | | |

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency. N/A

## EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

| | | |
|---|---|---|
| 22. | Actual Operation: | TBD |
| 23. | Maximum Operation: | 8760 hours/yr |

## REQUESTED LIMITS

| | | |
|---|---|---|
| 24. | Are you requesting any permit limits? | ☐ Yes ☒ No (If Yes, indicate all that apply below) |
| | ☐ Operation Hour Limit(s): | |
| | ☐ Production Limit(s): | |
| | ☐ Material Usage Limit(s): | |
| | ☐ Limits Based on Stack Testing: | Please attach all relevant stack testing summary reports |
| | ☐ Other: | |
| 25. | Rationale for Requesting the Limit(s): | |

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Emissions Unit - General **Form EU0**
Revision 4
08/28/08

*Please see instructions on page 2 before filling out the form.*

## IDENTIFICATION

| 1. Company Name: | 2. Facility Name: | 3. Facility ID No: |
|---|---|---|
| Idahoan Foods, LLC | Lewisville Plant | 051-00017 |

| 4. Brief Project Description: | Addition of new dryer, permitting of existing vents, removal of existing dryer & boiler fuel oil use. |
|---|---|

## EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

| | | |
|---|---|---|
| 5. | Emissions Unit (EU) Name: | IMPINGEMENT DRYER |
| 6. | EU ID Number: | IMPINGEMENT DRYER #1 |
| 7. | EU Type: | ☒ New Source ☐ Unpermitted Existing Source<br>☐ Modification to a Permitted Source -- Previous Permit #: Date Issued: |
| 8. | Manufacturer: | CPM WOLVERINE PROCTOR |
| 9. | Model: | |
| 10.. | Maximum Capacity: | 0.3125 TONS/HR, 7 MMBTU/HR BURNER |
| 11. | Date of Construction: | TBD |
| 12. | Date of Modification (if any): | TBD |
| 13. | Is this a Controlled Emission Unit? | ☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22. |

## EMISSIONS CONTROL EQUIPMENT

| | | | |
|---|---|---|---|
| 14. Control Equipment Name and ID: | N/A | | |
| 15. Date of Installation: | N/A | 16. Date of Modification (if any): | N/A |
| 17. Manufacturer and Model Number: | N/A | | |
| 18. ID(s) of Emission Unit Controlled: | N/A | | |
| 19. Is operating schedule different than emission units(s) involved? | ☐ Yes ☐ No | | |
| 20. Does the manufacturer guarantee the control efficiency of the control equipment? | ☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee) | | |

| | Pollutant Controlled | | | | | |
|---|---|---|---|---|---|---|
| | PM | PM10 | $SO_2$ | NOx | VOC | CO |
| Control Efficiency | | | | | | |

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

## EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

| | | |
|---|---|---|
| 22. | Actual Operation: | TBD |
| 23. | Maximum Operation: | 8760 hours/yr |

## REQUESTED LIMITS

| | | |
|---|---|---|
| 24. | Are you requesting any permit limits? | ☐ Yes ☒ No (If Yes, indicate all that apply below) |
| | ☐ Operation Hour Limit(s): | |
| | ☐ Production Limit(s): | |
| | ☐ Material Usage Limit(s): | |
| | ☐ Limits Based on Stack Testing: | Please attach all relevant stack testing summary reports |
| | ☐ Other: | |
| 25. | Rationale for Requesting the Limit(s): | |

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Emissions Units - Industrial Boiler Information **Form EU5**
Revision 5
08/28/08

*Please see instructions on page 2 before filling out the form.*

## IDENTIFICATION

| 1. Company Name: | 2. Facility Name: | 3 Facility ID No: |
|---|---|---|
| Idahoan Foods, LLC | Lewisville Plant | 051-00017 |
| 4. Brief Project Description: | Addition of new dryer, permitting of existing vents, removal of existing dryer & boiler fuel oil use. | |

## EXEMPTION

**Please see IDAPA 58.01.01.222 for a list of industrial boilers that are exempt from Permit to Construct requirements.**

## BOILER (EMISSION UNIT) DESCRIPTION AND SPECIFICATIONS

5. Type of Request: ☐ New Unit ☐ Unpermitted Existing Unit ☒ Modification to a Unit with Permit #:P-2010.001

6. Use of Boiler: ☒ % Used For Process ☐ % Used For Space Heat ☐ % Used For Generating Electricity ☐ Other:

| 7. Boiler ID Number: Boiler No. 1 | 8. Rated Capacity: ☒ 54.45 Million British Thermal Units Per Hour (MMBtu/hr) ☐ 1,000 Pounds Steam Per Hour (1,000 lb steam/hr) | |
|---|---|---|
| 9. Construction Date: 1968 | 10. Manufacturer: Erie City | 11. Model: Unknown |
| 12. Date of Modification (if applicable): N/A - no physical modification | 13. Serial Number (if available): 97804 | 14. Control Device (if any): None **Note: Attach applicable control equipment form(s)** |

## FUEL DESCRIPTION AND SPECIFICATIONS

| 15. Fuel Type | ☐ Diesel Fuel (# ) (gal/hr) | ☒ Natural Gas 53,100 (cf/hr) | ☐ Coal (unit: /hr) | ☐ Other Fuels (unit: /hr) |
|---|---|---|---|---|
| 16. Full Load Consumption Rate | | 53,100 cf/hr | | |
| 17. Actual Consumption Rate | | N/A | | |
| 18. Fuel Heat Content (Btu/unit, LHV) | | 1,028 btu/scf | | |
| 19. Sulfur Content wt% | | 0.0005% | | |
| 20. Ash Content wt% | | N/A | | |

## STEAM DESCRIPTION AND SPECIFICATIONS

| 21. Steam Heat Content | NA | NA | | |
|---|---|---|---|---|
| 22. Steam Temperature (°F) | N/A | N/A | | |
| 23. Steam Pressure (psi) | N/A | N/A | | |
| 24 Steam Type | N/A | N/A | ☐ Saturated ☐ Superheated | ☐ Saturated ☐ Superheated |

## OPERATING LIMITS & SCHEDULE

| 25. Imposed Operating Limits (hours/year, or gallons fuel/year, etc.): | Boilers 1, 2 & 3 combined fuel limit of 725 MMscf/yr, existing limit |
|---|---|
| 26. Operating Schedule (hours/day, months/year, etc.): | 8760 hours per year, no limits upon operation |
| 27. NSPS Applicability: ☐ Yes ☒ No | If Yes, which subpart: |

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**PERMIT TO CONSTRUCT APPLICATION**
Revision 3
3/27/2007

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| | |
|---|---|
| Company Name: | Idahoan Foods, LLC |
| Facility Name: | Lewisville Plant |
| Facility ID No.: | 051-00017 |
| Brief Project Description: | Installation of new dryer, installation of boiler economizers, permitting of existing sniffer vents, removal of existing dryer & boiler fuel oil combustion. |

## POINT SOURCE STACK PARAMETERS

| 1. | 2. | 3a. | 3b. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|---|
| **Emissions units** | **Stack ID** | **UTM Easting (m)** | **UTM Northing (m)** | **Base Elevation (m)** | **Stack Height (m)** | **Modeled Diameter (m)** | **Stack Exit Temperature (K)** | **Stack Exit Flowrate (acfm)** | **Stack Exit Velocity (m/s)** | **Stack orientation (e.g., horizontal, rain cap)** |
| **Point Source(s)** | | | | | | | | | | |
| Impingement Dryer - Stack #1 | IMPINGE1 | 418,945 | 4,839,341 | 1,463.6 | 22.86 | 0.61 | 322.04 | 8,671 | 14.02 | Vertical |
| Impingement Dryer - Stack #2 | IMPINGE2 | 418,945 | 4,839,344 | 1,463.6 | 22.86 | 0.61 | 322.04 | 10,292 | 16.64 | Vertical |
| Impingement Dryer - Stack #3 | IMPINGE3 | 418,945 | 4,839,347 | 1,463.6 | 22.86 | 0.36 | 322.04 | 3,624 | 17.22 | Vertical |
| Boiler No.1 (Fuel Oil Reduction) | B1_OLD | 418,917 | 4,839,389 | 1,463.6 | 12.19 | 1.07 | 472.04 | 20,782 | 10.97 | Vertical |
| Boiler 1 - NG Economizer | B1_MOD | 418,917 | 4,839,389 | 1,463.6 | 22.86 | 1.07 | 414.82 | 18,300 | 9.66 | Vertical |
| Boiler 2 - Existing | B2_OLD | 418,922 | 4,839,389 | 1,463.6 | 7.92 | 1.17 | 472.04 | 32,831 | 14.33 | Vertical |
| Boiler 2 - NG Economizer | B2_MOD | 418,922 | 4,839,389 | 1,463.6 | 21.34 | 1.17 | 414.82 | 28,919 | 12.62 | Vertical |
| Boiler 3 - Existing | B3_OLD | 418,925 | 4,839,389 | 1,463.6 | 10.97 | 1.17 | 472.04 | 32,970 | 14.39 | Vertical |
| Boiler 3 - NG Economizer | B3_MOD | 418,925 | 4,839,389 | 1,463.6 | 21.34 | 1.17 | 414.82 | 28,989 | 12.65 | Vertical |
| Boiler 2 - Economizer Bypassed | B2_NOECON | 418,922 | 4,839,389 | 1,463.6 | 21.34 | 1.17 | 472.04 | 32,831 | 14.33 | Vertical |
| Boiler 3 - Economizer Bypassed | B3_NOECON | 418,925 | 4,839,389 | 1,463.6 | 21.34 | 1.17 | 472.04 | 32,970 | 14.39 | Vertical |
| Flaker Line 1 - Dryer #3 | FLAKER1_3 | 418,923 | 4,839,377 | 1,463.6 | 19.81 | 1.07 | 307.40 | 28,864 | 15.24 | Vertical |
| Flaker Line 1 - Sniffer | SNIFFER1 | 418,923 | 4,839,381 | 1,463.6 | 10.67 | 0.41 | 310.93 | 5,864 | 21.34 | Vertical |
| Flaker Line 2 - Sniffer | SNIFFER2 | 418,923 | 4,839,350 | 1,463.6 | 10.67 | 0.41 | 310.93 | 5,864 | 21.34 | Vertical |
| Belt Dryer 1 - Stack A | BELTDRY1A | 418,914 | 4,839,377 | 1,463.6 | 10.67 | 1.12 | 4.877 | 10,266 | 4.88 | Vertical |
| Belt Dryer 1 - Stack B | BELTDRY1B | 418,916 | 4,839,377 | 1,463.6 | 10.67 | 1.12 | 4.877 | 10,266 | 4.88 | Vertical |
| Belt Dryer 2 - Stack A | BELTDRY2A | 418,941 | 4,839,377 | 1,463.6 | 10.67 | 1.12 | 3.048 | 6,416 | 3.05 | Vertical |
| Belt Dryer 2 - Stack B | BELTDRY2B | 418,943 | 4,839,377 | 1,463.6 | 10.67 | 1.12 | 3.048 | 6,416 | 3.05 | Vertical |
| Belt Dryer 5 - Stack A | BELTDRY5A | 418,962 | 4,839,330 | 1,463.6 | 10.67 | 1.12 | 4.877 | 10,266 | 4.88 | Vertical |
| Belt Dryer 5 - Stack B | BELTDRY5B | 418,964 | 4,839,330 | 1,463.6 | 10.67 | 1.12 | 4.877 | 10,266 | 4.88 | Vertical |
| 92 Dryer 1 cyclone | 92DRY1A | 418,882 | 4,839,305 | 1,463.6 | 7.92 | 0.84 | 35.662 | 41,398 | 35.66 | Vertical |
| 92 Dryer 1 cyclone | 92DRY1B | 418,882 | 4,839,305 | 1,463.6 | 7.92 | 0.001 | 0.001 | 0.000 | 0.001 | Horizontal |
| 92 Dryer 2 cyclone | 92DRY2 | 418,882 | 4,839,300 | 1,463.6 | 7.92 | 0.001 | 0.001 | 0.000 | 0.001 | Horizontal |
| 92 Dryer 3 cyclone | 92DRY3 | 418,886 | 4,839,305 | 1,463.6 | 7.62 | 0.001 | 0.001 | 0.000 | 0.001 | Horizontal |
| 92 Dryer 4 cyclone | 92DRY4 | 418,886 | 4,839,300 | 1,463.6 | 7.62 | 0.001 | 0.001 | 0.000 | 0.001 | Horizontal |

| | | |
|---|---|---|
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*Please see instructions on page 2 before filling out the form.*

| | |
|---|---|
| Company Name: | Idahoan Foods, LLC |
| Facility Name: | Lewisville Plant |
| Facility ID No.: | 051-00017 |
| Brief Project Description: | Installation of new dryer, installation of boiler economizers, permitting of existing sniffer vents, removal of existing dryer & boiler fuel oil combustion. |

**FUGITIVE SOURCE PARAMETERS**

| 1. | 2. | 3a. | 3b. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|---|
| **Emissions units** | **Stack ID** | **UTM Easting (m)** | **UTM Northing (m)** | **Base Elevation (m)** | **Release Height (m)** | **Easterly Length (m)** | **Northerly Length (m)** | **Angle from North ( ° )** | **Initial Vertical Dimension (m)** | **Initial Horizontal Dimension (m)** |
| **Area Source(s)** | | | | | | | | | | |
| None | | | | | | | | | | |
| **Volume Source(s)** | | | | | | | | | | |
| Air Makeup Units | AMUS | 418,927.00 | 4,839,302.00 | 1,463.00 | 3.05 | | | | 39.62 | 2.83 |

| | | |
|---|---|---|
| | DEQ AIR QUALITY PROGRAM<br>1410 N. Hilton, Boise, ID 83706<br>For assistance, call the<br>**Air Permit Hotline - 1-877-5PERMIT** | **PERMIT TO CONSTRUCT APPLICATION**<br>Revision 3<br>4/5/2007 |

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| | |
|---|---|
| Company Name: | Idahoan Foods, LLC |
| Facility Name: | Lewisville Plant |
| Facility ID No.: | 051-00017 |
| Brief Project Description: | Installation of new dryer, installation of boiler economizers, permitting of existing sniffer vents, removal of existing dryer & boiler fuel oil combustio |

## BUILDING AND STRUCTURE INFORMATION

| 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|---|---|---|---|---|---|---|
| **Building ID Number** | **Length (ft)** | **Width (ft)** | **Base Elevation (m)** | **Building Height (m)** | **Number of Tiers** | **Description/Comments** |
| WASTEW | 65.00 | 55.00 | 1462.76 | 6.71 | 1 | Wastewater treatment building |
| WRHOUSE | 85.00 | 45.00 | 1463.33 | 4.04 | 1 | Warehouse |
| OFFICE | 170.00 | 120.00 | 1463.07 | 3.43 | 1 | Office |
| PACKAGE | 430.00 | 130.00 | 1463.62 | 6.78 | 1 | Packaging building |
| PLANT | 770.00 | 440.00 | 1463.63 | 6.78 | 2 | Main Plant Building |

