NORTHWIND
RESOURCE CONSULTING

July 8, 2016

Air Quality Program Office-application Processing
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706

SUBJECT: Submittal of Permit to Construct Application for Fabri-Kal, Burley, Idaho Facility

Dear Air Quality Representative:

Please find the Application for a Permit to Construct for the Fabri-Kal, Burley Facility located in Burley, Idaho. The application includes 1 hard copy and 1 CD for review and the application fee of $1,000.

Please contact me at (208)557-7832, or by email at sballock-dixon@northwindgrp.com, if you have any questions or comments.

Sincerely,

Saige Ballock-Dixon, P.E.
Environmental Engineer
North Wind Resource Consulting

Attachments: 1 hardcopy permit application and 1 CD permit application

NWI-RI151-003

RECEIVED
JUL 13 2016
DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

Air Impact Modeling Analysis for the Fabri-Kal Facility in Burley, ID

Fabri-Kal

Burley, Idaho

Facility Permit No. < to be determined >

May 2016

Prepared for:
Fabri-Kal
2457 Washington Ave
Burley, ID 83318

Prepared by:
North Wind Resource Consulting
1425 Higham Street
Idaho Falls, ID 82402

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	Fabri-Kal	
2. Facility Name	Fabri-Kal, Burley	3. Facility ID No.
4. Brief Project Description - One sentence or less	Processing straw and polypropylene pellets into food containers.	

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.:____ Date Issued:____
☐ 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 EU3s attached: ____	☐
☒	☐	Form EU5 – Boiler Information	Please specify number of EU4s attached: 3	☐
☐	☒	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		☐

Fabri-Kal, Burley Schedule

Emission Source	Installation Date
Boiler 1	December 2015
Boiler 2	June 2017
Boiler 3	January 2017
Furnaces (A1, A2, A3, A4)	November 2015
Infrared Heaters (B1, B2)	November 2015
Make-up Air Units (A1, D1)	January 2016
Make-up Air Units (F1, F2)	November 2017
Unit Heater (B1, C1, C2, D1, D2)	November 2015
Unit Heaters (F1, F2, F3)	November 2017
Emergency Generator	October 2015

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General Information **Form GI**
Revision 7
6/29/12

Please see instructions on back page before filling out the form. All information is required. If information is missing, the application will not be processed.

Identification

1. Facility name: Fabri-Kal, Burley

2. Existing facility identification number:

☐ **Check if new facility (not yet operating)**

3. Brief project description: Processing straw and polypropylene pellets into food containers.

Facility Information

4. Primary facility permitting contact name: Grant Waschuk
Contact type: Responsible official
Telephone number: 701-412-1797
E-mail: gwaschuk@fabri-kal.com

5. Alternate facility permitting contact name: Kevin Rewa
Alternate contact type: Facility permitting contact
Telephone number: 269-385-8062
E-mail: krewa@fabri-kal.com

6. Mailing address where permit will be sent (street/city/county/state/zip code): 2457 Washington Ave, Burley, Idaho 88318

7. Physical address of permitted facility (if different than mailing address) (street/ city/county/state/zip code):

8. Is the equipment portable? ☐ **Yes*** ☒ **No** ***If yes, complete and attach PERF; see instructions.**

9. NAICS codes: Primary NAICS: 326199
Secondary NAICS:

10. Brief business description and principal product produced: Processing straw and polypropylene pellets into food containers.

11. Identify any adjacent or contiguous facility this company owns and/or operates: NA

12. Specify type of application ☒ **Permit to construct (PTC); application fee of $1,000 required. See instructions.**

☐ **Tier I permit** ☐ **Tier II permit** ☐ **Tier II/Permit to construct**

For Tier I permitted facilities only: If you are applying for a PTC then you must also specify how the PTC will be incorporated into the Tier I permit.

☐ **Co-process Tier I modification and PTC** ☐ **Incorporate PTC at the time of Tier I renewal** ☐ **Administratively amend the Tier I permit to incorporate the PTC upon applicant's request (IDAPA 58.01.01.209.05.a, b, or c)**

Certification

In accordance with IDAPA 58.01.01.123 (Rules for the Control of Air Pollution in Idaho), I certify based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

13. Responsible official's name: Kevin Rewa
Official's title: Corp Project Engineer
Official's address: Plastics Place, Kalamazoo, MI 49001
Telephone number: 269-385-5050
E-mail: krewa@fabri-kal.com
Official's signature: Kevin Rewa
Date: 6-27-16

☒ **14. Check here to indicate that you want to review the draft permit before final issuance.**

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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:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description: Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	FURNACE (F))
6.	EU ID Number:	F-A1, F-A2, F-A4
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	CARRIER
9.	Model:	4ATTR6042(A1), 4ATTR6024(A3), 4ATTR6030 (A4)
10..	Maximum Capacity:	60,000 BTU/HR
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
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:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

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:	12 HOURS/DAY
23.	Maximum Operation:	8760 hours/year

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:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description: Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	FURNACE (F)
6.	EU ID Number:	F-A2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	TRANE
9.	Model:	ATTR6036
10..	Maximum Capacity:	40,000 BTU/HR
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
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:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

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:	12 HOURS/DAY
23.	Maximum Operation:	8760 hours/year

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:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description: Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	INFRARED HEATER (IRH)
6.	EU ID Number:	IRH-B1, IRH-B2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	RE-VERBER-RAY
9.	Model:	RT3-60-200
10..	Maximum Capacity:	2[illegible]0 SCF/HR
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
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:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

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:	12 HOURS/DAY
23.	Maximum Operation:	8760 HOURS/YEAR

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:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description: Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	MAKE-UP AIR UNIT (MAU)
6.	EU ID Number:	MAU-A1, MAU-D1, MAU-F1, MAU-F2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	RAPID ENGINEERING
9.	Model:	4060AM
10..	Maximum Capacity:	4.3 MMBTU/HR
11.	Date of Construction:	DECEMBER 2015 (F1 AND F2 IN 2017)
12.	Date of Modification (if any):	NA
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:	Midco H2MA burner
15. Date of Installation:	January 2016 16. Date of Modification (if any):
17. Manufacturer and Model Number:	Midco
18. ID(s) of Emission Unit Controlled:	
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				50		

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. Low NOx spearated phase burner

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

22.	Actual Operation:	12 HOURS/DAY
23.	Maximum Operation:	8760 HOURS/YEAR

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:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description: Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	UNIT HEATER (UH)
6.	EU ID Number:	UH-B1, UH-C1, UH-C2, UH-C3, UH-D1, UH-D2
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	MODINE
9.	Model:	PDP-150
10..	Maximum Capacity:	150 BTU/hr
11.	Date of Construction:	NOVEMBER 2015
12.	Date of Modification (if any):	NA
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:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

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:	EMERGENCY SHUTDOWN
23.	Maximum Operation:	100 HOURS/YEAR

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:
Fabri-Kal	Fabri-Kal, Burley	

4. Brief Project Description: Processing straw and polypropylene pellets into food containers.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	UNIT HEATER (UH)
6.	EU ID Number:	UH-F1, UH-F2, UH-F3
7.	EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	MODINE
9.	Model:	PDP-150
10..	Maximum Capacity:	150 BTU/HR
11.	Date of Construction:	JUNE 2017
12.	Date of Modification (if any):	NA
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:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

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:	EMERGENCY SHUTDOWN
23.	Maximum Operation:	100 HOURS/YEAR

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:

4. Brief Project Description:

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	EMERGENCY GENERATOR
6.	EU ID Number:	EMGEN
7.	EU Type:	☐ New Source ☒ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	OLYMPIAN
9.	Model:	G80LG4-80
10..	Maximum Capacity:	1055 CF/HR
11.	Date of Construction:	October 27, 2015
12.	Date of Modification (if any):	NA
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:

15. Date of Installation: 16. Date of Modification (if any):

17. Manufacturer and Model Number:

18. ID(s) of Emission Unit Controlled:

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:	100 HOURS/YEAR
23.	Maximum Operation:	100 HOURS/YEAR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☒ Operation Hour Limit(s):	100 HOURS/YEAR
	☐ 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):	EMERGENCY BACKUP EQUIPMENT.

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Air Permit Hotline – 1-877-5PERMIT

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:
Fabri-Kal	Fabri-Kal, Burley	
4. Brief Project Description:	Process straw and polypropylene pellets into food containers	

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 #:

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

7. Boiler ID Number: Boiler B.1	8. Rated Capacity: ☒ 6.3 Million British Thermal Units Per Hour (MMBtu/hr) ☐ 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)	
9. Construction Date: December 2015	10. Manufacturer: Hurst	11. Model: S-4-G-150-15ST
12. Date of Modification (if applicable):	13. Serial Number (if available):	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 6176 (cf/hr)	☐ Coal (unit: /hr)	☐ Other Fuels (unit: /hr)
16. Full Load Consumption Rate		6176		
17. Actual Consumption Rate		6176		
18. Fuel Heat Content (Btu/unit, LHV)		1020 BTU/hr		
19. Sulfur Content wt%		NA		
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.):	8760 hours/year
26. Operating Schedule (hours/day, months/year, etc.):	24 hours/day, 7 days/week
27. NSPS Applicability: ☐ Yes ☒ No	If Yes, which subpart:

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Air Permit Hotline – 1-877-5PERMIT

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:
Fabri-Kal	Fabri-Kal, Burley	
4. Brief Project Description:	Process straw and polypropylene pellets into food containers	

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 #:

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

7. Boiler ID Number: Boiler B.2	8. Rated Capacity: ☒ 6.3 Million British Thermal Units Per Hour (MMBtu/hr) ☐ 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)	
9. Construction Date: June 2017	10. Manufacturer: Hurst	11. Model: S-4-G-150-15ST
12. Date of Modification (if applicable):	13. Serial Number (if available):	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 6176 (cf/hr)	☐ Coal (unit: /hr)	☐ Other Fuels (unit: /hr)
16. Full Load Consumption Rate		6176		
17. Actual Consumption Rate		6176		
18. Fuel Heat Content (Btu/unit, LHV)		1020 BTU/hr		
19. Sulfur Content wt%		NA		
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.):	8760 hours/year
26. Operating Schedule (hours/day, months/year, etc.):	24 hours/day, 7 days/week
27. NSPS Applicability: ☐ Yes ☒ No	If Yes, which subpart:

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

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:
Fabri-Kal	Fabri-Kal, Burley	
4. Brief Project Description:	Process straw and polypropylene pellets into food containers	

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 #:

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

7. Boiler ID Number: Boiler B-3	8. Rated Capacity: ☒ 3.4 Million British Thermal Units Per Hour (MMBtu/hr) ☐ 1,000 Pounds Steam Per Hour (1,000 lb steam/hr)	
9. Construction Date: 2017	10. Manufacturer: Columbia	11. Model: MPH-80
12. Date of Modification (if applicable):	13. Serial Number (if available):	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 3294 (cf/hr)	☐ Coal (unit: /hr)	☐ Other Fuels (unit: /hr)
16. Full Load Consumption Rate		3294		
17. Actual Consumption Rate		3294		
18. Fuel Heat Content (Btu/unit, LHV)		1020 BTU/hr		
19. Sulfur Content wt%		NA		
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.):	8760 hours/year
26. Operating Schedule (hours/day, months/year, etc.):	24 hours/day, 7 days/week
27. NSPS Applicability: ☐ Yes ☒ No	If Yes, which subpart:

STATE OF IDAHO
DEPARTMENT OF ENVIRONMENTAL QUALITY

Version 1, August 2010

Facility Wide Potential to Emit Emission Inventory Application Template and Instructions

For new stationary sources provide the facility's potential to emit for all NSR Regulated Air Pollutants. The potential to emit provided here must match the emissions rates which are requested to be permitted.

For modifications to existing facilities (including the addition of new emissions units), if the existing facility classification is in question an existing facility wide potential to emit emission inventory will be required to be submitted[1]. Contact DEQ to determine if a facility wide emission inventory for the existing facility is required.