# APPENDIX B: EMISSIONS INVENTORY

## Table B-1: Pre-Project Potential to Emit for NSR Regulated Pollutants[a]

| Emitting Unit ID | Emissions Unit | $PM_{2.5}$[b] | | $PM_{10}$ | | SO2 | | NOX | | CO | | VOC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr |
| N/A | Combined Boilers 1-3 Natural Gas Annual Emissions | 0.00 | 2.76 | 0.00 | 2.76 | 0.00 | 0.22 | 0.00 | 36.25 | 0.00 | 30.45 | 0.00 | 1.99 |
| 1 | Boiler 1 Maximum PTE, all fuels | 6.67 | 11.22 | 6.83 | 11.50 | 27.57 | 44.27 | 7.79 | 17.01 | 4.49 | 5.35 | 0.29 | 0.36 |
| 2 | Boiler 2 | 0.63 | 0.00 | 0.63 | 0 | 0.05 | 0 | 8.28 | 0 | 6.96 | 0 | 0.46 | 0 |
| 3 | Boiler 3 | 0.63 | 0.00 | 0.63 | 0 | 0.05 | 0 | 8.28 | 0 | 6.96 | 0 | 0.46 | 0 |
| 4 | Belt Dryer 1 | 0.43 | 1.86 | 0.43 | 1.86 | 0.004 | 0.02 | 0.73 | 3.2 | 0.61 | 2.59 | 0.04 | 0.18 |
| 5 | Belt Dryer 2 | 0.43 | 1.86 | 0.43 | 1.86 | 0.004 | 0.02 | 0.69 | 3 | 0.58 | 2.52 | 0.04 | 0.17 |
| N/A - Removed | Belt Dryer 3 | 0.43 | 1.86 | 0.43 | 1.86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | Belt Dryer 4 | 0.43 | 1.86 | 0.43 | 1.86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | Belt Dryer 5 | 0.43 | 1.86 | 0.43 | 1.86 | 0.01 | 0.02 | 0.93 | 4.08 | 0.78 | 3.43 | 0.05 | 0.22 |
| 8 | Flaker Line 1 | 2.28 | 9.97 | 2.28 | 9.97 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | Flaker Line 2 | 2.28 | 9.97 | 2.28 | 9.97 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | Flaker Line 1 bin baghouse | 0.20 | 0.86 | 0.2 | 0.86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | Flaker Line 2 bin baghouse | 0.23 | 1.01 | 0.23 | 1.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 92 Line vaculift 1 | 0.23 | 1.02 | 0.23 | 1.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 92 Line vaculift 2 | 0.31 | 1.37 | 0.31 | 1.37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 92 Line 3 baghouse | 0.20 | 0.88 | 0.2 | 0.88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 92 Line 3 baghouse | 0.15 | 0.64 | 0.15 | 0.64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 92 Dryer 1 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0 | 0.01 | 0.36 | 1.6 | 0.31 | 1.34 | 0.02 | 0.09 |
| 17 | 92 Dryer 2 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0 | 0.01 | 0.35 | 1.55 | 0.3 | 1.3 | 0.02 | 0.09 |
| 18 | 92 Dryer 3 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0 | 0.02 | 0.69 | 3.01 | 0.58 | 2.52 | 0.04 | 0.17 |
| 19 | 92 Dryer 4 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0 | 0.02 | 0.69 | 3.01 | 0.58 | 2.52 | 0.04 | 0.17 |
| 20 | Bagroom dust vaculift | 0.19 | 0.85 | 0.19 | 0.85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | Flaker bagger baghouse | 0.10 | 0.43 | 0.1 | 0.43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | Crusher vaculift | 0.01 | 0.04 | 0.01 | 0.04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | Packaging baghouse | 1.20 | 5.26 | 1.2 | 5.26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | Packaging baghouse 6 | 0.06 | 0.26 | 0.06 | 0.26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | Space Heaters | 0.20 | 0.87 | 0.2 | 0.87 | 0 | 0.07 | 2.6 | 11.4 | 2.19 | 9.58 | 0.14 | 0.63 |
| **Totals** | **Totals** | **20.72** | **69.87** | **20.88** | **70.15** | **27.69** | **44.68** | **31.39** | **84.11** | **24.34** | **61.60** | **1.60** | **4.07** |

[a]Emission rates obtained from the SOB for PTC No.P-2010-0061 issued in June, 2010

[b]PM2.5 assumed to be equal to PM10 for all sources except fuel oil combustion in Boiler #1.

## Table B-2: Post-Project Potential to Emit for NSR Regulated Pollutants

| Emitting Unit ID | Emissions Unit | $PM_{2.5}$[a] | | $PM_{10}$ | | SO2 | | NOX | | CO | | VOC | | CO2E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | T/yr |
| N/A | Combined Boilers 1-3 Natural Gas Annual Emissions | | 2.76 | | 2.76 | | 0.22 | | 36.25 | | 30.45 | | 1.99 | 43603.29 |
| 1 | Boiler 1 Natural Gas Only[c] | 0.40 | | 0.40 | | 0.03 | | 5.31 | | 4.46 | | 0.29 | | |
| 2 | Boiler 2 | 0.63 | | 0.63 | | 0.05 | | 8.28 | | 6.96 | | 0.46 | | |
| 3 | Boiler 3 | 0.63 | | 0.63 | | 0.05 | | 8.28 | | 6.96 | | 0.46 | | |
| 4 | Belt Dryer 1 | 0.43 | 1.86 | 0.43 | 1.86 | 0.00 | 0.02 | 0.73 | 3.20 | 0.61 | 2.59 | 0.04 | 0.18 | 3,813 |
| 5 | Belt Dryer 2 | 0.43 | 1.86 | 0.43 | 1.86 | 0.00 | 0.02 | 0.69 | 3.00 | 0.58 | 2.52 | 0.04 | 0.17 | 3,582 |
| N/A - Removed | Belt Dryer 3[b] | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| 6 | Belt Dryer 4 | 0.43 | 1.86 | 0.43 | 1.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 |
| 7 | Belt Dryer 5 | 0.43 | 1.86 | 0.43 | 1.86 | 0.01 | 0.02 | 0.93 | 4.08 | 0.78 | 3.43 | 0.05 | 0.22 | 5,125 |
| 8 | Flaker Line 1 | 2.73 | 11.94 | 2.73 | 11.94 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | Flaker Line 2 | 2.73 | 11.94 | 2.73 | 11.94 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | Flaker Line 1 bin baghouse | 0.20 | 0.86 | 0.20 | 0.86 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | Flaker Line 2 bin baghouse | 0.23 | 1.01 | 0.23 | 1.01 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 92 Line vaculift 1 | 0.23 | 1.02 | 0.23 | 1.02 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 92 Line vaculift 2 | 0.31 | 1.37 | 0.31 | 1.37 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 92 Line 3 baghouse | 0.20 | 0.88 | 0.20 | 0.88 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 92 Line 3 baghouse | 0.15 | 0.64 | 0.15 | 0.64 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 92 Dryer 1 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0.00 | 0.01 | 0.36 | 1.6 | 0.31 | 1.34 | 0.02 | 0.09 | 1,896 |
| 17 | 92 Dryer 2 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0.00 | 0.01 | 0.35 | 1.55 | 0.3 | 1.3 | 0.02 | 0.09 | 1,845 |
| 18 | 92 Dryer 3 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0.00 | 0.02 | 0.69 | 3.01 | 0.58 | 2.52 | 0.04 | 0.17 | 3,587 |
| 19 | 92 Dryer 4 cyclone | 0.75 | 3.29 | 0.75 | 3.29 | 0.00 | 0.02 | 0.69 | 3.01 | 0.58 | 2.52 | 0.04 | 0.17 | 3,587 |
| 20 | Bagroom dust vaculift | 0.19 | 0.85 | 0.19 | 0.85 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | Flaker bagger baghouse | 0.10 | 0.43 | 0.10 | 0.43 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | Crusher vaculift | 0.01 | 0.04 | 0.01 | 0.04 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | Packaging baghouse | 1.20 | 5.26 | 1.20 | 5.26 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | Packaging baghouse 6 | 0.06 | 0.26 | 0.06 | 0.26 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | Space heaters | 0.20 | 0.87 | 0.20 | 0.87 | 0.00 | 0.07 | 2.6 | 11.4 | 2.19 | 9.58 | 0.14 | 0.63 | 13,581 |
| 26 | Impingement Dryer #1[c] | 0.35 | 1.52 | 0.35 | 1.52 | 0.00 | 0.02 | 0.25 | 1.10 | 2.04 | 8.95 | 3.75E-02 | 1.64E-01 | 3,587 |
| 27 | Flaker Line #1 Sniffer Vents[c] | 0.15 | 0.65 | 0.15 | 0.65 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | Flaker Line #2 Sniffer Vents[c] | 0.15 | 0.65 | 0.15 | 0.65 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Totals** | Totals | **15.56** | **63.54** | **15.56** | **63.54** | **0.15** | **0.43** | **29.16** | **68.20** | **26.35** | **65.20** | **1.64** | **3.88** | **84208.52** |

[a]PM2.5 assumed to be equal to PM10 for all sources except fuel oil combustion in Boiler #1.

[b]Emitting unit will be removed from the facility.

[c]Emitting unit is a proposed new or modified unit at the facility

## Table B-3: Change in Emission Rates from Pre-project to Post-project[a]

| Emitting Unit ID | Emissions Unit | $PM_{2.5}$[a] | | $PM_{10}$ | | SO2 | | NOX | | CO | | VOC | | CO2E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | T/yr |
| N/A | Combined Boilers 1-3 Natural Gas Annual Emissions | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 43603.29 |
| 1 | Boiler 1 [c] | -6.26 | **-11.22** | -6.43 | **-11.50** | -27.54 | **-44.27** | -2.48 | **-17.01** | -0.03 | **-5.35** | 0.00 | **-0.36** | 0.00 |
| 2 | Boiler 2 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 3 | Boiler 3 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 4 | Belt Dryer 1 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 3812.99 |
| 5 | Belt Dryer 2 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 3582.36 |
| N/A - Removed | Belt Dryer 3[b] | -0.43 | **-1.86** | -0.43 | **-1.86** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 6 | Belt Dryer 4 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 7 | Belt Dryer 5 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 5124.98 |
| 8 | Flaker Line 1 | 0.45 | **1.97** | 0.45 | **1.97** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 9 | Flaker Line 2 | 0.45 | **1.97** | 0.45 | **1.97** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 10 | Flaker Line 1 bin baghouse | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 11 | Flaker Line 2 bin baghouse | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 12 | 92 Line vaculift 1 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 13 | 92 Line vaculift 2 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 14 | 92 Line 3 baghouse | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 15 | 92 Line 3 baghouse | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 16 | 92 Dryer 1 cyclone | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 1896.24 |
| 17 | 92 Dryer 2 cyclone | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 1844.99 |
| 18 | 92 Dryer 3 cyclone | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 3587.49 |
| 19 | 92 Dryer 4 cyclone | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 3587.49 |
| 20 | Bagroom dust vaculift | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 21 | Flaker bagger baghouse | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 22 | Crusher vaculift | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 23 | Packaging baghouse | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 24 | Packaging baghouse 6 | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 25 | Space Heaters | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 13581.20 |
| 26 | Impingement Dryer #1[c] | 0.35 | **1.52** | 0.35 | **1.52** | 0.00 | **0.02** | 0.25 | **1.10** | 2.04 | **8.95** | 0.04 | **0.16** | 3587.49 |
| 27 | Flaker Line #1 Sniffer Vents[c] | 0.15 | **0.65** | 0.15 | **0.65** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| 28 | Flaker Line #2 Sniffer Vents[c] | 0.15 | **0.65** | 0.15 | **0.65** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 |
| Totals Net Change | | -5.16 | **-6.33** | -5.32 | **-6.60** | -27.53 | **-44.25** | -2.23 | **-15.91** | 2.01 | **3.60** | 0.04 | **-0.20** | N/A |
| Total Increase Only | | 1.53 | **6.76** | 1.53 | **6.76** | 0.00 | **0.02** | 0.25 | **1.10** | 2.04 | **8.95** | 0.04 | **0.16** | 3587.49 |
| Level I Thresholds | | 0.054 | **0.35** | 0.22 | **—** | 0.21 | **1.2** | 0.2 | **1.2** | --- | **—** | 15 | **—** | --- |
| Level II Thresholds | | 0.63 | **4.1** | 2.6 | **—** | 2.5 | **14** | 2.4 | **14** | --- | **—** | 175 | **—** | --- |
| Over Level I Threshold? | | Yes | **Yes** | Yes | **No** | No | **No** | Yes | **No** | No | **No** | No | **No** | N/A |
| Over Level II Threshold? | | Yes | **Yes** | No | **No** | No | **No** | No | **No** | No | **No** | No | **No** | N/A |

[a] PM2.5 emissions were not speciated out from PM10 emissions. To be conservative, they are assumed to be 100% of PM10 emissions.

[b] Emitting unit will be removed from the facility.