All emissions inventories must be submitted with thorough documentation. The emission inventories will be subjected to technical review. Therefore, prepare your application with sufficient documentation so that the public and DEQ can verify the validity of the emission estimates. **Applications submitted without sufficient documentation are incomplete. Follow the instructions provided on page 2; do not proceed until you have read the instructions.**

Table 1. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	PM10/PM2.5	NOx	SO2	CO	VOC	CO2
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Boiler 1	0.206/0.206	2.428	0.016	2.272	0.149	3,246.4
Boiler 2	0.206/0.206	2.428	0.016	2.272	0.149	3,246.4
Boiler 3	0.110/0.110	1.443	0.009	1.212	0.079	1,731.4
MAU.A1	0.140/0.140	0.923	0.011	1.551	0.102	2,216
MAU.D1	0.140/0.140	0.923	0.011	1.551	0.102	2,216
MAU.F1	0.140/0.140	0.923	0.011	1.551	0.102	2,216
MAU.F3	0.140/0.140	0.923	0.011	1.551	0.102	2,216
F.A1	0.002/0.002	0.026	0.0002	0.022	0.001	30.9
F.A2	0.002/0.002	0.026	0.0002	0.022	0.001	30.9
F.A3	0.001/0.001	0.017	0.0001	0.014	0.001	20.6
F.A4	0.002/0.002	0.026	0.0002	0.022	0.001	30.9
IRH.B1	0.007/0.007	0.086	0.001	0.072	0.005	103.1
IRH.B2	0.007/0.007	0.086	0.001	0.072	0.005	103.1
UH.B1	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
UH.C1	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
UH.C3	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
UH.D1	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
UH.D2	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
UH.F1	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
UH.F2	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
UH.F3	0.003/0.003	0.004	0.00002	0.003	0.0002	4.4
Emergency Generator	0.0005/0.0005	0.122	-	0.20	0.002	5.9
Extruder	-	-	-	-	1.445	
Grinding System	0.118/0.118	-	-	-	-	
Silo	-	-	-	-	0.219	
Totals	**1.22/1.22**	**10.41**	**0.09**	**12.41**	**2.47**	**17,453**

a) NSR Regulated air Pollutants are defined[2] as: Particulate Matter (PM, PM-10, PM-2.5), Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone (VOC), Sulfur Dioxide, CO_2e[3], Green House Gases (GHG) mass, all pollutants regulated by NSPS (40 CFR 60)(i.e. TRS, fluoride, sulfuric acid mist) & Class I & Class II Ozone Depleting Substances (40 CFR 82)(i.e. CFC, HCFC, Halon, etc.)

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[1] The applicant must determine if the existing facility is a major facility. If the facility is an existing PSD major facility and changes are being made to the facility the major modification test must be conducted.

[2] 40 CFR 52.21(b)(50), as incorporated by reference at IDAPA 58.01.01.107.03.d

[3] Multiply each green house gas (GHG) by the global warming potential (GWP) listed at 40 CFR 98, Table A- 1 of Subpart A then sum all values to determine CO_2e (GHGs are carbon dioxide, nitrous oxide, methane, hydrofluorcarbons, perfluorcarbons, sulfur hexafluoride). Be sure to show all calculations as described in the instructions.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Version 2, January 2011

Ambient Impact Assessment Emission Inventory for New Minor Facilities and Minor Modifications

Application Template and Instructions

New Minor Facilities or Minor Modifications to Existing Facilities

Applicants must demonstrate that the source will not cause or significantly contribute to a violation of an ambient air quality standard for criteria pollutants[1]. As described in the State of Idaho Air Quality Modeling Guideline, there are three methods that an applicant can use to demonstrate compliance:

Method 1. Demonstrate that emissions from the new and/or modified existing facility are below air quality modeling thresholds that are listed in the State of Idaho Air Quality Modeling Guideline.

Method 2. Demonstrate that emissions from the new and/or modified source will not cause ambient impacts at or above significant ambient impact levels (Significant Impact Analysis or Preliminary Analysis).

Method 3. *Demonstrate that facility wide emissions, when combined with co-contributing sources and background levels, do not cause an exceedance of ambient standards (Cumulative Analysis).*

The type of emission inventory required depends upon which method is used to demonstrate compliance. In the following pages the type of emission inventory that is required to be submitted is discussed for each method. DEQ strongly recommends that the applicant develop and submit for DEQ approval a written modeling protocol prior to submitting the application (refer to the State of Idaho Air Quality Modeling Guideline). The modeling protocol must address what types of emission inventories are required for modeling, and address which fugitive emissions must be included.

All modeling emission inventories must be summarized using the emission inventory summary table provided below (Table 1).

The applicant must document all emission calculations and follow the emission inventory instructions provided. **Applications without sufficient documentation are incomplete; do not proceed until you have read the instructions on page 6.**

Method 3 was selected for the Fabri-Kal facility.

[1] Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01.203 & 403)

Table 1 Modeled Emission Rates for Cumulative Impact Analysis

Emissions Unit	Stack or Emissions Point ID[a]	PM_{10}	$PM_{2.5}$		SO_2		NO_x		CO		Lead	
		lb/hr 24-hr Avg.	lb/hr 24-hr Avg.	lb/hr Annual Avg.	lb/hr Max.	lb/hr 3-hr Avg.	lb/hr Max.	lb/hr Annual Avg.	lb/hr Max.	lb/hr 8-hr Avg.	lb/hr monthly Avg.	lb/hr 1/4ly Avg.
Point Sources												
Boiler 1	B.1	0.047	0.047	0.047	-	-	0.554	0.554	-	-	-	-
Boiler 2	B.2	0.047	0.047	0.047	-	-	0.554	0.554	-	-	-	-
Boiler 3	B.3	0.025	0.025	0.025	-	-	0.329	0.329	-	-	-	-
Furnace	F.A1	0.0004	0.0004	0.0004	-	-	0.006	0.006	-	-	-	-
Furnace	F.A3	0.0004	0.0004	0.0004	-	-	0.006	0.006	-	-	-	-
Furnace	F.A3	0.0003	0.0003	0.0003	-	-	0.004	0.004	-	-	-	-
Furnace	F.A4	0.0004	0.0004	0.0004	-	-	0.006	0.006	-	-	-	-
IR Heater	IRH.B1	0.0015	0.0015	0.0015	-	-	0.020	0.020	-	-	-	-
IR Heater	IRH.B2	0.0015	0.0015	0.0015	-	-	0.020	0.020	-	-	-	-
Make-Up Air Unit	MAU.A1	0.032	0.032	0.032	-	-	0.211	0.211	-	-	-	-
Make-Up Air Unit	MAU.D1	0.032	0.032	0.032	-	-	0.211	0.211	-	-	-	-
Make-Up Air Unit	MAU.F1	0.032	0.032	0.032	-	-	0.211	0.211	-	-	-	-
Make-Up Air Unit	MAU.F2	0.032	0.032	0.032	-	-	0.211	0.211	-	-	-	-
Emergency Heater	UH.B1	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.C1	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.C2	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.C3	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.D1	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.D2	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.F1	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.F2	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Heater	UH.F3	0.0011	0.0011	0.00006	-	-	0.015	0.0008	-	-	-	-
Emergency Generator	EMGEN	0.01	0.01	0.00012	-	-	exempt	0.028	-	-	-	-
Volume Source												
Grinder	Grinder	0.027	0.027	0.027	-	-	-	-	-	-	-	-

a) Stack or Emissions Point ID must match the ID used in the air dispersion model.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Version 1, August 2010

Toxic Air Pollutant Emissions Inventory

Application Template and Instructions

Applicants must demonstrate preconstruction compliance with toxic air pollutant (TAP) standards contained in IDAPA 58.01.01.210 (*Rules for the Control of Air Pollution in Idaho*). DEQ has developed a TAP completeness checklist in order to assist applicants. DEQ strongly recommends that applicants complete and submit this checklist as part of the application. **Applications which do not follow one of the available methods for demonstrating compliance described in the checklist will be determined incomplete or denied.** Follow this link to the checklist: Toxic Air Pollutant Application Completeness Checklist. Be sure to calculate emissions correctly for the averaging periods as described in the checklist and in the instructions on page 3.

The type of TAP emissions inventory required depends upon which method is used to demonstrate compliance (see the Toxic Air Pollutant Application Completeness Checklist). **All TAP emissions inventories must be summarized using the emissions inventory summary tables provided below** (Table 1 and Table 2).

Table 1. PRE- AND POST PROJECT NON-CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Non-Carcinogenic Toxic Air Pollutants (sum of all emissions)	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Barium	-	**1.52E-4**	-	**0.033**	**N**
Copper	-	**2.93E-5**	-	**0.013**	**N**
Molybdenum	-	**3.79E-5**	-	**0.333**	**N**
Pentane	-	**8.96E-2**	-	**118**	**N**
Vanadium	-	**7.92E-5**	-	**0.003**	**N**
Zinc	-	**9.99E-4**	-	**0.667**	**N**

Table 2. PRE- AND POST PROJECT CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Carcinogenic Toxic Air Pollutants (sum of all emissions)	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Benzo(a)pyrene	-	**3.98E-8**	-	**2.00E-6**	**N**
3-Methylchloranthrene	-	**5.98E-8**	-	**2.50E-6**	**N**

* 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.

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

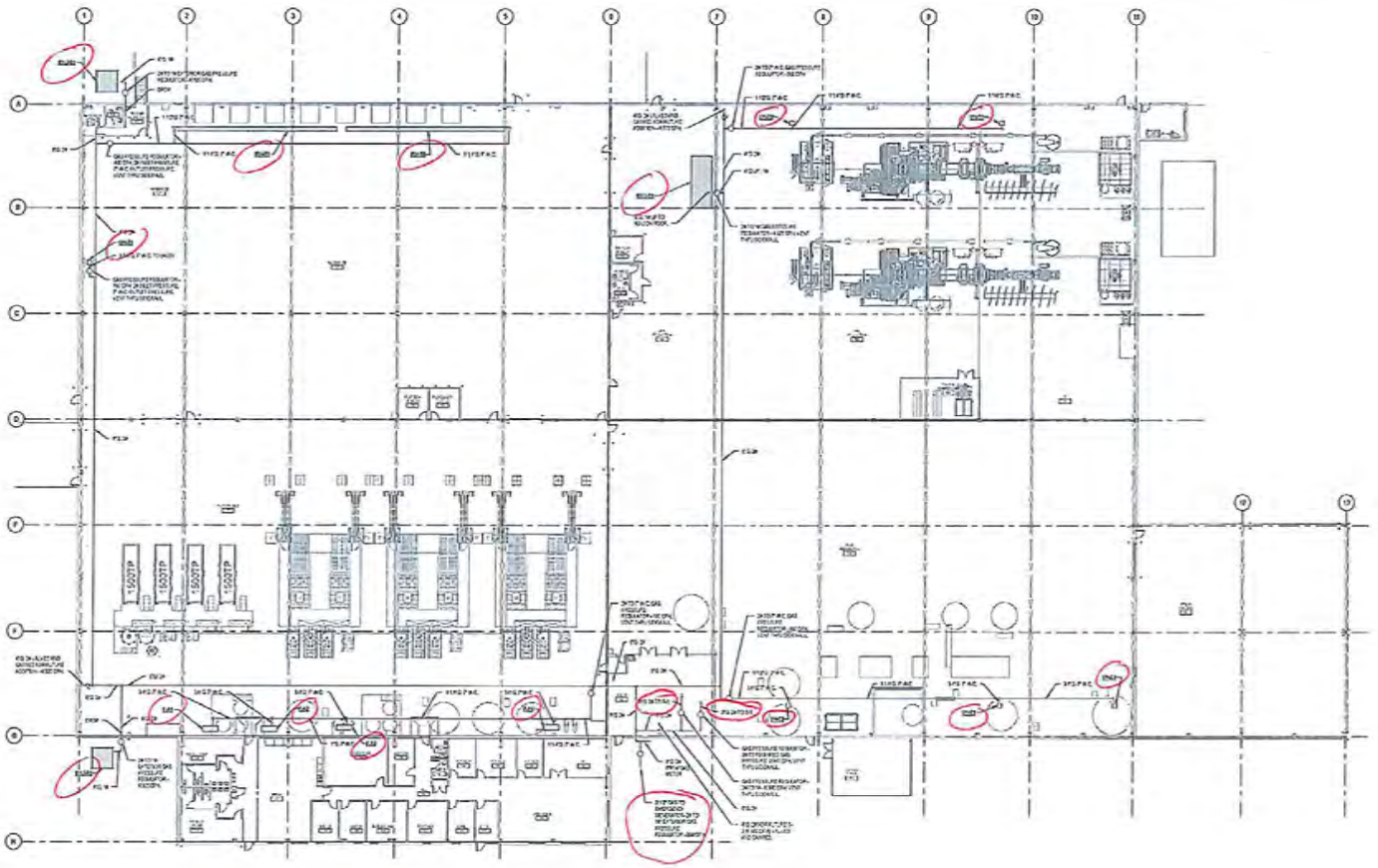
Version 1, August 2010

Facility Wide Hazardous Air Pollutant Potential to Emit
Application Template and Instructions