[c] Emitting unit is a proposed new unit at the facility

**Idahoan Foods, LLC - Lewisville Plant**
**Plant-wide Natural Gas Combustion**

**NG Emission Factors**

| | | | |
|---|---|---|---|
| NOx | 100 | lb/10^6 scf | AP-42, Table 1.4-1, 1998 |
| CO | 84 | lb/10^6 scf | AP-42, Table 1.4-1, 1998 |
| $PM_{10}$ | 7.6 | lb/10^6 scf | AP-42, Table 1.4-2, 1998 |
| SOx | 0.6 | lb/10^6 scf | AP-42, Table 1.4-2, 1998 |
| VOC | 5.5 | lb/10^6 scf | AP-42, Table 1.4-2, 1998 |
| Lead | 0.0005 | lb/10^6 scf | AP-42, Table 1.4-2, 1998 |
| Impingement Dryer NOx | 0.036 | lb/MMBtu | Manufacturer |
| Impingement Dryer CO | 0.292 | lb/MMBtu | Manufacturer |

| | | | |
|---|---|---|---|
| NG heating value | 1,028 | MMBtu/10^6 scf | 40 CFR 98 Table C-1 |
| No.2 fuel oil heating value | 138 | MMBtu/10^3gal | 40 CFR 98 Table C-1 |

| Source ID No. | Description | Capacity (MMBtu/hr) | Throughput (10^3 gal/hr) or (10^6 scf/hr) | Hour/yr | PM/$PM_{10}$/$PM_{2.5}$ Emissions (lb/hr)[1] | $PM/PM_{10}/PM_{2.5}$ Emissions (ton/yr) | NOx Emissions (lb/hr) | NOx Emissions (ton/yr) | SOx Emissions (lb/hr) | SOx Emissions (ton/yr) | CO Emissions (lb/hr) | CO Emissions (ton/yr) | VOC Emissions (lb/hr) | VOC Emissions (ton/yr) | Lead Emissions (lb/hr) | Lead Emissions (ton/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Boiler 1 | 54.56 | 5.31E-02 | 8760 | 0.40 | | 5.31 | | 3.18E-02 | | 4.46 | | 2.92E-01 | | 1.55E-02 | |
| 2 | Boiler 2 | 84.46 | 8.22E-02 | 8760 | 0.62 | | 8.22 | | 4.93E-02 | | 6.90 | | 4.52E-01 | | 2.40E-02 | |
| 3 | Boiler 3 | 84.46 | 8.22E-02 | 8760 | 0.624 | | 8.22 | | 4.93E-02 | | 6.90 | | 4.52E-01 | | 2.40E-02 | |
| N/A | Combine Boiler Fuel Usage[3] | | 8.28E-02 | 8760 | | 2.76 | | 36.25 | | 0.22 | | 30.45 | | 1.99 | | 0.11 |
| 4 | Belt Dryer 1 | 7.44 | 7.24E-03 | 8760 | ---[2] | ---[2] | 0.72 | 3.17 | 4.34E-03 | 0.02 | 0.61 | 2.66 | 3.98E-02 | 1.74E-01 | 2.11E-03 | 9.26E-03 |
| 5 | Belt Dryer 2 | 6.99 | 6.80E-03 | 8760 | ---[2] | ---[2] | 0.68 | 2.98 | 4.08E-03 | 0.02 | 0.57 | 2.50 | 3.74E-02 | 1.64E-01 | 1.99E-03 | 8.70E-03 |
| 6 | Belt Dryer 5 | 10.00 | 9.73E-03 | 8760 | ---[2] | ---[2] | 0.97 | 4.26 | 5.84E-03 | 0.03 | 0.82 | 3.58 | 5.35E-02 | 2.34E-01 | 2.84E-03 | 1.24E-02 |
| 16 | 92 Dryer 1 cyclone | 3.70 | 3.60E-03 | 8760 | ---[2] | ---[2] | 0.36 | 1.58 | 2.16E-03 | 0.01 | 0.30 | 1.32 | 1.98E-02 | 8.67E-02 | 1.05E-03 | 4.60E-03 |
| 17 | 92 Dryer 2 cyclone | 3.60 | 3.50E-03 | 8760 | ---[2] | ---[2] | 0.35 | 1.53 | 2.10E-03 | 0.01 | 0.29 | 1.29 | 1.93E-02 | 8.44E-02 | 1.02E-03 | 4.48E-03 |
| 18 | 92 Dryer 3 cyclone | 7.00 | 6.81E-03 | 8760 | ---[2] | ---[2] | 0.68 | 2.98 | 4.09E-03 | 0.02 | 0.57 | 2.51 | 3.75E-02 | 1.64E-01 | 1.99E-03 | 8.71E-03 |
| 19 | 92 Dryer 4 cyclone | 7.00 | 6.81E-03 | 8760 | ---[2] | ---[2] | 0.68 | 2.98 | 4.09E-03 | 0.02 | 0.57 | 2.51 | 3.75E-02 | 1.64E-01 | 1.99E-03 | 8.71E-03 |
| 25 | Space Heaters | 26.50 | 2.58E-02 | 8760 | 0.196 | 0.86 | 2.58 | 11.29 | 1.55E-02 | 0.07 | 2.17 | 9.48 | 1.42E-01 | 6.21E-01 | 7.53E-03 | 3.30E-02 |
| 26 | Impingement Dryer[4] | 7.00 | 6.81E-03 | 8760 | ---[2] | ---[2] | 0.25 | 1.10 | 4.09E-03 | 0.02 | 2.04 | 8.95 | 3.75E-02 | 1.64E-01 | 1.99E-03 | 8.71E-03 |
| **Total** | | 302.702 | **2.94E-01** | | **1.85** | **3.61** | **29.02** | **68.13** | **0.18** | **0.42** | **26.21** | **65.25** | **1.62** | **3.85** | **0.09** | **0.20** |

[1] Assume $PM=PM_{10}=PM_{2.5}$

[2] It has been counted under "Dryers."

[3] Combined boiler emissions based on permit condition 3.8 of PTC No. P-2010.0061, the combined Boiler 1-3 fuel limit of 725,000,000 cf/year

[4] NOx & CO emission factors were provided by the manufacturer and are included in Appendix E

**Idahoan Foods, LLC - Lewisville Plant**
**Dryer Emissions**

| Source ID number | Status | Sources | Production rate (T/hr, output) | PM/$PM_{10}$ Emissions Factor (EF, lb PM/T output) | Annual Operating Hours | Control Efficiency | Condensable PM Ratio, % | $PM_{2.5}$ Emission lb/hr | $PM_{2.5}$ Emission lb/day | $PM_{2.5}$ Emission Ton/yr | $PM_{10}$ Emission lb/hr | $PM_{10}$ Emission lb/day | $PM_{10}$ Emission Ton/yr | EF Reference and Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Existing | Belt Dryer 1 | 1.536 Max | 1.11 | 8760 | 0.00% | --- | 1.70 | 40.92 | 7.47 | 1.70 | 40.92 | 7.47 | Permit to Construct No. P-2010.0061 Statement of Basis, double source test emission factor |
| 5 | Existing | Belt Dryer 2 | | | | 0.00% | --- | | | | | | | |
| 6 | Existing | Belt Dryer 4 | | | | 0.00% | --- | | | | | | | |
| 7 | Existing | Belt Dryer 5 | | | | 0.00% | --- | | | | | | | |
| N/A - Removed | Existing | Belt Dryer 3 (Removed) | 0.4 Max | 1.11 | 8760 | 0.00% | --- | 0.44 | 10.66 | 1.94 | 0.44 | 10.66 | 1.94 | Permit to Construct No. P-2010.0061 Statement of Basis, double source test emission factor |
| 8 | Existing | Flaker Line 1 | 4.02 Max | 1.13 | 8760 | 0.00% | --- | 4.54 | 109.02 | 19.90 | 4.54 | 109.02 | 19.90 | Permit to Construct No. P-2010.0061 Statement of Basis. Source test factor plus 50% |
| 9 | Existing | Flaker Line 2 | | | | 0.00% | --- | | | | | | | |
| 8 | New | Additional Flaker Line 1 increase | 0.804 Max | 1.13 | 8760 | 0.00% | --- | 0.91 | 21.80 | 3.98 | 0.91 | 21.80 | 3.98 | Permit to Construct No. P-2010.0061 Statement of Basis. Source test factor plus 50% |
| 16 | Existing | 92 Dryer 1 Cyclone | 5.66 Max | 0.5 | 8760 | 0.00% | --- | 2.83 | 67.92 | 12.40 | 2.83 | 67.92 | 12.40 | Permit to Construct No. P-2010.0061 Statement of Basis. Source test factor plus 50% |
| 17 | Existing | 92 Dryer 2 Cyclone | | | | 0.00% | --- | | | | | | | |
| 18 | Existing | 92 Dryer 3 Cyclone | | | | 0.00% | --- | | | | | | | |
| 19 | Existing | 92 Dryer 4 Cyclone | | | | 0.00% | --- | | | | | | | |
| 27 | Existing | Flaker Line 1 Sniffer Vents | 4.824 Max | 0.122 | 8760 | 49.50% | --- | 0.30 | 7.13 | 1.30 | 0.30 | 7.13 | 1.30 | March, 2014 Idaho Falls Plant sniffer vent average source test factor plus 50%, with cyclone PM10 control efficiency applied |
| 28 | Existing | Flaker Line 2 Sniffer Vents | | | | | --- | | | | | | | |
| 26 | New | Impingement Dryer #1 | 0.3125 Max | 1.11 | 8760 | 0.00% | --- | 0.35 | 8.33 | 1.52 | 0.35 | 8.33 | 1.52 | Per DEQ instruction, utilized belt dryer emission factor for Permit to Construct No. P-2010.0061 Statement of Basis, double source test emission factor. |
| **Total from new dryers** | | | | | | | | 1.26 | 30.13 | 5.50 | 1.26 | 30.13 | 5.50 | |

**Idahoan Foods, LLC - Lewisville Plant**
**Plant-wide Greenhouse Gas Emissions**

**Calculation Method- Tier 1**

$CO_2 = 1x10^{-3} * Fuel * HHV * EF$

**NG Emission Factors**

| | | | |
|---|---|---|---|
| $CO_2$ | 53.02 | kg/MMBtu | 40 CFR 98 Table C-1 |
| $CH_4$ | 0.001 | kg/MMBtu | 40 CFR 98 Table C-2 |
| $N_2O$ | 0.0001 | kg/MMBtu | 40 CFR 98 Table C-2 |

**Diesel Emission Factors**

| | | | |
|---|---|---|---|
| $CO_2$ | 73.96 | lb/MMBtu | 40 CFR 98 Table C-1 |
| $CH_4$ | 0.003 | kg/MMBtu | 40 CFR 98 Table C-2 |
| $N_2O$ | 0.0006 | kg/MMBtu | 40 CFR 98 Table C-2 |

**High Heating Value**

| | | | |
|---|---|---|---|
| NG HHV | 1.028E-03 | MMBtu/scf | 40 CFR 98 Table C-1 |
| #2 Fuel Oil | 1.380E-01 | MMBtu/gal | 40 CFR 98 Table C-1 |

**Global Warming Potentials**

| | | |
|---|---|---|
| $CO_2$ | 1 | 40 CFR 98 Appendix Table A |
| $CH_4$ | 25 | 40 CFR 98 Appendix Table A |
| $N_2O$ | 298 | 40 CFR 98 Appendix Table A |

| Source ID No. | Combustion Source | Capacity (MMBtu/yr) | Fuel | Annual Operating Hours | Throughput (scf/yr) | $CO_2$ (metric ton/yr) | $CH_4$ (metric ton/yr) | $N_2O$ (metric ton/yr) | $CO_2e$ (metric ton/yr) | $CO_2e$ (ton/yr) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Combined Boilers 1, 2 & 3 fuel usage | 7.453E+05 | Nat. Gas | 8760 | 7.25E+08 | 39,516 | 0.75 | 0.07 | 39,556.6 | 43,603 |
| | Belt Dryer 1 | 7.44 | Nat. Gas | 8760 | 6.34E+07 | 3,456 | 0.07 | 0.01 | 3,459.1 | 3,813 |
| | Belt Dryer 2 | 6.99 | Nat. Gas | 8760 | 5.96E+07 | 3,247 | 0.06 | 0.01 | 3,249.9 | 3,582 |
| | Belt Dryer 5 | 10 | Nat. Gas | 8760 | 8.52E+07 | 4,645 | 0.09 | 0.01 | 4,649.4 | 5,125 |
| | 92 Dryer 1 Cyclone | 3.7 | Nat. Gas | 8760 | 3.15E+07 | 1,718 | 0.03 | 0.00 | 1,720.3 | 1,896 |
| | 92 Dryer 2 Cyclone | 3.6 | Nat. Gas | 8760 | 3.07E+07 | 1,672 | 0.03 | 0.00 | 1,673.8 | 1,845 |
| | 92 Dryer 3 Cyclone | 7 | Nat. Gas | 8760 | 5.96E+07 | 3,251 | 0.06 | 0.01 | 3,254.5 | 3,587 |
| | 92 Dryer 4 Cyclone | 7 | Nat. Gas | 8760 | 5.96E+07 | 3,251 | 0.06 | 0.01 | 3,254.5 | 3,587 |
| | Space Heaters | 26.5 | Nat. Gas | 8760 | 2.26E+08 | 12,308 | 0.23 | 0.02 | 12,320.8 | 13,581 |
| | Impingement Dryer | 7 | Nat. Gas | 8760 | 5.96E+07 | 3,251 | 0.06 | 0.01 | 3,254.5 | 3,587 |
| **GHG TOTAL** | | | | | | | | | | **84,209** |

**Idahoan Foods, LLC - Lewisville Plant**
**Boiler #1 Fuel Oil Combustion Emissions Decrease**

**NG Emission Factors**

| | | |
|---|---|---|
| NOx | 100 | lb/10^6 sc AP-42, Table 1.4-1, 1998 |
| CO | 84 | lb/10^6 sc AP-42, Table 1.4-1, 1998 |
| PM-10 | 7.6 | lb/10^6 sc AP-42, Table 1.4-2, 1998 |
| SOx | 0.6 | lb/10^6 sc AP-42, Table 1.4-2, 1998 |
| VOC | 5.5 | lb/10^6 sc AP-42, Table 1.4-2, 1998 |
| Lead | 0.0005 | lb/10^6 sc AP-42, Table 1.4-2, 1998 |

| Source ID No. | Description | Capacity (MMBtu/hr) | Throughput (10^3 gal/hr) or (10^6 scf/hr) | Hour/yr | $PM_{2.5}$ Emissions (lb/hr)[1] | $PM_{2.5}$ Emissions (ton/yr) | $PM/PM_{10}$ Emissions (lb/hr)[1] | $PM/PM_{10}$ Emissions (ton/yr) | NOx Emissions (lb/hr) | NOx Emissions (ton/yr) | SOx Emissions (lb/hr) | SOx Emissions (ton/yr) | CO Emissions (lb/hr) | CO Emissions (ton/yr) | VOC Emissions (lb/hr) | VOC Emissions (ton/yr) | Lead Emissions (lb/hr) | Lead Emissions (ton/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Boiler No.1 (NG) | 57.6 | 5.3074E-02 | 8760 | 4.03E-01 | | 4.03E-01 | | 5.31 | | 3.18E-02 | | 4.46 | | 0.29 | | 2.7E-05 | |
| 1 | Boiler No.1 (No.2 fuel oil)[2,3] | 57.6 | 15.40 | | 6.67 | 11.22 | 6.83 | 11.50 | 7.79 | 17.01 | 27.57 | 44.27 | 1.95 | 5.35 | 0.08 | 0.36 | 0.00 | 0.00 |
| **Boiler No.1 emissions decrease by removing No.2 fuel oil** | | | | | 6.26 | 11.22 | 6.43 | 11.50 | 2.48 | 17.01 | 27.54 | 44.27 | -2.51 | 5.35 | -0.21 | 0.36 | ND | ND |

[1]PM2.5/PM10 ratio of 97.6% applied based on CARB data

[2] Taken from SOB for the 2010 PTC except for lead

[3]Annual natural gas emissions are limited by a combined fuel usage limit for all boilers. Annual emission rates are shown as zero because the annual natural gas limit is not changing.

## Idahoan Foods, LLC

Toxic Air Pollutants and HAPs Summary Information

| CAS# | CAS# (No Hyphens) | Toxic Air Pollutant | Maximum Emission Rate (lbs/hr) | Maximum Emission Rate (tpy) | Idaho Air Quality Rules Emission Rate Threshold | Below IDAPA Section 585 or 586 Criteria | Level of Regulatory Concern | Below Level of Regulatory Concern? | HAP | PAH/POM[b] |
|---|---|---|---|---|---|---|---|---|---|---|
| 71-55-6 | 71556 | 1,1,1-Trichloroethane (aka Methly Chloroform) | -8.9E-05 | -3.9E-04 | 127 | Yes | 12.7 | Yes | Yes | No |
| *91-57-6* | *91576* | *2-Methylnaphthalene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| *56-49-5* | *56495* | *3-Methylchloranthrene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| | | *7,12-Dimethylbenz(a)anthracene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| 83-32-9 | 83329 | *Acenaphthene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| 208-96-8 | 208968 | Acenaphthylene | 0.0000 | 0.0000 | - | Yes | 0.00E+00 | Yes | No | No |
| 120-12-7 | 120127 | *Anthracene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| 71-43-2 | 71432 | Benzene | 0.0000 | 0.0002 | 8.00E-04 | Yes | 0.00008 | Yes | Yes | No |
| 56-55-3 | 56553 | Benzi(a)anthracene[b] | 0.0000 | 0.0000 | 9.10E-05 | Yes | 0.0000091 | Yes | Yes | Yes |
| 205-99-2, 205-82-3 | 205992, 205823 | Benzo(b,k)fluoranthene[b] | 0.0000 | 0.0000 | 9.10E-05 | Yes | 0.0000091 | Yes | Yes | Yes |
| 191-24-2 | 191242 | *Benzo(g,h,i)perylene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| 50-32-8 | 50328 | Benzo(a)pyrene[b] | 0.0000 | 0.0000 | 9.10E-05 | Yes | 0.0000091 | Yes | Yes | Yes |
| 106-97-8 | 106978 | Butane | 0.1231 | 0.5393 | | | | | No | No |
| 7440-47-3 | 7440473 | chromium III (particulate) | -8.16E-05 | -3.57E-04 | 0.033 | Yes | 0.0033 | Yes | Yes | No |
| 218-01-9 | 218019 | Chrysene[b] | -7.90E-07 | -3.46E-06 | 9.10E-05 | Yes | 0.0000091 | Yes | Yes | Yes |
| 53-70-3 | 53703 | Dibenzo(a,h) anthracene[b] | 0.0000 | 0.0000 | 9.10E-05 | Yes | 0.0000091 | Yes | Yes | Yes |
| 25321-22-6 | 25321226 | Dichlorobenzene | 0.0001 | 0.0003 | 0.00E+00 | Yes | 0 | Yes | Yes | No |
| 74-84-0 | 74840 | Ethane | 0.1817 | 0.7961 | | | | | No | No |
| 86-73-7 | 86737 | *Fluorene* | 0.0000 | 0.0000 | | | | Yes | Yes | No[d] |
| 50-00-0 | 50000 | Formaldehyde | -8.02E-03 | -0.0351 | 5.10E-04 | Yes | 0.000051 | Yes | Yes | No |
| 193-39-5 | 193395 | Indo(1,2,3-cd)pyrene[b] | 0.0000 | 0.0000 | 9.10E-05 | Yes | 0.0000091 | Yes | Yes | Yes |
| 3268-87-9 | 3268879 | OCDD[c] | 0.0000 | 0.0000 | 1.50E-10 | Yes | NA | Yes | No | No |
| 110-54-3 | 110543 | n-hexane | 0.1055 | 0.4622 | 12 | Yes | 1.2 | Yes | Yes | No |
| 91-20-3 | 91203 | Naphthalene | -0.0004 | -0.0017 | 3.33 | Yes | 0.333 | Yes | Yes | No |
| 109-66-0 | 109660 | Pentane | 0.1524 | 0.6677 | 118 | Yes | 11.8 | Yes | No | No |
| 85-01-8 | 85018 | *Phenanthrene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| 74-98-6 | 74986 | Propane | 0.0938 | 0.4109 | | | | | No | No |
| 129-00-0 | 129000 | *Pyrene* | 0.0000 | 0.0000 | | | | | Yes | No[d] |
| 108-88-3 | 108883 | Toluene | -0.0021 | -0.0093 | 25 | Yes | 2.5 | Yes | Yes | No |
| 1330-20-7 | 1330207 | Xylene | 0.0000 | -0.0002 | 29 | Yes | 2.9 | Yes | Yes | No |
| 7440-38-2 | 7440382 | Arsenic (As) | -2.07E-04 | -9.05E-04 | 1.50E-06 | Yes | 1.50E-07 | Yes | Yes | No |
| 7440-39-3 | 7440393 | Barium (Ba) | 2.58E-04 | 1.13E-03 | 3.30E-02 | Yes | 3.30E-03 | Yes | No | No |
| 7440-41-7 | 7440417 | Beryllium (Be) | -1.63E-04 | -7.14E-04 | 2.80E-05 | Yes | 2.80E-06 | Yes | Yes | No |
| 7440-43-9 | 7440439 | Cadmium (Cd) | -9.92E-05 | -4.34E-04 | 3.70E-06 | Yes | 3.70E-07 | Yes | Yes | No |
| 7440-48-4 | 7440484 | Cobal (Co) | 4.92E-06 | 2.16E-05 | 3E-03 | Yes | 3.30E-04 | Yes | Yes | No |
| 7440-50-8 | 7440508 | Copper (Cu) | -2.78E-04 | -1.22E-03 | 1E-02 | Yes | 1.30E-03 | Yes | No | No |
| 7439-96-5 | 7439965 | Manganese (Mn) | -3.05E-04 | -1.34E-03 | 7E-02 | Yes | 6.70E-03 | Yes | Yes | No |
| 7439-97-6 | 7439976 | Mercury (Hg)[a] | 1.33E-01 | 6.67E-05 | 2.5E+01 | Yes | 2.50E+00 | Yes | Yes | No |
| 7439-98-7 | 7439987 | Molybdenum (Mo) | 6.45E-05 | 2.82E-04 | 3E-01 | Yes | 3.33E-02 | Yes | No | No |
| 7440-02-0 | 7440020 | Nickel (NI) | -4.06E-05 | -1.78E-04 | 3E-05 | Yes | 2.70E-06 | Yes | Yes | No |
| 7782-49-2 | 7782492 | Selenium (Se) | -8.17E-04 | -3.58E-03 | 1E-02 | Yes | 1.30E-03 | Yes | Yes | No |
| 7440-62-2 | 7440622 | Vanadium (V) | 1.35E-04 | 5.91E-04 | 3E-03 | Yes | 3.00E-04 | Yes | No | No |
| 7440-66-6 | 7440666 | Zinc (Zn) | 1.48E-03 | 6.49E-03 | 7E-01 | Yes | 6.67E-02 | Yes | No | No |

**Total PAH/POMs**

| | |
|---|---|
| lbs/hr | -3.73E-06 |
| Tons/year | -1.63E-05 |
| IDAPA Threshold (lbs/hr) | 0.000091 |
| Meet Threshold | Yes |

**Total HAPs**

| | |
|---|---|
| lbs/hr | 0.23 |
| Tons/year | 0.41 |
| Below 25 tpy total: | Yes |
| Max Single HAP: | Xylene |
| Max Single HAP Emission | #REF! |
| Meet Less than 10 tpy for any single HAP? | #REF! |

**Notes**

[a] Hg standard is in lbs/year.

[b] PAH/POM for comparison to emission threshold in IDAPA 58.01.01.586. Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

[c] Used emission level of 2,3,7,8, -TCDD for screening.

[d] Not equivalent to listed PAH/POM mixtures in IDAPA 58.01.01.586

## Idahoan Foods, LLC
## Fuel Oil Combustion - HAPs and TAPs

Hours of Operation: 8760

Building Heaters
AP-42 Chapter 1.3 Fuel Oil Combustion

| Emitting Unit | Heat Rate (btu/hr) | Heat Rate (mmbtu/hr) | Heat Rate (Tbtu/hr) | Diesel Usage (gal/hr)[a] | Diesel Usage (10^3 gal/hr)[a] |
|---|---|---|---|---|---|
| Boiler #1 Fuel Oil Combustion | -54560000 | -54.56 | -5.46E-05 | -376.3 | -0.37628 |
| Total | -54560000 | -54.56 | -5.46E-05 | -376.3 | -0.3763 |

Speciated Organic Compounds from Diesel Combustion Emission Factors

| CAS | Pollutant | Emission Factor | | Source | Emissions (lbs/hr) | Emissions (tpy) | Listed in Table 585 or 586 of IDAPA | IDAPA Emission Level (lb/hr) | Source Meet Emission Level? |
|---|---|---|---|---|---|---|---|---|---|
| 71-43-2 | Benzene | 2.14E-04 | lb/10^3 gal | Table 1.3-9 | -8.1E-05 | -3.5E-04 | 586 | 8.00E-04 | Yes |
| 100-41-4 | Ethylbenzene | 6.36E-05 | lb/10^3 gal | Table 1.3-9 | -2.4E-05 | -1.0E-04 | 585 | 29 | Yes |
| 50-00-0 | Formaldehyde | 3.30E-02 | lb/10^3 gal | Table 1.3-9 | -1.2E-02 | -5.4E-02 | 586 | 5.10E-04 | Yes |
| 91-20-3 | Naphthalene | 1.13E-03 | lb/10^3 gal | Table 1.3-9 | -4.3E-04 | -1.9E-03 | 585 | 3.33 | Yes |
| 71-55-6 | 1,1,1-Trichloroethene (aka Methyl Chloroform) | 2.36E-04 | lb/10^3 gal | Table 1.3-9 | -8.9E-05 | -3.9E-04 | 585 | 127 | Yes |
| 108-88-3 | Toluene | 6.20E-03 | lb/10^3 gal | Table 1.3-9 | -2.3E-03 | -1.0E-02 | 585 | 25 | Yes |
| 1330-20-7 | o-Xylene | 1.09E-04 | lb/10^3 gal | Table 1.3-9 | -4.1E-05 | -1.8E-04 | 585 | 29 | Yes |
| 83-32-9 | Acenaphthene[b] | 2.11E-06 | lb/10^3 gal | Table 1.3-9 | -7.9E-06 | -3.5E-05 | No | | NA |
| 208-96-8 | Acenaphthylene | 2.53E-07 | lb/10^3 gal | Table 1.3-9 | -9.5E-06 | -4.2E-07 | No | - | NA |
| 120-12-7 | Anthracene[b] | 1.22E-06 | lb/10^3 gal | Table 1.3-9 | -4.59067E-07 | -2.01067E-06 | No | | NA |
| 56-55-3 | Benz(a)anthracene[b] | 4.01E-06 | lb/10^3 gal | Table 1.3-9 | -1.5E-06 | -6.6E-06 | 586 | 9.10E-05 | See POM/PAH Summary Below |
| 205-99-2, 205-82-3 | Benzo(b,k)fluoranthene[b] | 1.48E-06 | lb/10^3 gal | Table 1.3-9 | -5.6E-07 | -2.4E-06 | 586 | 9.10E-05 | See POM/PAH Summary Below |
| 191-24-2 | Benzo(g,h,i)perylene[b] | 2.26E-06 | lb/10^3 gal | Table 1.3-9 | -8.50353E-07 | -3.72488E-06 | No | | NA |
| 218-01-9 | Chrysene[b] | 2.38E-06 | lb/10^3 gal | Table 1.3-9 | -9.0E-07 | -3.9E-06 | 586 | 9.10E-05 | See POM/PAH Summary Below |
| 53-70-3 | Dibenzo(a,h) anthracene[b] | 1.67E-06 | lb/10^3 gal | Table 1.3-9 | -6.2E-07 | -2.8E-06 | 586 | 9.10E-05 | See POM/PAH Summary Below |
| 206-44-0 | Fluoranthene[b] | 4.84E-06 | lb/10^3 gal | Table 1.3-9 | -1.82116E-06 | -7.97675E-06 | No | | NA |
| 86-73-7 | Fluorene[b] | 4.47E-06 | lb/10^3 gal | Table 1.3-9 | -1.7E-06 | -7.4E-06 | No | | NA |
| 193-39-5 | Indo(1,2,3-cd)pyrene[b] | 2.14E-06 | lb/10^3 gal | Table 1.3-9 | -8.1E-07 | -3.5E-06 | 586 | 9.10E-05 | See POM/PAH Summary Below |
| 85-01-8 | Phenanthrene[b] | 1.05E-05 | lb/10^3 gal | Table 1.3-9 | -3.9509E-06 | -1.7304E-05 | No | | NA |
| 129-00-0 | Pyrene[b] | 4.25E-06 | lb/10^3 gal | Table 1.3-9 | -1.59917E-06 | -7.00438E-06 | No | | NA |
| 3268-87-9 | OCDD[c] | 3.10E-09 | lb/10^3 gal | Table 1.3-9 | -1.16646E-09 | -5.10907E-09 | 586 | 1.50E-10 | Yes |

| PAH or POM in listed in IDAPA 58.01.01.586. | lbs/hr | Idaho PAH Standard (lb/hr) | Source Meets PAH Standard? |
|---|---|---|---|
| | -4.4E-06 | 9.10E-05 | Yes |

Metals from Diesel Combustion Emission Factors

| CAS | Pollutant | Emitted as Particulate or Gas | Emission Factor | | Source | Emissions (lbs/hr)[d] | Emissions (tpy) | Listed in Table 585 or 586 of IDAPA | IDAPA Emission Level (lb/hr)[d] | Source Meet Emission Level? |
|---|---|---|---|---|---|---|---|---|---|---|
| 7440-38-2 | Arsenic (As) | Particulate[e] | 4 | lb/Tbtu | Table 1.3-10 | -2.2E-04 | -9.6E-04 | 586 | 1.50E-06 | Yes |
| 440-41-7 | Beryllium (Be) | Particulate[e] | 3 | lb/Tbtu | Table 1.3-10 | -1.6E-04 | -7.2E-04 | 586 | 2.80E-05 | Yes |
| 7440-43-9 | Cadmium (Cd) | Particulate[e] | 3 | lb/Tbtu | Table 1.3-10 | -1.6E-04 | -7.2E-04 | 586 | 3.70E-06 | Yes |
| 7440-47-3 | Chromium (Cr) | Particulate[e] | 3 | lb/Tbtu | Table 1.3-10 | -1.6E-04 | -7.2E-04 | 585 | 0.033 | Yes |
| 7440-50-8 | Copper (Cu)[f] | Particulate[e] | 6 | lb/Tbtu | Table 1.3-10 | -3.3E-04 | -1.4E-03 | 585 | 0.013 | Yes |
| 7439-92-1 | Lead (Pb) - Accounted for with Criteria Pollutants | Particulate[e] | 9 | lb/Tbtu | Table 1.3-10 | -4.9E-04 | -2.2E-03 | NA | NA | NA |
| 7439-97-6 | Mercury[g] (Hg) | Gas[h] | 3 | lb/Tbtu | Table 1.3-10 | -1.6E-04 | -7.2E-04 | See note d. | 25 | Yes |
| 7439-96-5 | Manganese (Mn) | Particulate[e] | 6 | lb/Tbtu | Table 1.3-10 | -3.3E-04 | -1.4E-03 | 585 | 6.70E-02 | Yes |
| 7440-02-0 | Nickel (Ni) | Particulate[e] | 3 | lb/Tbtu | Table 1.3-10 | -1.6E-04 | -7.2E-04 | 586 | 2.70E-05 | Yes |
| 7782-49-2 | Selenium (Se) | Particulate[e] | 15 | lb/Tbtu | Table 1.3-10 | -8.2E-04 | -3.58E-03 | 585 | 1.30E-02 | Yes |
| 7440-66-6 | Zinc (Zn) | Particulate[e] | 4 | lb/Tbtu | Table 1.3-10 | -2.2E-04 | -9.6E-04 | 585 | 6.67E-01 | Yes |

Notes:

[a] Calculated based on fuel oil heat content of 145,000 Btu/gal
[b] PAH/POM for comparison to emission threshold in IDAPA 58.01.01.586.
[c] Used emission level of 2,3,7,8,-TCDD for screening.
[d] No standard in lbs/year for compliance with IDAPA 58.01.01.215 standard of 25 lbs/year.
[e] Per Table 4-11 of Report on Revisions to 5th Edition AP-42 Section 1.3 Fuel Oil Combustion, page 4-44.
[f] Based on copper boiling point of 2835 K.
[g] Based on selenium boiling point of 958 K.
[h] POM per AP-42.