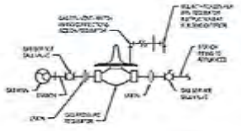
Table1. HAP POTENTIAL TO EMIT EMISSIONS SUMMARY

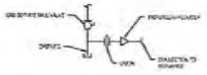
HAP Pollutants	PTE (T/yr)
Acrolein	1.42E-4
Chlorobenzene	6.94E-7
Chromium	2.04E-4
Cobalt	1.22E-5
Dichlorobenzene	1.24E-4
Ethyl benzene	1.74E-4
Hexane	2.62E-1
Manganese	5.52E-5
Methanol	1.65E-4
Naphthalene	9.39E-5
Selenium	3.49E-6
Styrene	6.40E-7
Toluene	5.24E-4
Xylene	1.05E-5
Acetaldehyde	1.50E-4
Arsenic	2.91E-5
Benzene	3.90E-4
Beryllium	1.74E-6
1,3-Butadeine	3.57E-5
Cadmium	1.60E-4
Carbon Tetrachloride	9.52E-7
Chloroform	3.37E-7
1,1-Dichloroethane	6.08E-7
1,2-Dichloroethane	6.08E-7
1,3-Dichloropropene	6.83E-7
Ethylene Dibromide	1.15E-6
Formaldehyde	1.20E-2
Methylene Chloride	2.22E-6
Nickel	3.05E-4
PAH	1.88E-5
POM	9.24E-6
Vinyl Chloride	3.86E-7
Total	**0.276**

* Maximum Individual HAP



OVERALL GAS PIPING PLAN





KEY PLAN

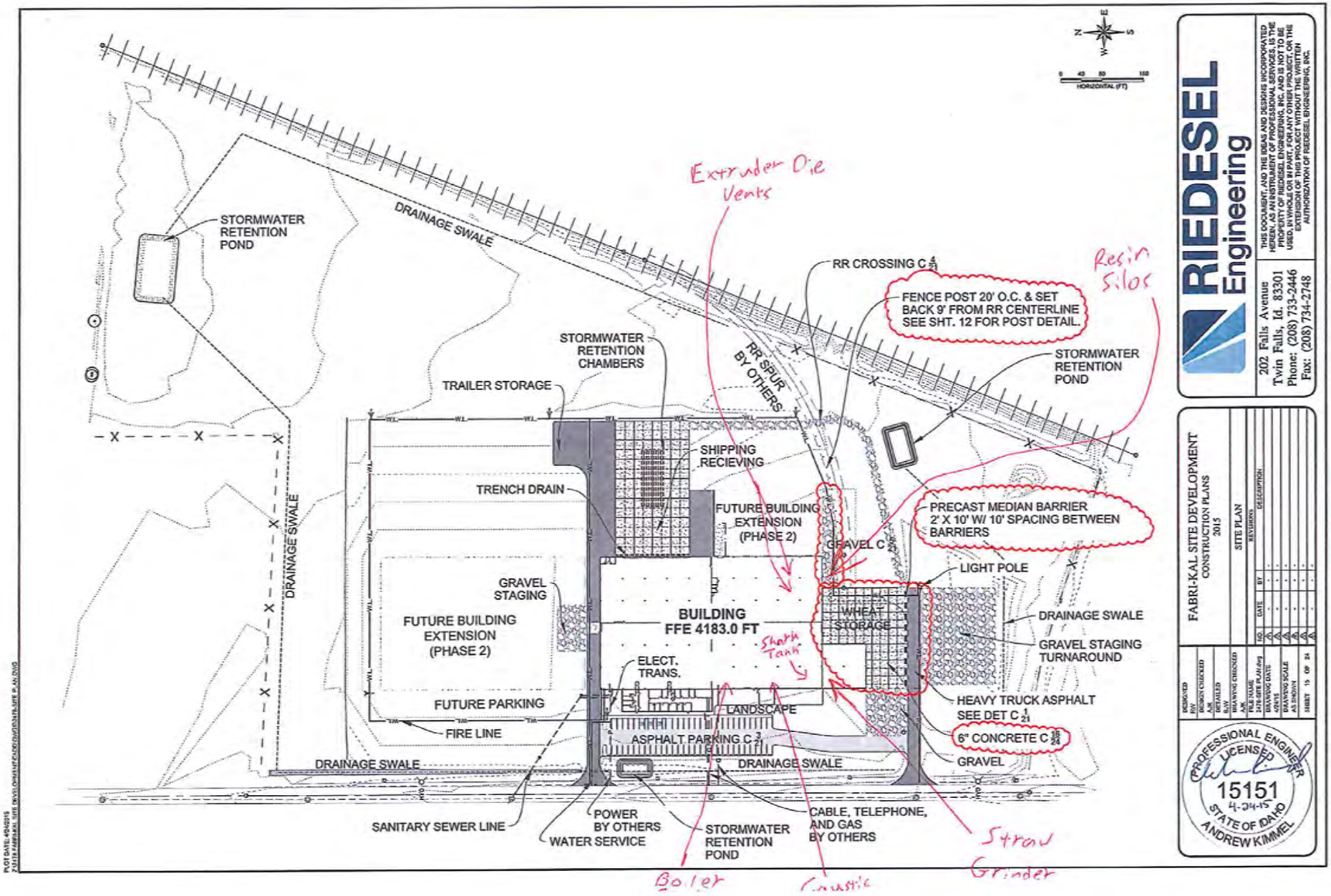
paep Architecture Engineering, P.C.

Fabri-Kal Burley, ID

CSM

OVERALL GAS PIPING PLAN

PM101



STORMWATER RETENTION POND
DRAINAGE SWALE
RR CROSSING C 4/21
FENCE POST 20' O.C. & SET BACK 9' FROM RR CENTERLINE SEE SHT. 12 FOR POST DETAIL.
STORMWATER RETENTION POND
STORMWATER RETENTION CHAMBERS
TRAILER STORAGE
RR SPUR BY OTHERS
SHIPPING RECIEVING
TRENCH DRAIN
FUTURE BUILDING EXTENSION (PHASE 2)
PRECAST MEDIAN BARRIER 2' X 10' W/ 10' SPACING BETWEEN BARRIERS
GRAVEL C 2/21
LIGHT POLE
GRAVEL STAGING
FUTURE BUILDING EXTENSION (PHASE 2)
BUILDING FFE 4183.0 FT
WHEAT STORAGE
DRAINAGE SWALE
GRAVEL STAGING TURNAROUND
ELECT. TRANS.
FUTURE PARKING
LANDSCAPE
HEAVY TRUCK ASPHALT SEE DET C 1/21
FIRE LINE
ASPHALT PARKING C 3/21
6" CONCRETE C 16/24
DRAINAGE SWALE
DRAINAGE SWALE
GRAVEL
SANITARY SEWER LINE
POWER BY OTHERS
WATER SERVICE
STORMWATER RETENTION POND
CABLE, TELEPHONE, AND GAS BY OTHERS
Extruder Die Vents
Resin Silos
Shark Tank
Boiler
Caustic
Straw Grinder
HORIZONTAL (FT)
RIEDESEL Engineering
202 Falls Avenue
Twin Falls, Id. 83301
Phone: (208) 733-2446
Fax: (208) 734-2748
FABRI-KAL SITE DEVELOPMENT
CONSTRUCTION PLANS
2015
SITE PLAN
PROFESSIONAL ENGINEER
LICENSED
15151
4-24-15
STATE OF IDAHO
ANDREW KIMMEL

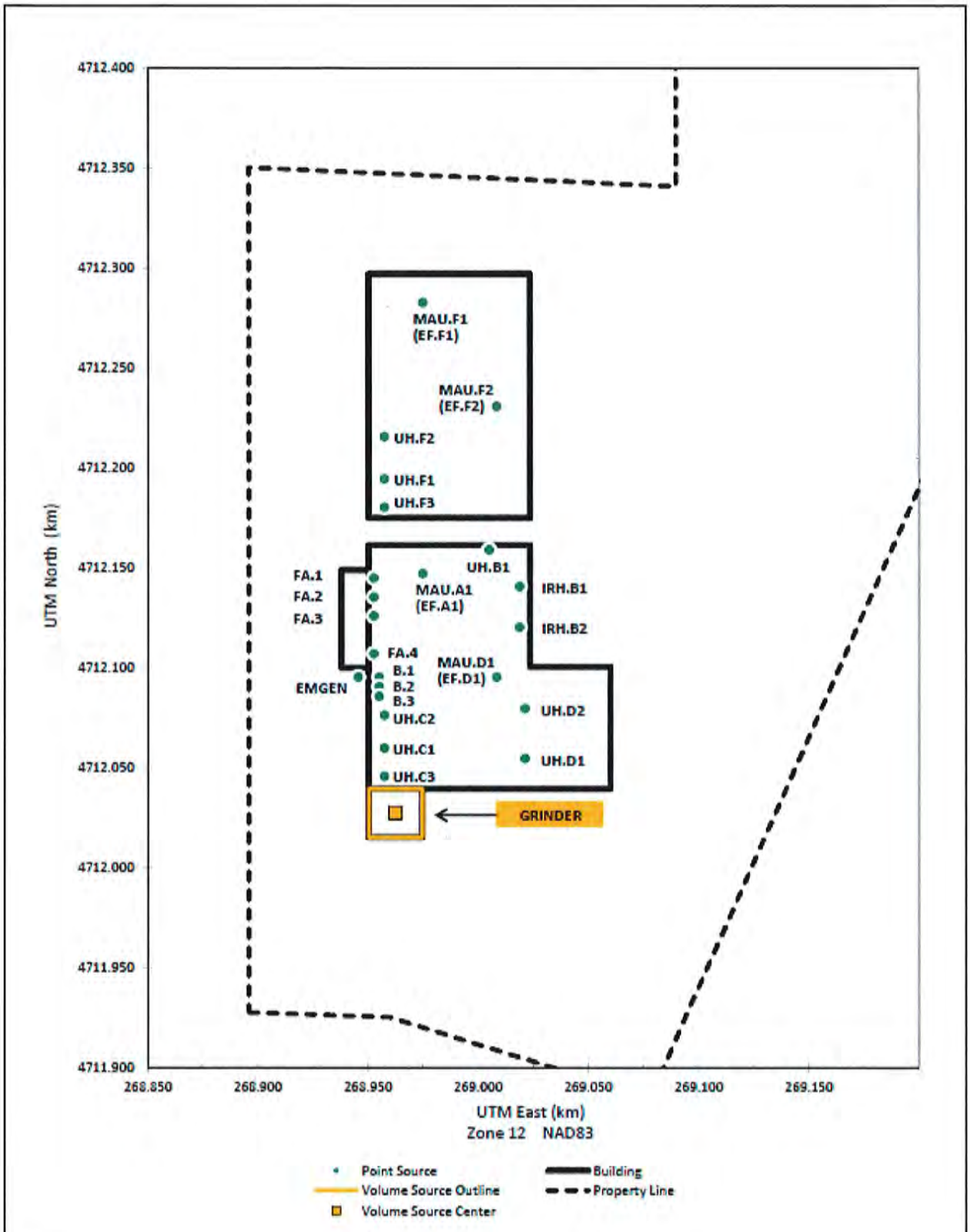


Figure 4 – Emission Source Locations

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

PERMIT TO CONSTRUCT APPLICATION

Revision 3
4/5/2007

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

Company Name:	Fabri-Kal
Facility Name:	Fabri-Kal, Burley
Facility ID No.:	
Brief Project Description:	Process straw and polypropylene pellets into food containers.

SUMMARY OF AIR IMPACT ANALYSIS RESULTS - CRITERIA POLLUTANTS

		1.		2.	3.	4.		5.
Criteria Pollutants	**Averaging Period**	**Significant Impact Analysis Results (µg/m3)**	**Significant Contribution Level (µg/m3)**	**Full Impact Analysis Results (µg/m3)**	**Background Concentration (µg/m3)**	**Total Ambient Impact (µg/m3)**	**NAAQS (µg/m3)**	**Percent of NAAQS**
PM_{10}	24-hour	NA	5	7.37	73.00	80.37	150	54%
	Annual	NA	1	NA	NA	NA	50	NA
SO_2	3-hr	NA	25	NA	NA	NA	1300	NA
	24-hr	NA	5	NA	NA	NA	365	NA
	Annual	NA	1	NA	NA	NA	80	NA
NO_2	Annual	NA	1	12.02	5.83	14.85	100	15%
CO	1-hr	NA	2000	NA	NA	NA	10000	NA
	8-hr	NA	500	NA	NA	NA	40000	NA

	DEQ AIR QUALITY PROGRAM 1410 N. Hilton, Boise, ID 83706 For assistance, call the **Air Permit Hotline - 1-877-5PERMIT**	**PERMIT TO CONSTRUCT APPLICATION** Revision 3 3/27/2007

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

Company Name:	Fabri-Kal
Facility Name:	Fabri-Kal, Burley
Facility ID No.:	
Brief Project Description:	Process straw and polypropylene pellets into food containers.

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)										
Boiler #1	B.1	268955	4712095	1275	11.1	0.41	489.8	NA	4.52	Vertical
Boiler #2	B.2	268955	4712230	1275	11.1	0.41	489.8	NA	4.52	Vertical
Boiler #3	B.3	268955	4712088	1275	11.1	0.3	477.6	NA	4.04	Vertical
Furnace	F.A1	268953	4712145	1275	9.2	0.08	338.7	NA	7.176	Vertical
Furnace	F.A2	268953	4712135	1275	9.2	0.08	338.7	NA	4.784	Vertical
Furnace	F.A3	268953	4712126	1275	9.2	0.08	338.7	NA	7.176	Vertical
Furnace	F.A4	268953	4712107	1275	9.2	0.08	338.7	NA	7.176	Vertical
IR Heater	IRH.B1	269019	4712141	1275	9.2	0.15	491.5	NA	0.001	Raincap
IR Heater	IRH.B2	269019	4712120	1275	9.2	0.15	491.5	NA	0.001	Raincap
Make-up Air Unit	MAU.A1	268975	4712147	1275	9.2	0.13	295.4	NA	0.001	Raincap
Make-up Air Unit	MAU.D1	269009	4712095	1275	9.2	0.13	295.4	NA	0.001	Raincap
Make-up Air Unit	MAU.F1	268975	4712283	1275	9.2	0.13	295.4	NA	0.001	Raincap
Make-up Air Unit	MAU.F2	269009	4712231	1275	9.2	0.13	295.4	NA	0.001	Raincap
Emergency Unit Heater	UH.B1	269005	4712159	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.C1	268957	4712060	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.C2	268957	4712076	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.C3	268957	4712046	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.D1	269021	4712055	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.D2	269021	4712080	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.F1	268957	4712216	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.F2	268957	4712194	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Unit Heater	UH.F3	268957	4712180	1275	9.2	0.13	463.7	NA	0.001	Raincap
Emergency Generator	EMGEN	268946	4712095	1275	1.2	0.06	866.5	NA	0.001	Raincap

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

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

Company Name:	Fabri-Kal
Facility Name:	Fabri-Kal, Burley
Facility ID No.:	
Brief Project Description:	Processing straw and poylpropylene pellets into food containers.

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) **Volume Source(s)**										
Grinder (Volume Source)	Grinder	268,963.00	4,712,027.00	1,275.00	4.32				4.02	5.67

Instructions for Form MI3

This form is designed to provide the air quality modeler with information on the characteristics of each fugitive source located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description as on Form CS in the boxes provided. This is useful in case any pages of the application get separated.

Fugitive sources are typically modeled as either area or volume sources. Area sources are used to model fugitives from sources such as roads or parking lots, while volume sources are typically used to model fugitives from piles. Refer to the State of Idaho Air Quality Modeling Guideline for additional guidance on modeling fugitive sources.

1. Provide the name of the fugitive source. This name should match names used on other submittals to IDEQ and within this application.
2. Provide the identification number for the fugitive source.
3. Provide the UTM locations of the fugitive source. The UTM Easting and UTM Northing are the coordinates for the center of the fugitive source.
4. Provide the elevation of the base of the fugitive source. This elevation must be calculated by the same method as the buildings and receptor elevation.
5. Provide the height of the fugitive source, from the ground. This is used for an elevated release. If the fugitive source is at ground level enter zero.
6. Provide the easterly length of the fugitive source.
7. Provide the northly length of the fugitive source.
8. Provide the angle from north, in degrees. This allows for accurate evaluation of the alignment of the fugitive source.
9. Provide the initial vertical dimension of the fugitive source. Refer to the State of Idaho Modeling Guideline for guidance on estimating this value.
10. Provide the initial horizontal dimension of the fugitive source. This parameter is only used for volume sources. Refer to the State of Idaho Modeling Guideline for guidance on estimating this value.

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

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

Company Name:	Fabri-Kal
Facility Name:	Fabri-Kal, Burley
Facility ID No.:	
Brief Project Description:	Processing straw and poylpropylene pellets into food containers.

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**
Manufacturing Bldg-1	109.70	121.90	1275.00	9.10	1	Warehouse type builidng, food container production operations.
Manufacturing Bldg-2	73.20	121.90	1275.00	9.10	1	Warehouse type builidng, food container production operations.
Offices	12.20	48.80	1275.00	4.60	1	Typical office buildin space.

This form is designed to provide the air quality modeler with information on the buildings and structures located at the facility. This information may be used by the IDEQ to perform an air quality analysis or to review an air quality analysis submitted with the permit application or requested by the IDEQ.

Please fill in the same company name, facility name, facility ID number, and brief project description in the boxes provided. This is useful in case any pages of the application get separated.

1. Provide the building ID number.
2. Provide the length of the building.
3. Provide the width of the building.
4. Provide the base elevation of the building. This elevation must be calculated by the same method as the sources and receptor elevation.
5. Provide the height of the building, from the ground.
6. Provide the number of tiers on the building. Refer to the State of Idaho Modeling Guideline for guidance on this topic.
7. Provide a description of the building.

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Preapplication Meeting Information Form FRA (Federal Requirements Applicability) - Regulatory Review

In each box in the table below, CTRL+click on the blue underlined text for instructions and information.

IDENTIFICATION	
1. Company Name: Fabri-Kal	2. Facility Name: Fabri-Kal, Burley
3. Brief Project Description: Process straw and polypropylene pellets into food containers.	
APPLICABILITY DETERMINATION	
4. List all applicable subparts of the New Source Performance Standards (NSPS) (40 CFR part 60). List all non-applicable subparts of the NSPS which may appear to apply to the facility but do not. Examples of NSPS-affected emissions units include internal combustion engines, boilers, turbines, etc. Applicant must thoroughly review the list of affected emissions units.	List of all applicable subpart(s): Subpart JJJJ- Standards of Performance for Stationary Spark Ignition Internal Combustion Engines List of all non-applicable subpart(s) which may appear to apply but do not: ☐ Not Applicable
5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR part 61 and 40 CFR part 63). List all non-applicable subparts of the NESHAP which may appear to apply to the facility but do not. Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. Reference EPA's webpage on NESHAPs for more information.	List of all applicable subpart(s): 40 CFR 63 subpart ZZZZ- NESHAPS for HAPS for Stationary Reciprocating Internal Combustion Engines List of all non-applicable subpart(s) which may appear to apply but do not: Subpart U: NESHAPS for HAPS Emissions: Group I Polymers and Resins. (not a Group I polymer) ☐ Not Applicable

6. For each subpart identified above, conduct a complete regulatory analysis using the instructions and referencing the example on the following pages. **Note** - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation does or does not apply. Regulatory reviews submitted with insufficient detail will be determined incomplete.	☐ A detailed regulatory review is provided (Follow instructions and example). ☐ DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date.

IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT.

It is emphasized that it is the applicant's responsibility to satisfy all technical and regulatory requirements, and that DEQ will help the applicant understand those requirements prior to submittal of the application but that DEQ will not perform the required technical or regulatory analyses on the applicant's behalf.

NSPS/NESHAP Regulation Review

Company Name: Fabri-Kal
Facility Name: Fabri-Kal, Burley
Description: Process straw and polypropylene pellets into food containers.

Applicable NSPS Regulations:

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

§ 60.40c Applicability and delegation of authority.

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

All 3 boilers are rated less than 10 MMBTU/hr (6.3, 6.3 and 3.4 mmBTU), therefore, 40 CFR 60 Subpart Dc is not applicable.
The IRH units are less than 10 MMBTU/hr, the MAU units are less than 10 MMBTU/hr, the UH units are less than 10 MMBTU/hr, therefore, 40 CFR 60 Subpart Dc is not applicable.

40 CFR 60 Subpart JJJJ Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

§ 60.4230 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.
(1) Manufacturers of stationary SI ICE with a maximum engine power less than or equal to 19 kilowatt (KW) (25 horsepower (HP)) that are manufactured on or after July 1, 2008.

(2) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline fueled or that are rich burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:
(i) On or after July 1, 2008; or
(ii) On or after January 1, 2009, for emergency engines.

(3) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are not gasoline fueled and are not rich burn engines fueled by LPG, where the manufacturer participates in the voluntary manufacturer certification program described in this subpart and where the date of manufacture is:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) On or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

§ 60.4231 What emission standards must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing such engines?

The emergency generator has a maximum engine power greater than 25 HP and was manufactured on or after January 1, 2009, NSPS Subpart JJJ requirements are applicable.

§ 60.4233 What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?

(a) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40 CFR 1048.101(c) for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP, may optionally choose to meet those standards.

(f) Owners and operators of any modified or reconstructed stationary SI ICE subject to this subpart must meet the requirements as specified in paragraphs (f)(1) through (5) of this section.

(4) Owners and operators of stationary SI natural gas and lean burn LPG engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (d) or (e) of this section, except that such owners and operators of non-emergency engines and emergency engines greater than or equal to 130 HP must meet a nitrogen oxides (NO_x) emission standard of 3.0 grams per HP-hour (g/HP-hr), a CO emission standard of 4.0 g/HP-hr (5.0 g/HP-hr for non-emergency engines less than 100 HP), and a volatile organic compounds (VOC) emission standard of 1.0 g/HP-hr, or a NO_x emission standard of 250 ppmvd at 15 percent oxygen (O_2), a CO emission standard 540 ppmvd at 15 percent O_2 (675 ppmvd at 15 percent O_2 for non-emergency engines less than 100 HP), and a VOC emission standard of 86 ppmvd at 15 percent O_2, where the date of manufacture of the engine is:

(iii) Prior to January 1, 2009, for emergency engines;

(h) Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that section applicable to field testing, except as indicated in paragraph (e) of this section.