## Idahoan Foods, LLC

**Natural Gas Combustion - HAPs and TAPs**

**Hours of Operation (Max):** 8760
**Fuel Type:** Natural Gas
**Natural Gas Heating Value (Btu/scf):** 1050 AP-42 Appendix A

**Building Heaters**
AP-42 Chapter 1.4 Natural Gas Combustion

| Emissions Unit | Burner Rating (MMBtu/hr) | Fuel Usage (scf/hr) | Fuel Usage (10^6 scf/hr) | Fuel Usage (10^6 scf/year) |
|---|---|---|---|---|
| Impingement Dryer | 7.00 | 6667 | 6.67E-03 | 58.4 |
| Boiler #1 Natural Gas Use | 54.56 | 51961.90 | 5.20E-02 | 455.19 |
| Total: | | 58628.6 | 5.86E-02 | 513.59 |

**Speciated Organic Compounds from Natural Gas Combustion Emission Factors**

| CAS #: | Pollutant | Natural Gas | | Emissions (lbs/hr) | Emissions (tpy) | POM/PAH? | Listed HAP in Section 112(b) of Clean Air Act per AP-42 1.4 | Listed per IDAPA 58.01.01.585 | IDAPA 58.01.01.585 Emission Level (lbs/hr) | Meets IDAPA 58.01.01.585 Emission Level? | Listed per IDAPA 58.01.01.586 | IDAPA 58.01.01.586 Emission Level (lbs/hr) | Meets IDAPA 58.01.01.5858 Emission Level? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *91-57-6* | *2-Methylnaphthalene*[b] | *2.40E-05* | *lb/10^6 scf* | *1.4E-06* | *6.2E-06* | *AP-42* | *Yes* | *No* | - | NA | *No* | *NA* | *NA* |
| 56-49-5 | 3-Methylchloranthrene | 1.80E-06 | lb/10^6 scf | 1.1E-07 | 4.6E-07 | AP-42 | Yes | No | - | NA | Yes | 2.50E-06 | Yes |
| | *7,12-Dimethylbenz(a)anthracene*[b] | *1.60E-05* | *lb/10^6 scf* | *9.4E-07* | *4.1E-06* | AP-42 | *Yes* | *No* | - | NA | *No* | | *NA* |
| *83-32-9* | *Acenaphthene*[b] | *1.80E-06* | *lb/10^6 scf* | *1.1E-07* | *4.6E-07* | AP-42 | *Yes* | *No* | - | NA | *No* | | *NA* |
| *120-12-7* | *Anthracene*[b] | *2.40E-06* | *lb/10^6 scf* | *1.4E-07* | *6.2E-07* | *AP-42* | *Yes* | *No* | - | NA | *No* | | *NA* |
| 56-55-3 | Benz(a)anthracene[c] | 1.80E-06 | lb/10^6 scf | 1.1E-07 | 4.6E-07 | AP-42 and Idaho Rules | Yes | No | - | NA | Yes - PAH | 9.10E-05 | See POM/PAH Summary Below |
| 71-43-2 | Benzene | 2.10E-03 | lb/10^6 scf | 1.2E-04 | 5.4E-04 | No | Yes | No | - | NA | Yes | 8.00E-04 | Yes |
| 50-32-8 | Benzo(a)pyrene[c] | 1.20E-06 | lb/10^6 scf | 7.0E-08 | 3.1E-07 | AP-42 and Idaho Rules | Yes | No | - | NA | Yes | 2.00E-06 | Yes |
| 205-99-2 | Benzo(b)fluoranthene[c] | 1.80E-06 | lb/10^6 scf | 1.1E-07 | 4.6E-07 | AP-42 and Idaho Rules | Yes | No | - | NA | Yes - PAH | 9.10E-05 | See POM/PAH Summary Below |
| *191-24-2* | *Benzo(g,h,i)perylene*[b] | *1.20E-06* | *lb/10^6 scf* | *7.0E-08* | *3.1E-07* | *AP-42* | *Yes* | *No* | - | NA | *No* | | *NA* |
| 205-82-3 | Benzo(k)fluoranthene | 1.80E-06 | lb/10^6 scf | 1.1E-07 | 4.6E-07 | AP-42 and Idaho Rules | Yes | No | - | NA | Yes - PAH | 9.10E-05 | See POM/PAH Summary Below |
| 106-97-8 | Butane | 2.10E+00 | lb/10^6 scf | 1.2E-01 | 5.4E-01 | No | No | No | - | NA | No | | NA |
| 218-01-9 | Chrysene[c] | 1.80E-06 | lb/10^6 scf | 1.1E-07 | 4.6E-07 | AP-42 and Idaho Rules | Yes | No | - | NA | Yes - PAH | 9.10E-05 | See POM/PAH Summary Below |
| 53-70-3 | Dibenzo(a,h)anthracene[c] | 1.20E-06 | lb/10^6 scf | 7.0E-08 | 3.1E-07 | AP-42 and Idaho Rules | Yes | No | - | NA | Yes - PAH | 9.10E-05 | See POM/PAH Summary Below |
| 25321-22-6 | Dichlorobenzene | 1.20E-03 | lb/10^6 scf | 7.0E-05 | 3.1E-04 | No | Yes | No | - | NA | No | | NA |
| 74-84-0 | Ethane | 3.10E+00 | lb/10^6 scf | 1.8E-01 | 8.0E-01 | No | No | No | - | NA | No | | NA |
| *206-44-0* | *Fluoranthene*[b] | *3.00E-06* | *lb/10^6 scf* | *1.8E-07* | *7.7E-07* | *AP-42* | *Yes* | *No* | - | *NA* | *No* | | NA |
| *86-73-7* | *Fluorene*[b] | *2.80E-06* | *lb/10^6 scf* | *1.6E-07* | *7.2E-07* | AP-42 | *Yes* | *No* | - | *NA* | *No* | | NA |
| 50-00-0 | Formaldehyde | 7.50E-02 | lb/10^6 scf | 4.4E-03 | 1.9E-02 | No | Yes | No | - | NA | Yes | 5.10E-04 | No |
| 110-54-3 | Hexane | 1.80E+00 | lb/10^6 scf | 1.1E-01 | 4.6E-01 | No | Yes | Yes | 12 | Yes | No | | NA |
| 193-39-5 | Indeno(1,2,3-cd)pyrene[c] | 1.80E-06 | lb/10^6 scf | 1.1E-07 | 4.6E-07 | AP-42 and Idaho Rules | Yes | No | - | NA | Yes - PAH | 9.10E-05 | See POM/PAH Summary Below |
| 91-20-3 | Naphthalene | 6.10E-04 | lb/10^6 scf | 3.6E-05 | 1.6E-04 | No | Yes | Yes | 3.33 | Yes | No | | NA |
| 109-66-0 | Pentane | 2.60E+00 | lb/10^6 scf | 1.5E-01 | 6.7E-01 | No | No | Yes | 118 | Yes | No | | NA |
| *85-01-8* | *Phenanathrene*[b] | *1.70E-05* | *lb/10^6 scf* | *1.0E-06* | *4.4E-06* | AP-42 | *Yes* | *No* | - | *NA* | *No* | | *NA* |
| 74-98-6 | Propane | 1.6 | lb/10^6 scf | 9.4E-02 | 4.1E-01 | No | No | No | | NA | No | | NA |
| *129-00-0* | *Pyrene*[b] | *5.00E-06* | *lb/10^6 scf* | *2.9E-07* | *1.3E-06* | *AP-42* | *Yes* | *No* | - | *NA* | *No* | | NA |
| 108-88-3 | Toluene | 3.40E-03 | lb/10^6 scf | 2.0E-04 | 8.7E-04 | No | Yes | Yes | 25 | Yes | No | | NA |

| | | | | lbs/hr | Idaho PAH Standard (lb/hr) | Source Meets PAH Standard? | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PAH or POM in listed in IDAPA 58.01.01.586. | 6.7E-07 | 9.10E-05 | Yes | | | | | | | |

## Idahoan Foods, LLC

**Natural Gas Combustion - HAPs and TAPs**

**Metals from Natural Combustion Emission Factors**

| CAS #: | Pollutant | Natural Gas | | Emissions (lbs/hr) | Emissions (lbs/year) | Emissions (tpy) | Listed HAP in Section 112(b) of Clean Air Act per AP-42 1.4 | Listed per IDAPA 58.01.01.585 | IDAPA 58.01.01.585 Emission Level (lbs/hr) | Meets IDAPA 58.01.01.585 Emission Level? | Listed per IDAPA 58.01.01.586 | IDAPA 58.01.01.586 Emission Level (lbs/hr) | Meets IDAPA 58.01.01.5856 Emission Level? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 2.00E-04 | lb/10^6 scf | 1.2E-05 | 1.0E-01 | 5.1E-05 | Yes | No | - | NA | Yes | 1.50E-06 | No |
| 7440-39-3 | Barium | 4.40E-03 | lb/10^6 scf | 2.6E-04 | 2.3E+00 | 1.1E-03 | No | Yes | 0.033 | Yes | No | - | NA |
| 7440-41-7 | Beryllium | 1.20E-05 | lb/10^6 scf | 7.0E-07 | 6.2E-03 | 3.1E-06 | Yes | No | - | NA | Yes | 2.80E-05 | Yes |
| 7440-43-9 | Cadmium | 1.10E-03 | lb/10^6 scf | 6.4E-05 | 5.6E-01 | 2.8E-04 | Yes | No | - | NA | Yes | 3.70E-06 | No |
| 7440-47-3 | Chromium | 1.40E-03 | lb/10^6 scf | 8.2E-05 | 7.2E-01 | 3.6E-04 | Yes | Yes | 0.033 | Yes | No | - | NA |
| 7440-48-4 | Cobalt | 8.40E-05 | lb/10^6 scf | 4.9E-06 | 4.3E-02 | 2.2E-05 | Yes | Yes | 0.0033 | Yes | No | - | NA |
| 7440-50-8 | Copper | 8.50E-04 | lb/10^6 scf | 5.0E-05 | 4.4E-01 | 2.2E-04 | No | Yes | 0.013 | Yes | No | - | NA |
| 7439-96-5 | Manganese | 3.80E-04 | lb/10^6 scf | 2.2E-05 | 2.0E-01 | 9.8E-05 | Yes | Yes | 0.067 | Yes | No | - | NA |
| 7439-97-6 | Mercury[a] | 2.60E-04 | lb/10^6 scf | 1.5E-05 | 1.3E-01 | 6.7E-05 | Yes | No | - | NA | Yes[1] | 25 | Yes |
| 7439-98-7 | Molybdenum | 1.10E-03 | lb/10^6 scf | 6.4E-05 | 5.6E-01 | 2.8E-04 | No | Yes | 0.333 | Yes | No | - | NA |
| 7440-02-0 | Nickel | 2.10E-03 | lb/10^6 scf | 1.2E-04 | 1.1E+00 | 5.4E-04 | Yes | No | - | NA | Yes | 2.7E-05 | No |
| 7782-49-2 | Selenium | 2.40E-05 | lb/10^6 scf | 1.4E-06 | 1.2E-02 | 6.2E-06 | Yes | Yes | 0.013 | Yes | No | - | NA |
| 7440-62-2 | Vanadium | 2.30E-03 | lb/10^6 scf | 1.3E-04 | 1.2E+00 | 5.9E-04 | No | Yes | 0.003 | Yes | No | - | NA |
| 7440-66-6 | Zinc | 2.90E-02 | lb/10^6 scf | 1.7E-03 | 1.5E+01 | 7.4E-03 | No | Yes | 0.667 | Yes | | | |

**Notes**

[a] Hg standard in lbs/year for compliance with IDAPA 58.01.01.215 standard of 25 lbs/year.

[b] POM per AP-42.

[c] PAH/POM for comparison to emission threshold in IDAPA 58.01.01.586.

# APPENDIX C: FACILITY LAYOUT

Lewisville Facility – Stack Layout Proposed

| | | | |
|---|---|---|---|
| Rev. #: 3 | Drawn by: T. Scott | Date: 4-8-14 | IDAHOAN LEWISVILLE, ID 83431-0130 |
| File Name: C:\\Engineering\Autocad\Lewisville\plant1 stackdocations.dwg | Page Number: Sheet 1 of 1 | Scale: 1" = 175' | |

# APPENDIX D: MODELING REPORT

# MODELING REPORT
# IDAHOAN FOODS, LLC

*Presented to:*
**Idaho Department of Environmental Quality**
Boise, Idaho

*For:*
**Idahoan Foods, LLC**
P.O. Box 130
Lewisville, ID 83431

*Prepared by:*
**Bison Engineering, Inc.**
1400 11th Avenue, Ste. 200
Helena, MT 59601
(406) 442-5768

June 20, 2016

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# 1.0 INTRODUCTION AND PURPOSE

## 1.1 General Overview

Bison Engineering, Inc. (Bison), on behalf of Idahoan Foods, LLC (Idahoan), is submitting this ambient air quality protocol for the proposed modifications to Idahoan's existing potato processing plant located directly north of Lewisville, Idaho (Facility ID No. 051-00017). The facility processes fresh potatoes into dehydrated potato products which include flakes, slices and dices. The area surrounding the plant consists largely of agricultural areas to the north, east and west of the facility, and residential areas within the town of Lewisville to the south.