§60.4234 How long must I meet the emission standards if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.

Table 1 to Subpart JJJJ of Part 60—NO_x, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards[a]					
			g/HP-hr			ppmvd at 15% O_2		
			NO_x	CO	VOC[d]	NO_x	CO	VOC[d]
Non-Emergency SI Natural Gas[b] and Non-Emergency SI Lean Burn LPG[b]	100≤HP<500	7/1/2008	2.0	4.0	1.0	160	540	86
		1/1/2011	1.0	2.0	0.7	82	270	60
Non-Emergency SI Lean Burn Natural Gas and LPG	500≤HP<1,350	1/1/2008	2.0	4.0	1.0	160	540	86
		7/1/2010	1.0	2.0	0.7	82	270	60
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500≤HP<1,350)	HP≥500	7/1/2007	2.0	4.0	1.0	160	540	86
	HP≥500	7/1/2010	1.0	2.0	0.7	82	270	60
Landfill/Digester Gas (except lean burn 500≤HP<1,350)	HP<500	7/1/2008	3.0	5.0	1.0	220	610	80
		1/1/2011	2.0	5.0	1.0	150	610	80
	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Landfill/Digester Gas Lean Burn	500≤HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80

Emergency	25<HP<130	1/1/2009	[c]10	387	N/A	N/A	N/A	N/A
	HP≥130		2.0	4.0	1.0	160	540	86

The emergency generator will comply with Table 1 emission standards.

§60.4235 What fuel requirements must I meet if I am an owner or operator of a stationary SI gasoline fired internal combustion engine subject to this subpart?

Owners and operators of stationary SI ICE subject to this subpart that use gasoline must use gasoline that meets the per gallon sulfur limit in 40 CFR 80.195.

The emergency generator is limited to natural gas combustion only, this requirements is not applicable.

§60.4237 What are the monitoring requirements if I am an owner or operator of an emergency stationary SI internal combustion engine?

(a) Starting on July 1, 2010, if the emergency stationary SI internal combustion engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(b) Starting on January 1, 2011, if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(c) If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine.

The emergency generator is 80 HP and meets the standards applicable to non-emergency engines.

§60.4243 What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?

(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.

(1) Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section.

(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in §60.4233(d) or (e) and according to the requirements specified in §60.4244, as applicable, and according to paragraphs (b)(2)(i) and (ii) of this section.

(i) If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(c) If you are an owner or operator of a stationary SI internal combustion engine that must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according paragraph (b)(2)(i) or (ii) of this section, except that if you comply according to paragraph (b)(2)(i) of this section, you demonstrate that your non-certified engine complies with the emission standards specified in §60.4233(f).

(d) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (d)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (d)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (d)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (d)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph

(d)(2) of this section. Except as provided in paragraph (d)(3)(i) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(ii) [Reserved]

(e) Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233.

(f) If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(g) It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

(h) If you are an owner/operator of an stationary SI internal combustion engine with maximum engine power greater than or equal to 500 HP that is manufactured after July 1, 2007 and before July 1, 2008, and must comply with the emission standards specified in sections 60.4233(b) or (c), you must comply by one of the methods specified in paragraphs (h)(1) through (h)(4) of this section.

(1) Purchasing an engine certified according to 40 CFR part 1048. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(i) If you are an owner or operator of a modified or reconstructed stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according to one of the methods specified in paragraphs (i)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4233(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4244. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

The emergency generator has been certified by the US EPA, in accordance with §60.4243 (b)(1). All records of maintenance and testing will be kept on site.

Applicable NESHAP Regulations 40 CFR 61

There are no requirements in this section that are applicable to this facility.

Applicable NESHAP Regulations 40 CFR 63

The emergency generator (RICE) is an area source subject to 40 CFR 63, subpart ZZZZ because it commenced construction on or after June 12, 2006 (10/27/2015). This source is also subject to regulation under NSPS Subpart JJJJ, therefore no further requirements are applicable under NESHAP ZZZZ.

The boilers are not subject to 40 CFR 63, Subpart JJJJJ- NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources, because they are natural gas fired.

40 CFR 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

§63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

§63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

§63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) *Affected source.* An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) *Existing stationary RICE.*

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) *New stationary RICE.* (i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) *Reconstructed stationary RICE.* (i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) *Stationary RICE subject to limited requirements.* (1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f)

and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

§63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

((f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the

insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.

(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

§63.6675 What definitions apply to this subpart?

Emergency stationary RICE means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in §63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in §63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

(2) The stationary RICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §63.6640(f).

(3) The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §63.6640(f)(2)(ii) or (iii) and §63.6640(f)(4)(i) or (ii).

Limited use stationary RICE means any stationary RICE that operates less than 100 hours per year.

Stationary reciprocating internal combustion engine (RICE) means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

The 80 HP emergency generator is located in an area source of HAP and commenced construction after June 12, 2006 (10/27/2015) and is required to meet the requirements of NSPS Subpart JJJJ and the emergency generator meets the definition of an emergency stationary RICE, no further requirements are applicable in NESHAP ZZZZ.

Subpart JJJJJJ—National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

§63.11193 Am I subject to this subpart?

You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler as defined in §63.11237 that is located at, or is part of, an area source of hazardous air pollutants (HAP), as defined in §63.2, except as specified in §63.11195.

§63.11195 Are any boilers not subject to this subpart?

The types of boilers listed in paragraphs (a) through (k) of this section are not subject to this subpart and to any requirements in this subpart.

(a) Any boiler specifically listed as, or included in the definition of, an affected source in another standard(s) under this part.

(b) Any boiler specifically listed as an affected source in another standard(s) established under section 129 of the Clean Air Act.

(c) A boiler required to have a permit under section 3005 of the Solid Waste Disposal Act or covered by subpart EEE of this part (e.g., hazardous waste boilers), unless such units do not combust hazardous waste and combust comparable fuels.

(d) A boiler that is used specifically for research and development. This exemption does not include boilers that solely or primarily provide steam (or heat) to a process or for heating at a research and development facility. This exemption does not prohibit the use of the steam (or heat) generated from the boiler during research and development, however, the boiler must be concurrently and primarily engaged in research and development for the exemption to apply.

(e) A gas-fired boiler as defined in this subpart.

(f) A hot water heater as defined in this subpart.

(g) Any boiler that is used as a control device to comply with another subpart of this part, or part 60, part 61, or part 65 of this chapter provided that at least 50 percent of the average annual heat input during any 3 consecutive calendar years to the boiler is provided by regulated gas streams that are subject to another standard.

(h) Temporary boilers as defined in this subpart.

(i) Residential boilers as defined in this subpart.

(j) Electric boilers as defined in this subpart.

(k) An electric utility steam generating unit (EGU) covered by subpart UUUUU of this part.

§63.11237 What definitions apply to this subpart?

Boiler means an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in §241.3 of this chapter, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers, process heaters, and autoclaves are excluded from the definition of *Boiler.*

Gaseous fuels includes, but is not limited to, natural gas, process gas, landfill gas, coal derived gas, refinery gas, hydrogen, and biogas.

Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

Heat input means heat derived from combustion of fuel in a boiler and does not include the heat input from preheated combustion air, recirculated flue gases, returned condensate, or exhaust gases from other sources such as gas turbines, internal combustion engines, kilns.

Industrial boiler means a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity.

Natural gas means:

(1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or

(2) Liquefied petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835 (incorporated by reference, see §63.14); or

(3) A mixture of hydrocarbons that maintains a gaseous state at ISO conditions (*i.e.,* a temperature of 288 Kelvin, a relative humidity of 60 percent, and a pressure of 101.3 kilopascals). Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 35 and 41 megajoules (MJ) per dry standard cubic meter (950 and 1,100 Btu per dry standard cubic foot); or

(4) Propane or propane-derived synthetic natural gas. Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C_3H_8.

All three boilers are natural gas industrial use boilers, therefore the boilers are not subject to NESHAP JJJJJJ.

Table B-1. Emission Sources

Dispersion Modeling Source ID	Source Type	Building Location	Source Description	Facility Equipment ID	Manufacturer	Model	Control Equipment	Throughput Material	Maximum (A) Usage Rate	Anticipated Operation hr/dy	Anticipated Operation mo/yr	Anticipated Operation hr/yr	PTE Operation hr/yr
GRINDER	Volume	Adjacent to Bldg 1	Grinding System (Grinder, Bale Feed Conveyor, Conveyor)	-	n/a	n/a	n/a	Straw	43,000 lb/day	24	12	8,760	8,760
-	-	Adjacent to Bldg 1	Storge Silos	-	-	-	None	Polypropylene Pellets	10,000 lb/hr	24	12	8,760	8,760
-	-	Bldg 1	Cooking Tank	-	-	-	None	NaOH and Straw	- lb/hr	24	12	8,760	8,760
-	-	Bldg 1	Extruders	-	Synopex	Green Techs	None	Polypropylene Pellets	10,000 lb/hr	24	12	8,760	8,760
B.1	Point	Bldg 1	Boiler 1	B-1	Hurst	S-4-G-150-15ST	None	Natural Gas	6,300,000 Btu/hr	22	12	8,030	8,760
B.2	Point	Bldg 2	Boiler 2	B-2 Future	Hurst	S-4-G-150-15ST	None	Natural Gas	6,300,000 Btu/hr	22	12	8,030	8,760
B.3	Point	Bldg 1	Boiler 3	B-3	Columbia	MPH-80	None	Natural Gas	3,360,000 Btu/hr	12	12	4,380	8,760
F.A1	Point	Bldg 1	Furnace 1	F-A1	Trane	23 62 13	None	Natural Gas	60,000 Btu/hr	12	6	2,190	8,760
F.A2	Point		Furnace 2	F-A2	Trane	23 62 13	None	Natural Gas	60,000 Btu/hr	12	6	2,190	8,760
F.A3	Point		Furnace 3	F-A3	Trane	23 54 00	None	Natural Gas	40,000 Btu/hr	12	6	2,190	8,760
F.A4	Point		Furnace 4	F-A4	Trane	23 62 13	None	Natural Gas	60,000 Btu/hr	12	6	2,190	8,760
IRH.B1	Point	Bldg 1	Infrared Heater 1	IRH-B1	Re-Verber-Ray	DET3-60-200	None	Natural Gas	200,000 Btu/hr	12	6	2,190	8,760
IRH.B2	Point		Infrared Heater 2	IRH-B2	Re-Verber-Ray	DET3-60-200	None	Natural Gas	200,000 Btu/hr	12	6	2,190	8,760
MAU.A1	Point	Bldg 1	MAU Unit 1	MAU-A1	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
MAU.D1	Point		MAU Unit 3	MAU-D1	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
MAU.F1	Point	Bldg 2	MAU Unit 4	MAU-Future	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
MAU.F2	Point		MAU Unit 5	MAU-Future	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
UH.B1	Point	Bldg 1	Emergency Shutdown Heater 1	UH-B1	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr	For Emergency - as needed			500
UH.C1	Point		Emergency Shutdown Heater 2	UH-C1	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.C2	Point		Emergency Shutdown Heater 3	UH-C2	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.C3	Point		Emergency Shutdown Heater 4	UH-C3	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.D1	Point		Emergency Shutdown Heater 5	UH-D1	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.D2	Point		Emergency Shutdown Heater 6	UH-D2	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.F1	Point	Bldg 2	Emergency Shutdown Heater 7	UH-Future	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr	For Emergency - as needed			500
UH.F2	Point		Emergency Shutdown Heater 8	UH-Future	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.F3	Point		Emergency Shutdown Heater 9	UH-Future	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
EMGEN	Point	Adjacent to Bldg 1	Emergency Generator	Generator	Olympian	G80LG4 80 kW	None	Natural Gas	1,055 cu ft/hr	15 minute/week for maintenance & testing			100

(A) - Fuel Usage for heat-generating units is based on vendor specifications for the listed equipment model numbers.

(B) - Natural Gas heat content = 1,020 *Btu/cu ft based on AP-42 reference in emission factor tables for average natural gas higher heating value.*

This value is supported by the U.S Energy Information Administration natural gas heat content delivered to consumers in Idaho

(Reference: https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm)

	2010	2011	2012	2013	2014	2015	Average
Idaho	1,021	1,017	1,015	1,015	1,025	1,029	1,020.3

Tag Data - Split System Air Conditioning Units (Small) (Qty: 4)

Item	Tag(s)	Qty	Description	Model Number
B1	CCU-A1, F-A1	1	3.5 Ton Unitary Split Systems	4TTR6042B1000-0D00006000-0214TXCB042BC3HC
B2	CCU-A2, F-A2	1	3 Ton Unitary Split Systems	4TTR6036B1000-TDH1B065A9-H314TXCB036BC3HC
B3	CCU-A3, F-A3	1	2 Ton Unitary Split Systems	4TTR6024B1000-TDH1B040A9-2414TXCB025BC3HC
B4	CCU-A4, F-A4	1	2.5 Ton Unitary Split Systems	4TTR6030B1000-0D00006000-0314TXCB036BC3HC

Product Data - Split System Air Conditioning Units (Small)

Item: B1 Qty: 1 Tag(s): CCU-A1, F-A1

Split System Cooling Outdoor Unit
3.5 Ton Nominal Cooling Capacity
200 - 230 Volt 1 Phase 60 Hertz
Furnace unit
60,000 Heating input BTUH
115 Volt/1 phase/60 hertz
3.5 Ton Airflow Cooling Capacity
Cased upflow/dnflow/horiz left
17.5"/16.3"cabinet
42,000 Nominal cooling capacity
TXV-Non bleed
Conv-upflow/dnflw,left airflow coil
Electronic, 3 Htg/2Clg Non Programmable (Fld)
Evaporator defrost control (Fld)
Anti-short cycle timer (Fld)
High altitude pressure switch kit (Fld)
Concentric vent kit (Fld)

Item: B2 Qty: 1 Tag(s): CCU-A2, F-A2

Split System Cooling Outdoor Unit
3 Ton Nominal Cooling Capacity
200 - 230 Volt 1 Phase 60 Hertz
Furnace unit
60,000 Heating input BTUH
115 Volt/1 phase/60 hertz
3 Ton Airflow Cooling Capacity
Cased upflow/dnflow/horiz left
17.5"/16.3"cabinet
36,000 Nominal cooling capacity
TXV-Non bleed
Conv-upflow/dnflw,left airflow coil
Electronic, 3 Htg/2Clg Non Programmable (Fld)
Evaporator defrost control (Fld)
Anti-short cycle timer (Fld)
High altitude pressure switch kit (Fld)
Concentric vent kit (Fld)

Item: B3 Qty: 1 Tag(s): CCU-A3, F-A3

Split System Cooling Outdoor Unit
2 Ton Nominal Cooling Capacity
200 - 230 Volt 1 Phase 60 Hertz
Furnace unit
40,000 Heating input BTUH
115 Volt/1 phase/60 hertz
2 Ton Airflow Cooling Capacity
Cased upflow/dnflow/horiz left
17.5"/16.3"cabinet
24,000 Nominal cooling capacity
TXV-Non bleed

Conv-upflow/dnflw,left airflow coil
Electronic, 3 Htg/2Clg Non Programmable (Fld)
Evaporator defrost control (Fld)
Anti-short cycle timer (Fld)
High altitude pressure switch kit (Fld)
Concentric vent kit (Fld)

Item: B4 Qty: 1 Tag(s): CCU-A4, F-A4

Split System Cooling Outdoor Unit
2.5 Ton Nominal Cooling Capacity
200 - 230 Volt 1 Phase 60 Hertz
Furnace unit
60,000 Heating input BTUH
115 Volt/1 phase/60 hertz
3 Ton Airflow Cooling Capacity
Cased upflow/dnflow/horiz left
17.5"/16.3"cabinet
36,000 Nominal cooling capacity
TXV-Non bleed
Conv-upflow/dnflw,left airflow coil
Electronic, 3 Htg/2Clg Non Programmable (Fld)
Evaporator defrost control (Fld)
Anti-short cycle timer (Fld)
High altitude pressure switch kit (Fld)
Concentric vent kit (Fld)

MODINE

AccuSpec V4.3.8a

SUBMITTAL SCHEDULE & DATA

Gas-Fired Unit Heaters

Job Name: Fabri Kal
Location:
Submitted by: Jude Bacon

Date: 06/24/2015
Engineer:
Architect:
Contractor:

		Unit Tag	
		UH-B1, C1, C2, C3, D1, D2	
Model Number	PDP150AE0130SBAN		
Quantity of Units	6		
Btu/Hr Input	150,000		
Btu/Hr Output	120,000		
CFM	2180		
Altitude	0-2000		
Temperature Rise (degrees F)	51		
External Static Pressure (E.S.P)	0.00		
Total Static Pressure (T.S.P.)	0.00		
Gas Type	Natural		
Gas Control Type	Single-Stage, Intermittent Pilot Ignition		
Unit Voltage	115/60/1		
Control Voltage	24V		
Motor HP	1/8		
Motor RPM	1625		
Blower RPM	N/A		
Heat Exchanger Type	Aluminized Steel Heat Exchanger/Burner		
Options & Accessories (See Attached Pages)			

Remarks: Class B flue by others

Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Wednesday, April 08, 2015 10:09 AM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: air permits for construction of Burley facility

Categories: Red Category

Our boiler manufacturer lists the firing rate in CFH and uses 1,000 btu/cf.

I did give you the wrong boiler size. I used a 400 hp data instead of a 150.

The 150 is 6300 CFH of natural gas and the BTU load would be 6.3 mmBTU

The stack height estimate would also change to: the 150 hp boiler is @ 6.8 ft from the floor and the ceiling height in the boiler room area should be around 31 ft, so I am guessing at least a 27 ft stack on those two. Stack diameter would be 14 inches.

Sorry for the confusion. I've been looking at data sheets for too long today.

Thanks,
Kevin

Kevin Rewa
Project Engineer
269-385-8062 (direct)
616-283-3908 (cell)

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WWW.FABRI-KAL.COM

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Wednesday, April 08, 2015 11:57 AM
To: Kevin Rewa
Subject: RE: air permits for construction of Burley facility

Out of curiosity- when you sent me the information about the Phase 1 boiler it said the firing rate was 6300 CFH, which using a conversion of 1020 BTU/Scf would make the firing rate 6.43 mmBTU/hr. Do you know why there is such a discrepancy?

Power Flame Incorporated

12/14/2005

Typical Flue Product Emissions
Data for Power Flame Burners

	Natural Gas	# 2 Fuel Oil (1)
Carbon Monoxide - CO	.037 lb CO 10^6 BTU Input (50 PPM)	.037 lb per 10^6 BTU INPUT (50 PPM)
Sulfur Dioxide - SO_2	(1.05) x (% Sulpher by weight in fuel) = lb SO_2 per 10^6 BTU Input	
Particulate Matter	.0048 lb PM per 10^6 BTU Input	.0143 lb PM per 10^6 BTU Input
Hydrocarbons	.025 lb HC's per 10^6 BTU Input	.038 lb HC's per 10^6 BTU Input
CO_2	9 % to 10%	10% to 13%
Nitrogen Oxides - NO_x		
Standard C, J Burners	.088 lb NO_x per 10^6 BTU Input (75 PPM)	.159 lb NO_x per 10^6 BTU Input (120) PPM
LNIAC burner	.029 lb NO_x per 10^6 BTU Input (25 PPM)	.12 lb NO_x per 10^6 BTU Input (90) PPM
CM burner	.070 lb NO_x per 10^6 BTU Input (60 PPM)	.146 lb NO_x per 10^6 BTU Input (110) PPM
IFGR LNIC NO_x Burners	.029 lb NO_x per 10^6 BTU Input (25 PPM)	.126 lb NO_x per 10^6 BTU Input (110) PPM
LNICM burner	.029 lb NO_x per 10^6 BTU Input (25) PPM	.12 lb NO_x per 10^6 BTU Input (90) PPM
NPM Premix burner	.029 lb NO_x per 10^6 BTU Input (25) PPM	N/A N/A
Nova Plus Burner	.010 lb NO_x per 10^6 BTU Input (9) PPM	N/A N/A

(1) NOx emissions at 3.0 % 02 will vary based on the percent of fuel bound nitrogen and boiler configurations.

These emmision rates are general estimates and do not consititue guarantees by Power Flame Inc.
In instances where guarantess are required, please consult the factory with the specific application information.

BOILER 1 & BOILER 2 BURNERS

PDF created with pdfFactory trial version www.pdffactory.com

Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Friday, December 18, 2015 11:42 AM
To: Saige J. Ballock-Dixon, P.E.
Subject: FW: MAU unit information

Categories: Red Category

Boiler B3, as previously sent.

Columbia Boiler				
Model	MPH-80			
GPH LT. Oil	24			
Input	3,360,000	BTU/HR		
Gross Output	2,755,260	BTU/HR		
Net Steam Rating	2,084,204	BTU/HR		
Net Water Rating	2,410,430	BTU/HR		
Max W.P.	Steam	15 psi	Water	
min valve cap	2756	lbs/hr		
heating surface	341.7	sqft		
Columbia Boiler Co of Pottstown				
Pottstown PA				

WHS	341.7	SQFT
YR BUILT	2007	
NB	147241	
SD	32096	

Burner Cleaver Brooks

OLYMPIAN™

LG Series

operating data

POWER RATINGS

	Natural Gas		Propane Vapor	
Single-Phase 120/240 VAC @1.0pf	80 kW	Amps: 333	80 kW	Amps: 333
Three-Phase 120/208 VAC @0.8pf	80 kW	Amps: 278	80 kW	Amps: 278
Three-Phase 120/240 VAC @0.8pf	80 kW	Amps: 241	80 kW	Amps: 241
Three-Phase 277/480 VAC @0.8pf	80 kW	Amps: 120	80 kW	Amps: 120
Three-Phase 346/600 VAC @0.8pf	80 kW	Amps: 96	80 kW	Amps: 96

STARTING CAPABILITIES (sKVA)

sKVA vs. Voltage Dip

		480 VAC						208/240 VAC					
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	80	59	88	117	147	176	205	44	66	88	110	132	154
Upsize 1	100	79	118	157	197	236	275	59	89	118	148	177	206
Upsize 2	130	116	174	232	290	348	406	87	131	174	218	261	305

FUEL CONSUMPTION RATES*

Natural Gas – ft³/hr (m³/hr)	
Percent Load	Standby
25%	378 (10.7)
50%	570 (16.1)
75%	762 (21.6)
100%	954 (27.0)

Propane Vapor – ft³/hr (m³/hr)	
Percent Load	Standby
25%	148.0 (4.2)
50%	223 (6.5)
75%	305 (8.6)
100%	379 (10.7)

*Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Air Flow (inlet air combustion and radiator)	ft³/min (m³/min)	5757 (163.0)
Coolant Flow per Minute	gpm (lpm)	26 (98)
Coolant System Capacity	gal (L)	6.0 (22.7)
Heat Rejection to Coolant	BTU/hr	302,400
Maximum Operating Ambient Temperature	°F (°C)	122 (50)
Maximum Radiator Backpressure	in H_2O	0.5

COMBUSTION AIR REQUIREMENTS

		Standby
Flow at Rated Power	cfm (m3/min)	220 (6.2)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	127
Piston Speed	ft/min (m/min)	1275 (389)
BMEP	psi	113

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m³/min)	636 (18.0)
Maximum Recommended Back Pressure	inHg	0.75
Exhaust Temp (Rated Output)	°F (°C)	1100 (593)
Exhaust Outlet Size (Open Set)	in	2.5" I.D Flex x 2 (No Muffler)

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a CAT® Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

Infrared Heaters

DET3 SERIES

SPECIFICATIONS

PRODUCT SPECIFICATIONS

BTU Range:	65,000 to 200,000 BTU/h
Lengths:	20-60 Ft.
Gas Type:	Natural or Propane
Combustion Chamber:	Titanium Stabilized or Aluminized Steel
Radiant Tubes:	Hot-Rolled Steel
Certification:	CSA, IAS
Limited Warranty:	1-2-3 (Components-Tubes-Burner)

OPTIONAL EQUIPMENT

U or L Configurations:	Available (RU, RE)
Stainless Steel Upgrades:	Available (SSRAO, SSC, SSB)
24V Controls:	Standard
Indicator Lights:	Standard
Protective Guards:	Available (PG)
Side Shield Extensions:	Available (SSE)
Outdoor Approval:	Not Available

ELECTRICAL
- 120V, 60Hz, 3-wire.
- 1.7A starting, 1.1A running.