## 1.2 Project Overview

Idahoan is proposing the following modifications to their current air quality permit:

1. Addition of one impingement dryer,
2. Addition of one additional drum dryer on Flaker Line #1,
3. Inclusion of existing sniffer vents,
4. Ceasing fuel oil and biofuel combustion in Boiler #1,
5. Removing one existing belt dryer (Belt Dryer #3),
6. Installation of cyclones for control of sniffer vent particulate emissions,
7. Installation of economizers on Boilers #1, #2 and #3.

In addition to the proposed facility modifications listed above, Idahoan also seeks to address the inclusion of "sniffer vents" in the permit. These vents are part of the Flaker Lines #1 and #2 equipment, and were previously thought to have had insignificant emissions industry-wide. Recent source testing has determined this is not accurate, and the Idaho Department of Environmental Quality (IDEQ) has been addressing the inclusion of these emitting units on a facility-by-facility basis during the permit modification process. Idahoan seeks to address ambient impacts of these units by considering them as new emitting units, and including the emissions from these units in the significant impact analysis for particulate emissions modeling.

In order to achieve modeled compliance with the ambient air quality standards, Idahoan is proposing to limit operation of the boilers with economizers to three operating scenarios, which have been reflected through the use of three separate modeling groups, presented in Section 3.4.

More detailed information on the changes is included in the permit modification application report associated with this modeling demonstration. Tables B-1 through B-3 located in Appendix B present comparisons of pre- and post-project potential to emit calculations.

## 1.3 Applicable Regulations and Requirements

Idaho Air Rules Sections 203 and 403 state that a permit to construct or Tier II operating permit will not be granted unless the applicant demonstrates to IDEQ that the new source/modification will not cause or significantly contribute to the violation of any air quality standard. In addition, Idahoan must demonstrate compliance with Idaho Air Rules Section 161, which provides ambient air requirements for Toxic Air Pollutants (TAPs).

The purpose of this report and associated ambient air quality analysis is to provide IDEQ with information and justification regarding the procedures that were used to conduct the required air quality analyses, as well as present the results of the air quality analyses performed to satisfy the requirements discussed above.

# 2.0 MODEL DESCRIPTION AND JUSTIFICATION

The model selected for the analysis is AERMOD as recommended by *State of Idaho Guideline for Performing Air Quality Impact Analyses.* The following discussion further explains the features of AERMOD, AERMET, and AERMAP. AERMET and AERMAP are preprocessors for AERMOD.

AERMOD is a steady-state plume dispersion model for the assessment of pollutant concentrations from a variety of sources. AERMOD simulates transport and dispersion from multiple sources based on an updated characterization of the atmospheric boundary layer. Sources may be located in rural or urban areas and receptors may be located in simple or complex terrain. AERMOD accounts for building wake effects and plume downwash. Sequential meteorological data is processed to estimate concentrations for averaging times from one hour to one year. AERMOD is appropriate for point, volume, and/or area sources; for surface, near-surface, and elevated releases; for rural or urban areas; for simple and complex terrain; for transport distances over which steady-state assumptions are appropriate (up to 50 km); and for continuous toxic air emissions. AERMOD's regulatory default option includes the use of terrain elevation data, stack-tip downwash, and sequential date checking. The regulatory option does not employ pollutant half-life or decay options except in the case of an urban source of sulfur dioxide where a four-hour half-life is applied.

AERMOD is designed to accept input data prepared by two specific pre-processor programs, AERMET and AERMAP. AERMET processes meteorological data available from the National Climatic Data Center (NCDC). AERMAP processes digital elevation data available from several different sources.

AERMET is designed to accept National Weather Service (NWS) 1-hour surface observations, NWS twice-daily upper air soundings, and data from on-site meteorological measurement systems. These data are processed in three steps. The first step extracts data from the archive data files and performs various quality assessment checks. The second step merges all available data (both NWS and on-site). These merged data are stored together in a single file. The third step reads the merged meteorological data and estimates the boundary layer parameters needed by AERMOD. AERMET writes two files for input to AERMOD: a file of hourly boundary layer parameter estimates and a file of multiple-level (when the data are available) observations of wind speed and direction, temperature, and standard deviation of the fluctuating components of the wind direction.

AERMAP processes terrain elevation data available from the U.S. Geological Survey (USGS). The data are available in three distinct formats. There is the Digital Elevation Model (DEM) format which follows the old USGS "Blue Book" standard. There is the newer Spatial Data Transfer Standard (SDTS) which formats the DEM and other associated data in metadata form. Finally there is the National Elevation Dataset (NED) which is constantly updated and is available in several formats for importing into widely used commercial software packages. NED was used in this application.

AERMAP first determines the base elevation at each receptor and source. For complex terrain situations, AERMOD captures the essential physics of dispersion in complex terrain and needs elevation data that convey the features of the surrounding terrain. In response to this need, AERMAP searches for the terrain height and location that has the greatest influence on dispersion for each individual receptor. This height is then referred to as the hill height scale. Both the base elevation and hill height scale data are produced by AERMAP as a file or files which can be directly accessed by AERMOD.

The current EPA-accepted AERMOD version was used for the air quality impact analysis. Non-default options approved in modeling protocol responses from IDEQ include use of either Low Wind 1 or 2 and use of the ambient ratio method, with an ambient $NO_2$ ratio of 0.75 for annual modeling and an ambient $NO_2$ ratio of 0.8 for the 1-hr standard. IDEQ prepared and ran AERMET for the meteorological data set for the AERMOD analyses. For this application, the source code for the AERMOD modeling system is provided by BEE-Line Software.

# 3.0 EMISSIONS AND SOURCE DATA

## 3.1 Permit Modification Analysis

The permit modification application submitted to IDEQ detailed the modifications made to the facility. Idahoan is proposing to modify the facility's PTC/Tier II permit as follows:

1. Addition of one impingement dryer,
2. Addition of one additional drum dryer on Flaker Line #1,
3. Inclusion of existing sniffer vents,
4. Ceasing fuel oil and biofuel combustion in Boiler #1,
5. Removing one existing belt dryer (Belt Dryer #3),
6. Installation of cyclones for control of sniffer vent particulate emissions,
7. Installation of economizers on Boilers #1, #2 and #3.

Emission rates for new sources were calculated based on a combination of past source testing results, manufacturer data and AP-42 factors for fuel combustion. The current permitted emission rates used to calculate the changes in emissions were taken from the rates listed in the statement of basis for Tier II Operating Permit and Permit to Construct No. P-2010.0061. A summary of the emission inventory is presented in Table 3-1. The proposed emissions levels listed in Table 2-1 are the total facility emissions considering the modifications addressed in Section 1.2. The current permitted scenario reflects emissions as listed in the statement of basis for PTC No. P-2010-0061. The net change reflects the difference between the proposed and current permitted scenarios. The increase associated with the modification scenario reflects the emissions for new equipment additions and the inclusion of sniffer vents, but does not consider reduction in emissions from changes in fuels or equipment removals.

**Table 3-1: Emission Inventory Summary Table**

| Emission Scenario | $PM_{2.5}$ | | $PM_{10}$ | | $SO_2$ | | NOx | | CO | | VOC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr |
| Proposed | 15.56 | 63.54 | 15.56 | 63.54 | 0.15 | 0.43 | 29.20 | 68.20 | 26.38 | 65.20 | 1.64 | 3.88 |
| Current | 20.72 | 69.87 | 20.88 | 70.15 | 27.69 | 44.68 | 31.39 | 84.11 | 24.34 | 61.60 | 1.60 | 4.07 |
| Net Change | -5.16 | -6.33 | -5.32 | -6.60 | -27.54 | -44.25 | -2.19 | -15.91 | 2.04 | 3.60 | 0.04 | -0.20 |
| Increase Associated with Modifications | 1.53 | 6.76 | 1.53 | 6.76 | 0.00 | 0.02 | 0.25 | 1.10 | 2.04 | 8.95 | 0.04 | 0.16 |

Detailed tables of emission rates are presented in Appendix B. Table B-1 presents the facility's current potential to emit. Table B-2 presents the proposed potential to emit. Table B-3 presents the increase/decrease in emissions.

## 3.2 Pollutants of Concern

Table 3-2 presents the total increase in emissions (without accounting for emissions reductions) associated with this project, and compares these increases to the Level I and Level II modeling thresholds. Please see Table A-4 in Appendix A for detailed information regarding emissions increases.

### Table 3-2: Emission Increases Compared to Modeling Emission Thresholds

| Emission Scenario | $PM_{2.5}$ | | $PM_{10}$ | | $SO_2$ | | NOx | | CO | | VOC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr | lb/hr | T/yr |
| Increase Associated with Modification | 1.53 | 6.76 | 1.53 | 6.76 | 0.00 | 0.02 | 0.25 | 1.10 | 2.04 | 8.95 | 0.04 | 0.16 |
| Level I Thresholds | 0.054 | 0.35 | 0.22 | --- | 0.21 | 1.2 | 0.2 | 1.2 | 15 | --- | --- | --- |
| Level II Thresholds | 0.63 | 4.1 | 2.6 | --- | 2.5 | 14 | 2.4 | 14 | 175 | --- | --- | --- |
| Exceeds Level I Thresholds? | Yes | Yes | Yes | N/A | No | No | Yes | No | No | N/A | N/A | N/A |
| Exceeds Level II Thresholds? | Yes | Yes | No | N/A | No | No | No | No | No | N/A | N/A | N/A |

Based on the Level I and Level II comparisons shown in the table above, Idahoan is performing modeled compliance demonstration for the 24-hr and annual $PM_{2.5}$ and $PM_{10}$ standards and the 1-hour $NO_x$ standard. Idahoan had originally proposed not to model for compliance with the 1-hr $NO_x$ standard based on a net reduction in emissions and an increase below the Level I thresholds; however, the IDEQ response to the modeling protocol required modeling for the 1-hr $NO_x$ standard.

## 3.3 Building Parameters and Facility Layout

Building heights were obtained from facility records maintained by Idahoan. Building dimensions and geospatial locations of all building and emissions points are based on comparison of plant layout drawings with satellite imagery.

Table 3-3 provides the building heights which can be referenced to the facility layout provided in Figure 3-1 through the building codes displayed over each building. The main plant building has a small storage building located on the roof. This structure was included as Main-2 in this analysis. For buildings with sloped roofs, the peak height of each building was used in the modeling analysis.

## Table 3-3: Building Parameters

| Building Code | Building Height (ft) |
|---|---|
| MAIN-1 | 22.25 |
| MAIN-2 | 38.25 |
| MAIN-3 | 22.25 |
| CORP | 11.25 |
| WAREHOUSE | 13.25 |
| WASTE | 22 |

## Figure 3-1: Facility Building Layout

## 3.4 Source Parameter Methodology

Source emissions rates are the same as described in Table A-3, which reflect the increases and decreases in PTE for emissions sources. Emission sources with decreases in PTE were modeled as negative emissions rates. Stack locations were determined from plant drawings provided by Idahoan, which are included in Appendix C. Further description and justification of the source parameters used are detailed below. All source parameters are presented in Form MI2 of Appendix A.

### 3.4.1 Impingement Dryer

The impingement dryer will be in the same general location as Belt Dryer #3, which is being removed. The impingement dryer will encompass two drying stages and three stacks for emissions. The dryer will be similar in operation and materials processed as the existing Real Line Dryers #1-4. The stack diameter and exhaust rate were provided by the manufacturer. The stack exhaust temperature was reduced to an exit temperature of 120°F to account for temperature losses related to the extensive stack height of this unit compared to other dryers at this facility.

### 3.4.2 Flaker Line #1 Additional Dryer

The new additional drum dryer proposed for Flaker Line #1 will have the same process rate and stack parameters as the existing flaker line dryers. Stack parameters for the additional flaker line dryer are based upon stack parameters for the existing flaker line dryers.

### 3.4.3 Boilers #1, #2 and #3

Idahoan is proposing to remove the permit conditions which allow combustion of fuel oil, biofuel, or any fuel other than natural gas in Boiler #1. Burning only natural gas in the boiler reduces emissions for most criteria pollutants substantially. Additionally, Idahoan is proposing to install economizers on Boilers #1, #2 and #3. Each boiler is included in the significant impact analysis as two emission sources, one as the existing units with a negative emission rate, and one which represents the modified boilers with positive emission rates. This approach determined the net change in ambient impact due to modification of stack parameters for each boiler. Stack parameters for the boilers were obtained from the last submitted modeling demonstration for this facility, submitted October 20, 2004.

Three modeled groups were used to reflect operational scenarios for the boilers and proposed economizers. The first two modeled groups reflect limiting the facility to only operating two boilers at one time, operating either Boilers #1 and #2, or Boilers #1 and #3 simultaneously, utilizing the economizers. The third modeled group reflects a scenario that would allow for unrestricted operation of all three boilers. However, in the scenario, the economizers on Boilers #2 and #3 would be bypassed, maintaining the high exhaust temperatures and flow rates of the boilers. The source group that results in the highest impacts was compared to the significant impact levels.

### 3.4.4 Flaker Line #1 and #2 Sniffer Vents

The existing Flaker Lines #1 and #2 have a total of six sniffer vents. Emissions from these vents previously were thought to be insignificant, but recent testing has demonstrated otherwise. To reduce emissions from these sources, emissions will be routed through a cyclone designed to control sniffer vent emissions. Sniffer vents from each flaker line will be routed through an individual cyclone, resulting in two emission points. Stack temperature, emissions and stack velocity are based on manufacturer-provided information. Manufacturer data is included in Appendix E.

### 3.4.5 92 Line Dryers #1-#4

Stack parameters for the 92 line dryers were obtained from the last submitted modeling demonstration for this facility, submitted October 20, 2004. Location of the dryer stacks was determined from the facility layout included in Appendix C. The 92 line dryers are only included in the full facility NAAQS model for 1-hour $NO_2$ compliance.

### 3.4.6 Belt Dryers #1, #2 & #5

Stack parameters for the belt dryers were obtained from the last submitted modeling demonstration for this facility, submitted October 20, 2004. The belt dryers are only included in the full facility NAAQS model for 1-hour $NO_2$ compliance.