CONTROL BOX
- Potted circuitry.
- 24V thermostat control.
- ABS plastic cover.

TUBE CONSTRUCTION
- As shown to left.
- 4" x 10' 16 ga. construction.
- Labor saving, interlocking swaged tube design.

REFLECTORS
- Highly polished aluminum.
- 0° – 45° rotatable angle.

IGNITION/SENSE
- Direct spark ignition.
- Flame rod sense.

VENTING
- 4" single vent.
- 6" common vent (with single thermostat).

GAS CONNECTION
- 24" stainless steel flexible connector included.

GAS PRESSURES
- MAN. - 3.5" NAT or 10.0" LP
- MIN. - 5.0" NAT or 11.0" LP
- MAX. - 14.0" NAT or 14.0" LP

COMBUSTION AIR
- Equipped for ducted air intake from roof or sidewall.

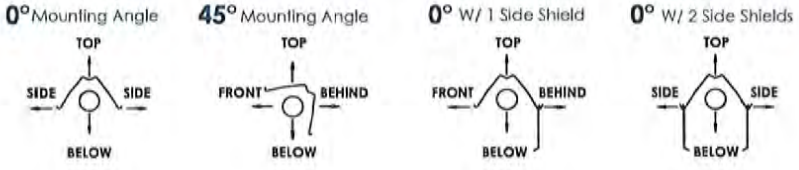
KIT CONTENTS
- All hangers & couplers.
- Turbulator baffles.

AVAILABLE DET3 MODELS & CLEARANCES

MODEL #	GAS*	BTU/h HIGH FIRE	BTU/h LOW FIRE	LENGTH	WEIGHT	MOUNTING HEIGHTS**
DET3-20-65	N or LP	65,000	50,000	21' - 9"	120 lbs.	9' to 14'
DET3-20-75	N or LP	75,000	50,000	21' - 9"	120 lbs.	10' to 15'
DET3-30-65	N or LP	65,000	50,000	31' - 5"	160 lbs.	10' to 15'
DET3-30-75	N or LP	75,000	50,000	31' - 5"	160 lbs.	11' to 18'
DET3-30-100	N or LP	100,000	65,000	31' - 5"	160 lbs.	12' to 20'
DET3-40-65	N or LP	65,000	50,000	41' - 1"	190 lbs.	11' to 18'
DET3-40-75	N or LP	75,000	50,000	41' - 1"	190 lbs.	11' to 18'
DET3-40-100	N or LP	100,000	65,000	41' - 1"	190 lbs.	12' to 20'
DET3-40-125	N or LP	125,000	82,000	41' - 1"	190 lbs.	13' to 23'
DET3-40-150	N or LP	150,000	100,000	41' - 1"	190 lbs.	14' to 25'
DET3-50-125	N or LP	125,000	82,000	50' - 9"	235 lbs.	15' to 27'
DET3-50-150	N or LP	150,000	100,000	50' - 9"	235 lbs.	15' to 27'
DET3-50-175	N or LP	175,000	125,000	50' - 9"	235 lbs.	16' to 30'
DET3-50-200	N or LP	200,000	145,000	50' - 9"	235 lbs.	17' to 35'
DET3-60-150	N or LP	150,000	100,000	60' - 5"	265 lbs.	16' to 30'
DET3-60-175	N or LP	175,000	125,000	60' - 5"	265 lbs.	16' to 30'
DET3-60-200	N or LP	200,000	145,000	60' - 5"	265 lbs.	17' to 35'

* Specify natural (N) or propane (LP) gas.

** Recommended mounting heights are provided as a guideline. Actual conditions may dictate variations from the above data.



DET3 CLEARANCES TO COMBUSTIBLES (IN.)

MODEL NO.	MOUNTING ANGLE	SIDE FRONT	SIDE BEHIND	TOP	BELOW
DET3-(20,30,40)-(65,75)	0°	9	9	6	60
	45°	39	8	10	60
W/1 side shield	0°	29	8	6	60
W/2 side shields	0°	9	9	6	60
20 ft. from burner	0°	7	7	6	30
DET3-(30,40)-100	0°	14	14	6	66
	45°	39	8	10	66
W/1 side shield	0°	29	8	6	66
W/2 side shields	0°	16	16	6	66
20 ft. from burner	0°	7	7	6	30
DET3-(40,50)-125	0°	20	20	6	76
	45°	58	8	10	76
W/1 side shield	0°	42	8	6	76
W/2 side shields	0°	20	20	6	76
20 ft. from burner	0°	7	7	6	30
DET3-(40,50,60)-150	0°	24	24	6	81
	45°	58	8	10	81
W/1 side shield	0°	42	8	6	81
W/2 side shields	0°	23	23	6	81
20 ft. from burner	0°	11	11	6	44
DET3-(50,60)-175	0°	34	34	6	92
	45°	63	8	10	92
W/1 side shield	0°	50	8	6	92
W/2 side shields	0°	30	30	6	92
20 ft. from burner	0°	11	11	6	44
DET3-(50,60)-200	0°	41	41	6	94
	45°	63	8	10	94
W/1 side shield	0°	54	8	6	94
W/2 side shields	0°	30	30	6	94
20 ft. from burner	0°	11	11	6	44

Always maintain the published clearances to combustibles.

Clearances published in DET3 Series manual and on warning label supersede data shown on this brochure.

DISTRIBUTED BY:

MADE IN THE U.S.A.

RAPID ENGINEERING

EQUIPMENT DESCRIPTION

JOB NAME:	**Fabri-Kal**
TAG:	**MUA-A1** **MUA-B1**
SERIAL#:	**XXXXXX**
MODEL #:	4060
QTY:	2
AIR CAPACITY:	39,000 CFM
T.S.P.:	2.15" W.C.
BHP:	17.8
MOTOR HP / VOLTAGE:	25 HP Premium ODP / 460/3/60
UNIT FLA / MCA / MOP:	34 / 50 / 80
ELECT. FEEDER SIZE:	Feeder Protection sizing by Others Ref: N.E.C. Article 240.6, Tables 310.16 & 430.52
GAS TYPE:	Natural @ 29 " W.C.
BURNER TYPE:	Midco HMA-2
BURNER CAPACITY:	4,300,452 (BTU/HR)
TEMPERATURE RISE:	102.1° F
MANIFOLD SIZE:	1-1/2"
INSURANCE:	FM

4060 Upright AM Cabinet Upright with Filter Mixing Box Section.

Mechanical Options include: Right hand Controls, Filter Mixing Box Section, (1) set of 2" Dustlok Filters, Insulated Filter Mixing Box, Burner and Fan Cabinet, Extended Grease Fittings.

Electrical Options include: Infinity Pro Controls, Infinity Pro Software, Infinity Pro Router, Remote Station, VFD for CFM balancing.

RAPID ENGINEERING

EQUIPMENT DESCRIPTION

JOB NAME:	**Fabri-Kal**
TAG:	**MUA-D1**
SERIAL#:	**XXXXXX**
MODEL #:	4060
QTY:	1
AIR CAPACITY:	39,000 CFM
T.S.P.:	2.2" W.C.
BHP:	18.2
MOTOR HP / VOLTAGE:	25 HP Premium ODP / 460/3/60
UNIT FLA / MCA / MOP:	34 / 50 / 80
ELECT. FEEDER SIZE:	Feeder Protection sizing by Others Ref: N.E.C. Article 240.6, Tables 310.16 & 430.52
GAS TYPE:	Natural @ 29 " W.C.
BURNER TYPE:	Midco HMA-2
BURNER CAPACITY:	4,300,452 (BTU/HR)
TEMPERATURE RISE:	102.1° F
MANIFOLD SIZE:	1-1/2"
INSURANCE:	FM

4060 Horizontal AM Cabinet Curb Mount with Filter Mixing Box Section & Inlet Hood.

Mechanical Options include: Right hand Controls, Filter Mixing Box Section, (1) set of 2" Dustlok Filters, Painted Inlet Hood, Insulated Filter Mixing Box, Burner and Fan Cabinet, Extended Grease Fittings.

Electrical Options include: Infinity Pro Controls, VFD for CFM balancing.

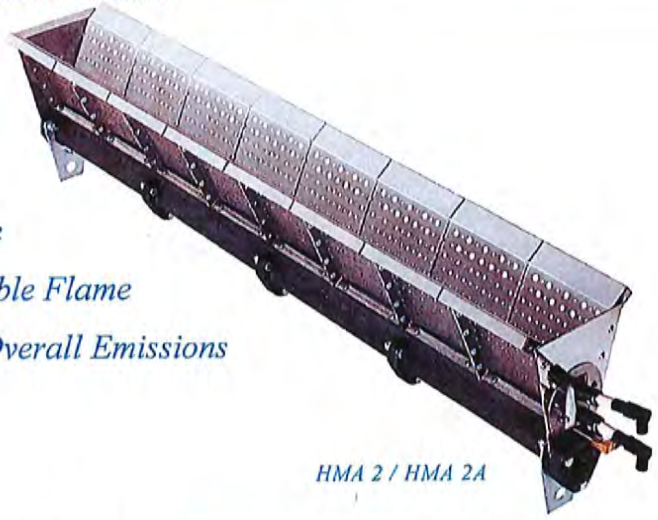
MAU units

HMA 2 / HMA 2A Series

Direct - Fired Gas Burners

Two Stage Combustion Technology

★ MADE in the USA ★



HMA 2 / HMA 2A

Higher Temperature Rise
Wider Operation Range
Shorter, More Stable Flame
and Lower Overall Emissions

Midco's Own Two Stage Technology in Direct-Fired Gas Burners

Midco International's innovative two stage combustion burner is not just a modification or improvement of the old, but a completely different approach to direct-fired combustion. The two-stage combustion improves control of the flame process, meets and exceeds the ANSI Standards while outperforming the competition. By having two separate flames within the burner combustion zone, the flame is more stable, shorter and cleaner, permitting the reduction of emissions levels and allowing for higher temperature rise and higher tolerance to varying conditions when placed in the profile opening.

Two Stage Combustion Provides Unsurpassed Flame Stability and Lower Emissions

Burner Sections Available in

- *Cast Iron*
- *Aluminum or*
- *Nickel Plated*

Midco® International Inc.
4140 West Victoria Street
Chicago, Illinois 60646
toll free 866.705.0514
tel 773.604.8700
fax 773.604.4070
web www.midcointernational.com
e-mail sales@midcointernational.com

Quality Designed for Proven Performance

Specifications

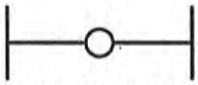
* Firing rate	Gas Manifold Pressure	Pressure Drop Across Burner	Pilot Capacity	Pilot Manifold Pressure	Burner Turn-down Ratio	Flame Length	Air Velocities Across Burner
Up to 750,000 Btu/hr/ft	NG 4.2 - 8" W.C. LP 1.6 - 3" W.C.	0.05 to 1.4" W.C.	12,000 Btu/hr	NG 3.5" W.C. LP 2.0" W.C.	30 to 1	10" full ** firing rate	800 fpm to 4,000 fmp ***

* Firing rate is dependent on the pressure drop across the burner.
** Flame length depends on design pressure drop and is measured from the end of the baffle.
*** For other operating velocities contact our Engineering Department.