## 3.5 Area and Volume Source Methodology

The existing air makeup unit (AMU) was modeled as a volume source, consistent with the last submitted modeling demonstration for this facility, submitted October 20, 2004. The AMU is only included in the full facility NAAQS model for 1-hour $NO_2$ compliance.

## 3.6 Inclusion/Exclusion of Modeling Sources

All proposed, modified and removed sources are included in the model for significant impacts. The full facility NAAQS model includes all sources of NOx.

# 4.0 AMBIENT AIR BOUNDARY

The ambient air boundary has been determined through an analysis following the four-step criteria listed in the *Guideline for Performing Ambient Air Quality Impacts*. The ambient air boundary is based on the property surrounding the plant owned by Idahoan Foods, consistent with the ambient air boundary used in past modeling demonstrations for this facility. Figure 4-1 presents the facility's ambient air boundary overlaid on satellite imagery of the facility. The ambient air quality was reviewed based on the following criteria:

**Facility Control**

Facility control is maintained by periodic monitoring by Idahoan personnel. Also, the facility's property is bordered by the Snake River on the north side of the property. The river acts as a barrier restricting public access to the facility. The public is not allowed access to this industrial facility beyond the high water mark of the river. All areas of the property are monitored by Idahoan personnel and any exposure to trespassers would take place for a minimal time period before said trespassers would be removed from the property.

**Facility Business**

The public is not invited to this facility as part of normal business operations. The ambient air boundary does not require adjustment based on this criterion.

**Right-of-Way Access**

The Dry Bed Canal intersects the north side of the property, which is the only area not controlled by Idahoan which intersects the facility property. This was taken into account when determining the ambient air boundary along the north side of the property. Public roadways make up a large portion of the facility boundary, with State Highway 48 on the east side of the facility and Ellsworth Road forming a portion of the southern border. County Road 3470E and the East Idaho Railroad form the western side of the ambient air boundary.

**Leased Property**

Idahoan does not lease any portion of the property within the selected ambient air boundaries to another industry, business or individual. Also, Idahoan owns and is not leasing the property within the ambient air boundary. The ambient air boundary does not require adjustment based on this criterion.

The facility layout included in Appendix C demonstrates the property boundary as discussed above.

## Figure 4-1: Ambient Air Boundary Location

# 5.0 RECEPTOR NETWORK

The receptor grid for significant impact modeling verification conducted by IDEQ was utilized for this project. The grid spacing is as follows:

- 15 m spacing along property boundary,
- 15 m spacing from the property boundary to 150 m,
- 25 m spacing from the property boundary to 250 m,
- 100 m spacing from 250 m to 1 km,
- 250 m spacing from 1 km to 3 km,
- 500 m spacing from 3 km to 10 km.

Additional receptors at a spacing of 50m were placed over a 5 km x 5 km area of elevated terrain to the northwest of the facility.

No additional receptors were required beyond 10 km, as peak impacts were not located on the outer boundary of receptors.

# 6.0 ELEVATION DATA

Elevations of sources, buildings and receptors were determined by the AERMAP program using the USGS National Elevation Dataset (NED) files. The reference projection was NAD 83 in the Universal Transverse Mercator (UTM) grid system. The extent of NED data used was based on utilizing the "Calculate Domain" function within BEEST. This function looks outward beyond those receptors and sources and determines the extent of terrain data which would be used by AERMAP. The resultant list of 7.5 minute DEM files was used to define the extent of 1/3 arcsecond NED data required by AERMOD to calculate the required elevations.

All emissions sources modeled are located within buildings. The elevations for these sources were set to the AERMAP determined elevation of the building they reside in, to account for the even elevation which the building provides.

AERMAP and NED data files used in the modeling analyses have been included with this electronic submittal.

# 7.0 METEOROLOGICAL DATA

In the response to the modeling protocol, IDEQ provided updated meteorological data, processed using a more recent version of AERMET. The data supplied by IDEQ is from the Rexburg meteorological station from 2008-2012.

# 8.0 LAND-USE CLASSIFICATION

The methodology prescribed for determining land use in Appendix D of the *Guideline for Performing Air Quality Impact Analyses* was utilized for this demonstration. Figure 8-1 displays the satellite imagery in a radius of 3 kilometers of the facility. Based on observations of satellite imagery, it is apparent that the land use of greater than 50% of the area within the 3 km radius of the facility consists of types A2 and A3 land usage. The residential areas in the town of Lewisville to the southwest of the facility and Menan to the northeast of the facility do not constitute a significant portion of the land use within 3 km of the facility. This dictates that the "Rural" land use option should be specified in the AERMOD model.

**Figure 8-1: Imagery for Determining Land Use Classifications**

# 9.0 BACKGROUND CONCENTRATION

Only the modeled receptor impacts for $NO_x$ exceeded significance levels for the 1-hr period. A background value of 14 ppb (26.3 $\mu g/m^3$) was utilized as the background value, obtained from the Northwest International Air Quality Environmental Science and Technology Consortium website (NW-Airquest).

# 10.0 EVALUATION OF COMPLIANCE WITH STANDARDS

## 10.1 Modeling Threshold Analysis: Phase 1

Criteria pollutant emissions from the proposed modifications were compared to the published modeling thresholds in *Guideline for Performing Ambient Air Quality Impact Analyses*. Toxic air pollutants were compared to the significant emission rates located in Idaho Air Rules Sections 585 and 596. Section 3.3 of this report details the process in which all criteria and toxic air pollutants with the exception of $PM_{2.5}$, $PM_{10}$ and NOx were excluded from modeling of ambient air quality impacts.

$PM_{10}$ and $PM_{2.5}$ were evaluated for both the 24-hour and annual averaging periods. NOx was evaluated for the 1-hour averaging period in the Significant Impact Level (SIL) Modeling Analysis in Phase 2.

## 10.2 SIL Modeling Analysis: Phase 2

SILs were identified for the $PM_{2.5}$, $PM_{10}$ and NOx emissions and the averaging periods for which ambient air quality standards are defined. This includes 24-hour and annual standards for both $PM_{2.5}$ and $PM_{10}$ as well as 1-hour and annual standards for $NO_x$.

Table 10-1 shows the peak modeled impacts resulting from the proposed project and compares them to the SILs. Complete model input and output data files for the modeling are included with the electronic files in Appendix E.

**Table 10-1: Air Quality Significance Levels and Modeling Results**

| Pollutant | Average | Met Data | Modeling Significance Level ($\mu g/m^3$) | Modeled Impact Level[1] ($\mu g/m^3$) | Additional Model Analysis Yes/No |
|---|---|---|---|---|---|
| $PM_{10}$ | 24-hr | 2008-2012 | 5 | 1.3 | No |
| $PM_{10}$ | Annual | 2008-2012 | 1 | 0.0 | No |
| $PM_{2.5}$ | 24-hr | 2008-2012 | 1.2 | 0.7 | No |
| $PM_{2.5}$ | Annual | 2008-2012 | 0.3 | 0.0 | No |
| $NO_x$ | 1-HR | 2008-2012 | 7.5 | 11.5 | Yes |

[1]Modeled impact level represents the maximum of either source group B12, B13, or NOECON23, as described in Section 3.4.3.

Comparison of the 1-hr $NO_x$ and 24-hr $PM_{2.5}$ significant impact levels with the ambient air quality impacts of the facility was based on the highest modeled impact for each averaging period averaged over the five year period of met data.

Comparison of the $PM_{10}$ significant impact levels with the ambient air quality impacts of the facility was based on the highest modeled impact for each averaging period during any year modeled in the five year period.

Project-related emissions result in peak impacts below any of the SILs to which emissions were being compared. Consequently, the proposed facility modifications have demonstrated that they would not result in a significant impact for $NO_x$, $PM_{10}$ or $PM_{2.5}$. Therefore, no further modeling analysis is required for these pollutants.

Model input and output files are included with the attached electronic files to this submittal in Appendix G.

## 10.3 NAAQS Modeling Analysis: Phase 3

During the Phase 2 analysis, impacts under the 1-hour NOx averaging period were identified as exceeding the significant impact level. As such, an analysis was performed to compare the full facility impacts against the NAAQS for those receptors which were found to have significant impacts under the Phase 2 analysis. All receptors with significant impacts are located within the 5 km x 5 km grid of additional receptors to the northwest of the facility. To simplify the analysis, the entire grid of receptors from this area was included in the Phase 3 analysis, capturing all receptors which showed significant impacts under the Phase 2 analysis.

Table 10-2 shows the 8th highest impact over five years resulting from the facility and compares the value to the NAAQS, including background concentrations. Input and output data files for the modeling are included with the electronic files in Appendix E.

**Table 10-2: Ambient Air Quality Standards and Modeling Results**

| Pollutant | Average | Met Data | NAAQS Standard ($\mu g/m^3$) | Modeled Impact Level[1] ($\mu g/m^3$) | Background Concentration ($\mu g/m^3$) | Total Ambient Concentration ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| $NO_x$ | 1-HR | 2008-2012 | 188 | 50.2 | 26.3 | 76.5 |

[1]Modeled impact level represents the maximum 8th-high value of either source group B12, B13, or NOECON23, as described in section 3.4.3.

As the table shows, the total modeled concentration for the area of significant impact is far below the ambient standard for $NO_2$. Model input and output files are included with the attached electronic files to this submittal in Appendix G.

# 11.0 ELECTRONIC FILE DESCRIPTIONS

| File Description | File Name |
|---|---|
| SIL Building Downwash Files (BPIP) | Located in Modeling Files\SIL\BPIP |
| 1-Hr NOx Significant Impact Level Modeling Files | Located in Modeling Files\SIL\NO2 |
| 24-hr $PM_{2.5}$ Significant Impact Level Modeling Files | Located in Modeling Files\SIL\PM2.5 and PM10 |
| 24-hr $PM_{10}$ Significant Impact Level Modeling Files | Located in Modeling Files\SIL\PM2.5 and PM10 |
| Annual $PM_{2.5}$ Significant Impact Level Modeling Files | Located in Modeling Files\SIL\PM2.5 and PM10 |
| Annual $PM_{10}$ Significant Impact Level Modeling Files | Located in Modeling Files\SIL\Annual PM10 |
| 1-Hr NOx NAAQS Demonstration Modeling Files | Located in Modeling Files\NAAQS\NO2 |
| NAAQS Building Downwash Files (BPIP) | Located in Modeling Files\NAAQS\BPIP |
| Meteorological Data Files | Located in Modeling Files\SIL\MET |
| Digital Terrain Files<br>NED | Located in Modeling Files\SIL\NED |

# APPENDIX E: MANUFACTURER DATA AND SOURCE TEST ACCEPTANCE LETTERS

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

900 North Skyline Drive, Suite B • Idaho Falls, ID 83402 • (208) 528-2650

C. L. "Butch" Otter, Governor
Curt A. Fransen, Director

April 30, 2014

Via Certified Mail

Mr. Leo Herbert
Corporate Environmental Manager
Idahoan Foods, LLC
529 North 500 East
Lewisville, ID 83431

Re: Review of the particulate matter performance tests conducted by Idahoan Foods, LLC, at the Idaho Falls plant on February 11-14, 2014; Facility ID No. 019-00038

Dear Mr. Herbert:

On March 28, 2014, the Department of Environmental Quality (DEQ) received a compliance test report, prepared by Bison Engineering, Inc., for the following emission points operated by Idahoan Foods at the Idaho Falls plant: Flaker Drum Dryer #2 main stack, Flaker Drum Dryer #2 Snifter Stack, Flaker Drum Dryer #4 Main Stack, Flaker Drum Dryer #4 Snifter Stack, Real Line #2 Dryer, and the Creamy Mash Dryer. The performance tests were conducted on February 11-14, 2014. The purpose of the tests was to satisfy the requirements of Permit to Construct No. P-2012.0020, issued August 26, 2013, and Consent Order Case No. E-2013.0010.

DEQ received the final revised protocol on January 29, 2014. DEQ issued a protocol approval letter with comments in a letter dated January 30, 2014. DEQ did not observe the test.

Based on a review of the submitted test report, DEQ has determined that the particulate matter compliance tests demonstrated compliance with the emission limits in Permit to Construct No. P-2012.0020 during the test period. The submitted test report also satisfies the testing and reporting requirements contained in Consent Order Case No. E-2013.0010. The test results are summarized in Table 1.

Table 1. Summary of February 11-14, 2014 Test Results.

| Emission Point | $PM_{10}/PM_{2.5}$ Measured Emission Rate[1] (lb/hr) | $PM_{10}/PM_{2.5}$ Emission Limit (lb/hr) | Measured emission rate as percent of limit | Production Rate[2] |
|---|---|---|---|---|
| Flaker Drum Dryer #2 main stack | 0.49 | 0.60 | 82% | 0.40 tons per hour |
| Flaker Drum Dryer #2 Snifter Stack | 0.04 | 0.22 | 18% | 0.40 tons per hour |
| Flaker Drum Dryer #4 Main Stack | 0.60 | 1.15 | 52% | 0.64 tons per hour |
| Flaker Drum Dryer #4 Snifter Stack | 0.04 | 0.41 | 10% | 0.64 tons per hour |
| Real Line #2 Dryer | 0.98 | 1.13 | 87% | 2.3 tons per hour |
| Creamy Mash Dryer | 0.12 | 0.17 | 71% | 0.52 tons per hour |

1 The particulate matter emission rate is a sum of EPA methods 5 and 202.
2 The production rate listed here is determined by multiplying the 15-minute average over each test by 4.

The tests on Snifter #2, Snifter #4, Real Line Dryer #2 and the Creamy Mash Dryer were conducted through a single a single test port, as previously agreed upon in the protocol, due to the small duct diameters of the snifter stacks, and difficulty in accessing an appropriate second test port on the Real Line Dryer and Creamy Mash Dryer.

No further testing is required by the permit or consent order.

Use of test results with particulate catch near detection limit

DEQ calculated the target sampling time and volume based on a target sample catch of 3 mg, as explained in EPA's discussion of detection limits found in Method 5I, Section 2.3. The actual test run sampling time and volume exceeded the calculated minimum target sampling time and volume needed to demonstrate compliance in all cases. Therefore, even though the particulate matter catch for some runs is at or below the limit of quantitation for Methods 5and 202, the test runs are valid for determining compliance. Those sample runs with a catch less than 3 mg for Method 5 and less than 4 mg for Method 202 may have a high degree of uncertainty, and should not be relied upon for use as emission factors. According to Method 202, *Section 13.0 Method Performance*, EPA demonstrated a method precision of approximately 4 mg for total condensable particulate matter (approximately 0.5 mg for organic CPM, and approximately 3.5 mg for inorganic CPM). Table 2 contains a summary of the particulate sample mass for each test run.

Table 2. Sample Mass Measured During Each Individual Test Run.

| Emission Point | Run No. | Method 5 Measured filterable particulate mass (mg) | Method 202 Measured Condensable Particulate Mass[1] (mg) |
|---|---|---|---|
| Flaker Drum Dryer #2 main stack | 1 | 4 | 6.3 |
| | 2 | 3.5 | 7.1 |
| | 3 | 3.3 | 3.0 |
| Flaker Drum Dryer #2 Snifter Stack | 1 | 6.3 | 5.8 |
| | 2 | 1.6 | 0.9 |
| | 3 | 1.4 | 29.5 |
| Flaker Drum Dryer #4 Main Stack | 1 | 10.4 | 1.9 |
| | 2 | 15.9 | 1.7 |
| | 3 | 15.1 | 0.5 |
| Flaker Drum Dryer #4 Snifter Stack | 1 | 6.0 | 4.5 |
| | 2 | 4.4 | 2.9 |
| | 3 | 8.0 | 4.5 |
| Real Line #2 Dryer | 1 | 2.9 | 14.0 |
| | 2 | 6.2 | 9.9 |
| | 3 | 3.0 | 9.7 |
| Creamy Mash Dryer | 1 | 5.8 | 0.6 |
| | 2 | 4.2 | 0.4 |
| | 3 | 2.5 | 2.0 |

1 Excludes negative mass measurements.

Please call me at (208) 528-2650, or Zach Klotovich at (208) 373-0295, if you have any questions regarding this performance test review.

Sincerely,

Teri Tyler, PE
Air Quality Analyst

ec: Zach Klotovich, Technical Services Division
Marilyn Seymore, Air Quality Division
Steve Bacom, Air Quality Division

MAXON
A Honeywell Company

201 East 18th Street Muncie, Indiana 47302-4124
P.O. Box 2068 Muncie, Indiana 47307-0068
Tel: 765.284-3304 Fax: 765.286.8394
www.maxoncorp.com

July 24, 2014

CPM Wolverine Proctor , Lexington NC

SUBJECT: OPLE EMISSIONS

To Whom It May Concern:

Typical emissions for the Maxon OPLE 25 & OPLE30 burners are:

Nox 30ppm(.036#'s/MMBtu's) corrected to 3 % O2

CO 400ppm * (.292#'s/MMBtu) corrected to 3% O2

** Through 4:1 turndown*

**Larry Hyland**
Manager-Technical Sales Support
Maxon
A Honeywell Company
201 E 18th Street
Muncie, IN
phone-(765) 254-1027
fax-(765) 254-2027

IDAHOSTEEL
Food Processing Equipment
255 East Anderson . Idaho Falls . ID . 83401
Phone: 208.522.1275 . Fax: 208.522.6041
sales@idahosteel.com
www. idahosteel.com

Leo Herbert
Idahoan Foods
529 N. 3500 E.
Lewisville, ID. 83431

Subject: Sniffer Collection System

Leo,

The following is the information on the Idaho Steel Products Sniffer Collection System.

The Sniffer Collection System is a sub system of the Idaho Steel Products Drum Dryer. Potato mash is deposited on the top of the drum dryer and applied to the drum surface with applicator rolls. As the potato is drying, water is evaporating from the surface of the drum. The steam that is being generated becomes a nuisance in regards to properly removing the sheet and the quality of the sheet. Therefore a sniffer system is employed to remove the steam and to aid in the cutting and processing the sheet on the dry side of the drum.

The Sniffer collection System consist of a plenum or pipe at the drum, a duct connecting to the plenum to a receiver and a high efficiency cyclone discharging to a fan with a stack.

The following is the specifications for the proposed Idaho Steel Products Stack Sniffer Collection System at the Idahoan Lewisville, Idaho Plant.

| | |
|---|---|
| System model | ISP6000HE |
| Stack temperature | 100°F |
| Stack velocity | 4297 ft/min |
| Stack volumetric flow | 6000 $ft^3$/min |
| Stack diameter | 16" Diameter |
| Stack height | 35'-0" |
| Guaranteed emission rate | 49.5% efficiency for $PM_{10}$ Control |
| Drums fed to each system | Three (3) |

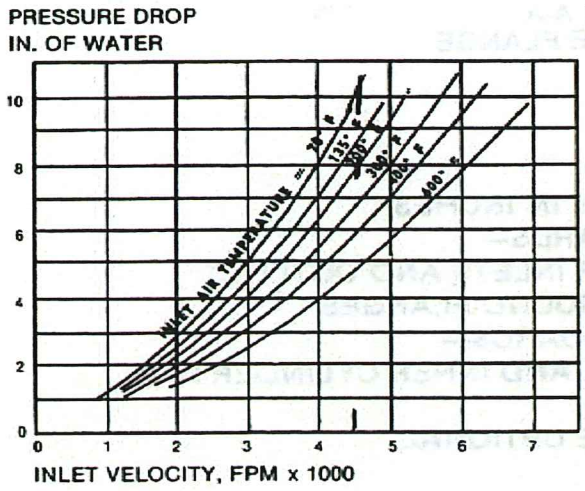
We have attached an efficiency cure for your reference and please let us know if you have any question.

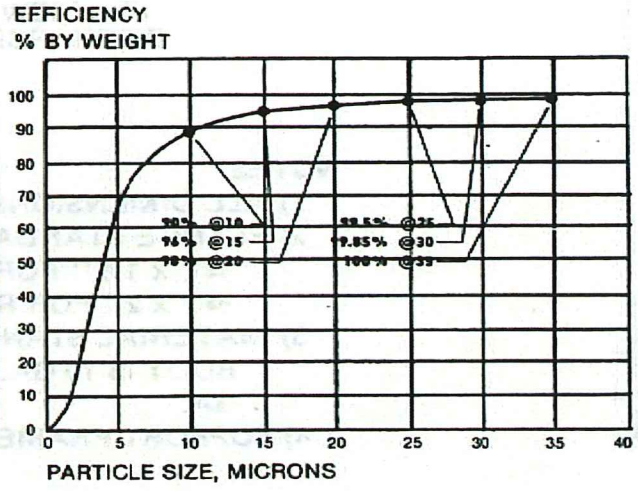
Kind Regards,

Jeff Denkers
Idaho Steel Products Inc.

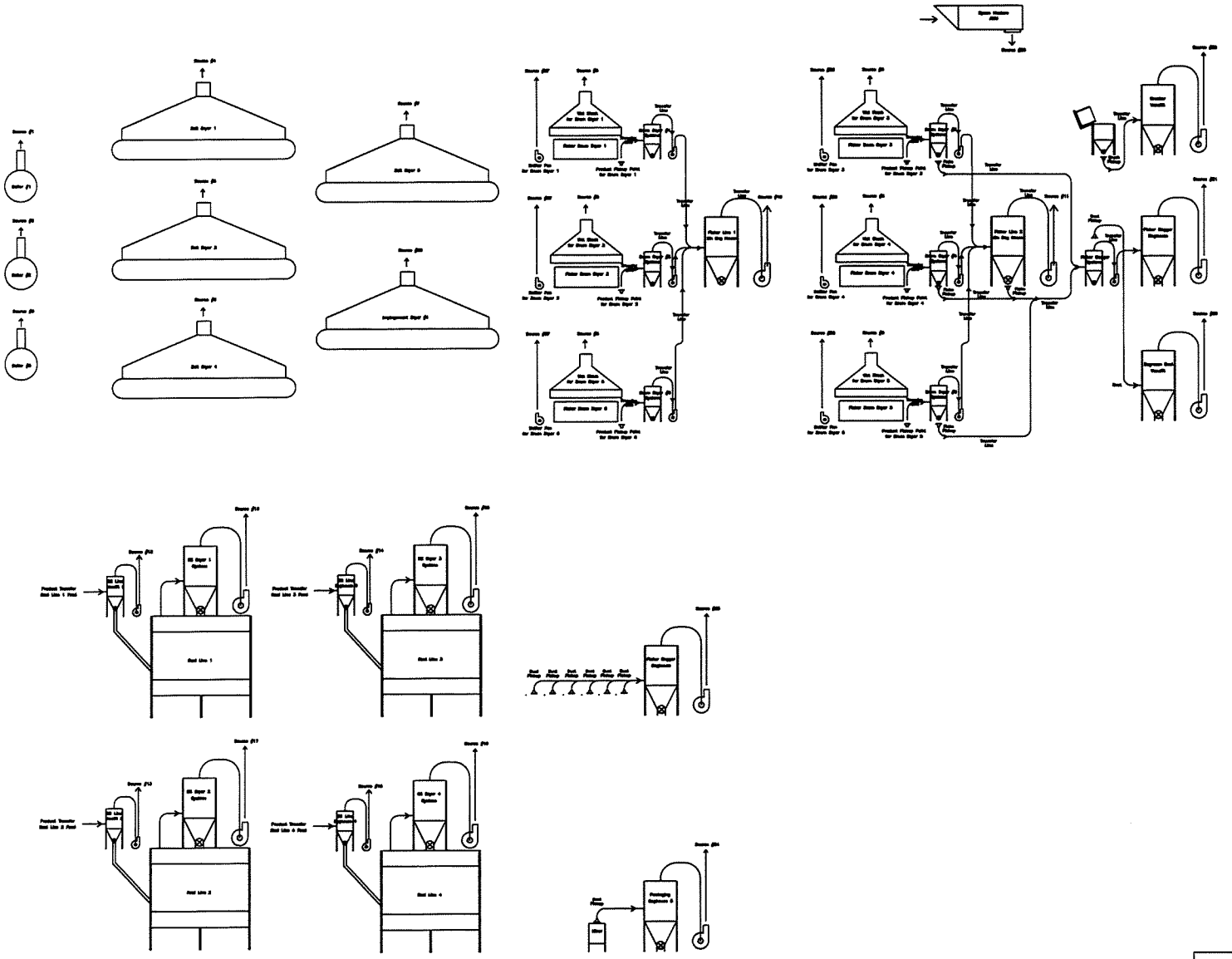
IDAHOSTEEL
Food Processing Equipment
255 East Anderson . Idaho Falls . ID . 83401
Phone: 208.522.1275 . Fax: 208.522.6041
sales@idahosteel.com
www. idahosteel.com

# HE Cyclone Performance



# APPENDIX F: FACILITY PROCESS FLOW DIAGRAM



Proposed Emmission Points at the Lewisville Facility

| Rev. #: | Drawn By: T. Scott | Date: 9-30-14 |
|---|---|---|
| \\Lewisville Air Emission Sources Diagram 9-30-14 | Page Number: Sheet 1 of 1 | Scale: |

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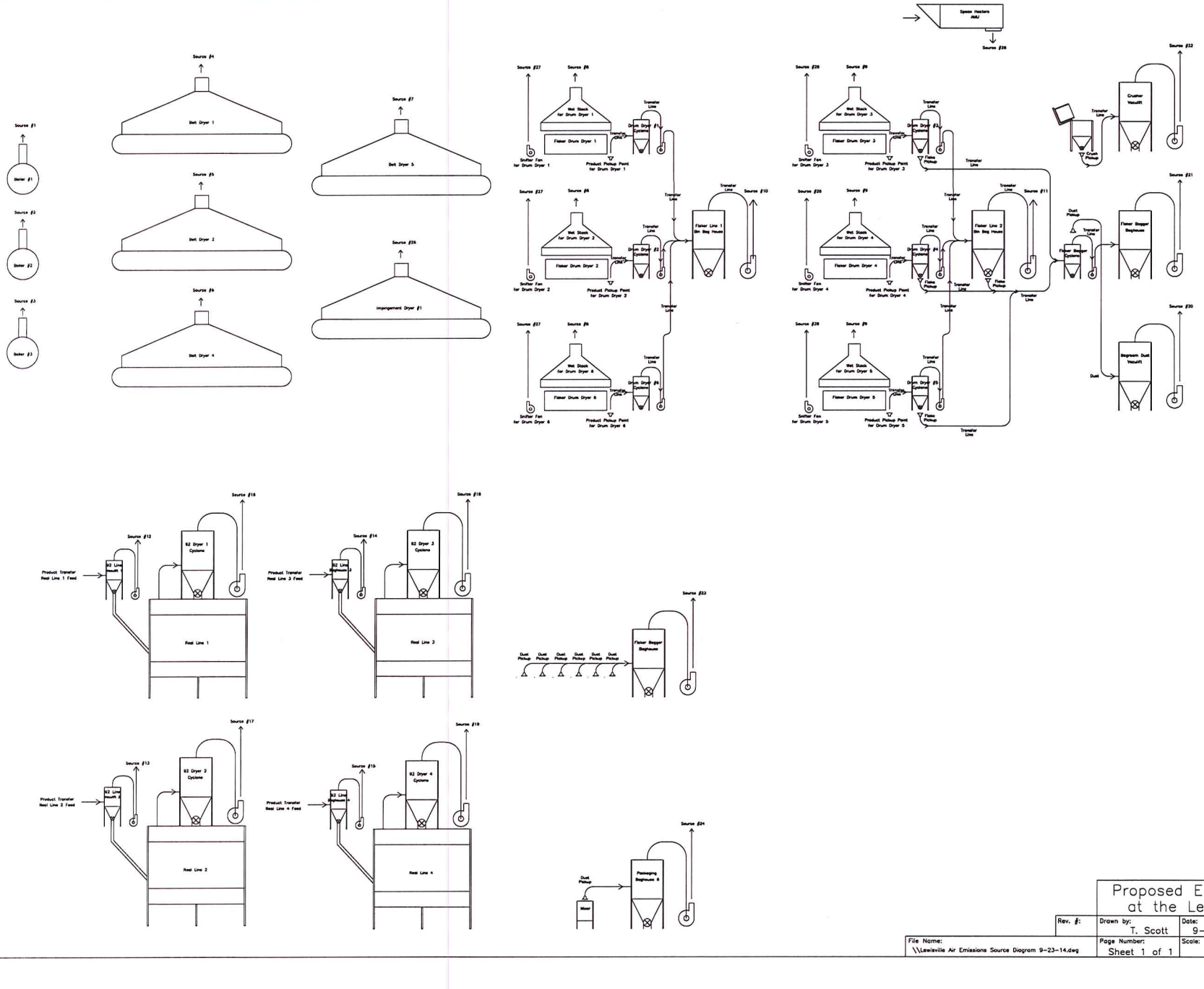


Proposed Emmission Points at the Lewisville Facility

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| Rev. #: | Drawn by: T. Scott | Date: 9-30-14 | idahoan NUMBER ONE POTATO PLACE LEWISVILLE, ID 83431-0130 |
| File Name: \\Lewisville Air Emissions Source Diagram 9-23-14.dwg | Page Number: Sheet 1 of 1 | Scale: | |