Two Staged Technology for Direct-Fired Applications Plus Flexibility in Configuration

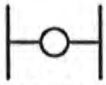
Straight, elbow and tee sections easily configure to desired capacity maximizing efficiency for installation and performance. Burners may be ignited by proven pilot or direct spark. Pilots are available for flame rectification or ultraviolet detection. Hot surface ignition systems are also available. Contact the Midco OEM sales team for specifications.

12" Straight
H-1350
Area = .65 sq. ft.



12" Straight Back Inlet
H-1361
Area = .65 sq. ft.

6" Straight
H-1359
Area = .32 sq. ft.



6" Straight Back Inlet
H-1398
Area = .32 sq. ft.

Elbow
H-1362
Area = .65 sq. ft.

Tee
H-1363
Area = .77 sq. ft.

Features and Benefits

- **Reduced NO_2 and CO Emissions:** Lower emissions levels that are required to pass the ANSI Z83.4 and Z83.18 standards.
- **Higher Temperature Rise:** The two stage combustion process lowers NO_2 emissions which is the limiting factor in temperature rise.
- **Increased Capacity:** Up to 750,000 BTU's per foot. (Higher BTU levels can be achieved if ANSI Z83 Standards for CO and NO_2 emissions are not of a concern. Process heaters can fire up to 1,000,000 BTU's a foot or more.)
- **Increased Differential Pressure Drop and Higher Velocities:** HMA-2 / HMA-2A burners can operate between 0.05" to 1.4" W.C. differential pressure range or in air velocity between 800 fpm to 4000 fpm.
- **Flame Stability:** Two stage combustion provides better flame stability and emission control, allowing for a shorter flame and easier profile configuration.
- **Reduced Shipping Costs:** A smaller, lighter casting than the competition's, can cut your freight costs up to 50%.
- **Turndown:** 30-1 turndown can easily be achieved with proper modulation control and valves. (Higher turndown possible depending on equipment design.)
- **Casting Choices:** Burner sections are available in iron, aluminum and nickel plated castings.

Do you need assistance in burner selection or installation? Just call our OEM Sales Team at Midco International direct today (toll free 866 705 0514) or visit our web site at www.midcointernational.com to find out more about our HMA line of burners.

★ MADE in the USA ★

As an ISO 9001:2008 certified company, we proudly design, manufacture and assemble our products in Chicago, Illinois, USA.

Midco® International Inc. - 4140 West Victoria Street - Chicago, Illinois 60646 - toll free: 866 705 0515
tel: 773.604.8700 - fax: 773.604.4070 - web: www.midcointernational.com - e-mail: sales@midcointernational.com

1012
8474 83
Printed in USA

Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Wednesday, September 02, 2015 6:26 AM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: Address Change - Fabri-Kal in Burley

Categories: Red Category

Hi Saige,

So far I have the 150 hp boiler: 1,237 SCFM –(flow rate) at 442 deg. F.

I also have the generator: 900 cfm @ 1,250 deg. F.

I am still working on the infrared heater and 80 hp boiler.

Will shoot you that when I get it from the vendors.

Thanks,
Kevin

Kevin Rewa
Project Engineer
269-385-8062 (direct)
616-283-3908 (cell)

Fabri-Kal
EXPERIENCE A BETTER PACKAGE.™
PLASTICS PLACE
KALAMAZOO, MI 49001
T 269.385.5050 • F 269.385.0197
WWW.FABRI-KAL.COM

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Tuesday, August 25, 2015 12:09 PM
To: Kevin Rewa
Subject: RE: Address Change - Fabri-Kal in Burley

Great. I just wanted to make sure it made it to you- sometimes my email doesn't send things through.

NORTH WIND
A CIRI COMPANY
Saige J. Ballock-Dixon, P.E.
Engineer IV

Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Tuesday, October 20, 2015 12:49 PM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: MAU unit information

Categories: Red Category

Hi Saige,

I was finally able to locate a helpful Cleaver Brooks representative that could get me what we needed for boiler #3.

At maximum capacity, boiler 3 would produce 3,400,000 btu's of heating energy and would result in exhausting gases at 625 cfm with a max temperature of 400F.

Please let me know if you are still needing additional items for modeling. Sorry this took so long.

Thanks,
Kevin

Kevin Rewa
Project Engineer
269-385-8062 (direct)
516-283-3908 (cell)

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WWW.FABRI-KAL.COM

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Tuesday, October 13, 2015 4:18 PM
To: Kevin Rewa
Subject: [Email released from SonicWALL by Policy action] RE: MAU unit information

On it.

NORTH WIND
A CIRI COMPANY
Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Services
Phone: (208) 557-7832

Saige J. Ballock-Dixon, P.E.

Subject: FW: MAU unit information

Hi Saige,

I was finally able to locate a helpful Cleaver Brooks representative that could get me what we needed for boiler #3.

At maximum capacity, boiler 3 would result in exhausting gases at 625 cfm with a max temperature of 400F.

Please let me know if you are still needing additional items for modeling. Sorry this took so long.

Thanks,
Kevin

Kevin Rewa
Project Engineer
269-385-8062 (direct)
616-283-3908 (cell)

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WWW.FABRI-KAL.COM

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Tuesday, October 13, 2015 4:18 PM
To: Kevin Rewa
Subject: [Email released from SonicWALL by Policy action] RE: MAU unit information

On it.

NORTH WIND
A CIRI COMPANY

Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Services
Phone: (208) 557-7832
Email: sballock-dixon@northwindgrp.com

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Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Friday, December 18, 2015 11:43 AM
To: Saige J. Ballock-Dixon, P.E.
Subject: FW: Generator
Attachments: 26_3213_Generator_Product_Data_and_Shop_Drawings_6.24.15.pdf

As previously sent. Submittal shows 636 cfm @1,100F
Exhaust- Dual 2.5" stacks

From: Kevin Rewa
Sent: Friday, October 09, 2015 12:45 PM
To: 'Saige J. Ballock-Dixon, P.E.'
Subject: FW: Generator

Hi Saige,

As discussed, attached is the construction submittal for the Olympian generator that was installed.

I think anyway. I can't open it on my phone. Let me know if this doesn't have what you need.

Thanks,
Kevin

Sent with Good (www.good.com)

-----Original Message-----
From: Chapman, Rob [Rob.Chapman@csmgroup.com]
Sent: Tuesday, June 30, 2015 11:48 AM Eastern Standard Time
To: Kevin Rewa
Subject: Generator

Rob Chapman
Construction Manager
csm GROUP
Building owners' trust.
Cell (402) 238-5841
Fax (269) 746-5699
www.csmgroup.com

Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Friday, January 29, 2016 2:40 PM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: Small heating unit information
Attachments: 23 7433 -Ans-Furn as Corr- RMM- Make-up Air Units Product Data (2).pdf; 23 8239-Ans-reviewed-RMM- Unit Heaters Product Data.pdf; 1 - 137 - ans - furnace and ac condensers prod data.pdf; Boiler Exhaust Stacks.JPG; Furnace Exhaust Vent.JPG; IMG_2119.JPG; IRH dock Heater Vent.JPG; Modine Unit heater vent.JPG

Saige,

Furnaces B1 thru B4- Exhaust temperature 150F
IRH dock heaters- Exhaust temperature 425F
Modine Space heaters- Exhaust temperature 375F

Pictures of the vent stacks are attached.

Boilers and furnaces have no caps.

The dock heaters and infrared dock heaters do have rain caps.

Thanks,
Kevin

Kevin Rewa
Project Engineer
269-385-8062 (direct)
616-283-3908 (cell)

Fabri-Kal
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WWW.FABRI-KAL.COM

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Monday, January 18, 2016 6:33 PM
To: Kevin Rewa
Subject: [Email released from SonicWALL by Policy action] Small heating unit information

We are going to use a generic velocities (provided by the state) for the small heating units, but we do need the exit temperature for the following:

Furnaces
IRH heaters

Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Friday, January 29, 2016 3:08 PM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: Exit Temperatures

Hi Saige,

The MAU units are direct fire units, so there is no external exhaust. All intake air is heated by the burner in direct contact with the incoming air stream and exhausted into the building.

Thanks,
Kevin

Kevin Rewa
Project Engineer
269-385-8062 (direct)
616-283-3908 (cell)

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From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Tuesday, January 19, 2016 12:00 PM
To: Kevin Rewa
Subject: [Email released from SonicWALL by Policy action] Exit Temperatures

HI Kevin,

I also need the exit temperature for the MAU units. I checked with the manufacturer, but he said they were set by the facility.

Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Resource Consulting
Phone: (208) 557-7832
Email: sballock-dixon@northwindgrp.com

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Saige J. Ballock-Dixon, P.E.

From: Kevin Rewa <krewa@Fabri-Kal.com>
Sent: Monday, February 01, 2016 11:34 AM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: Small heating unit information

Stack heights are currently 8ft above the roof.

The tall black iron pipes are the boiler b1, b3, and deareator tank pop off valve blow off stacks.

In the event of high pressure, those pipes insure that no one gets blasted with hot steam if working in the boiler room or on the roof near the stack when the pop off valve opens preventing the boiler from exploding.

Kevin Rewa
Project Engineer
269-385-8062 (direct)
616-283-3908 (cell)

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From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Monday, February 01, 2016 12:53 PM
To: Kevin Rewa
Subject: [Email released from SonicWALL by Policy action] RE: Small heating unit information

Couple quick questions- we have the boiler stacks as 1-ft above the roof- looks like this changed- do you know their stack height? And what are the black pipes next to the boiler stacks?

Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Resource Consulting
Phone: (208) 557-7832
Email: sballock-dixon@northwindgrp.com

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From: Kevin Rewa [mailto:krewa@Fabri-Kal.com]
Sent: Friday, January 29, 2016 2:40 PM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: Small heating unit information

Saige,

Furnaces B1 thru B4- Exhaust temperature 150F
IRH dock heaters- Exhaust temperature 425F
Modine Space heaters- Exhaust temperature 375F

Pictures of the vent stacks are attached.

Boilers and furnaces have no caps.

The dock heaters and infrared dock heaters do have rain caps.

Thanks,
Kevin

Kevin Rewa
Project Engineer
269-385-8062 (direct)
616-283-3908 (cell)

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WWW.FABRI-KAL.COM

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Monday, January 18, 2016 6:33 PM
To: Kevin Rewa
Subject: [Email released from SonicWALL by Policy action] Small heating unit information

We are going to use a generic velocities (provided by the state) for the small heating units, but we do need the exit temperature for the following:

Furnaces
IRH heaters
Emergency shutdown heaters

Also need to know if the vents for the above heaters have raincaps or not.

Thanks in advance.

Product Description	Inspire 6021N
Solvent	**ppm (mg/kg)**
Methanol	not detected
Ethanol	not detected
Isopropanol (2-Propanol)	not detected
n-Propanol (1-Propanol)	not detected
Methyl Ethyl Ketone (MEK)	not detected
Ethyl Ketone (MEK)	not detected
Ethyl Acetate	not detected
Tetrahydrofuran (THF)	not detected
2-Propyl Acetate (Isopropyl Acetate)	not detected
Benzene	not detected
n-Propyl Acetate	not detected
4-Methyl-2- Pentanone (MIBK)	not detected
Toluene	not detected
Hexanal	not detected
Ethyl Benzene	not detected
Styrene	not detected
Xylenes	not detected
Benzaldehyde	not detected
Alkane Hydrocarbons	360
Aromatic Hydrocarbons (Benzene + Ethyl Benzene, Styrene, Toluene)	not detected
Total of 1 and 2 Propanol	not detected
Total of n and iso Propyl Acetate	not detected
typical detection limit: (component dependent)	0.5
Testing performed by an independent laboratory	

If you have any further questions, please give either Elliot or me a call.

Jim Goldthorp
Phone +1-412-208-2118
Mobile +1-412-737-4565

From: Mohammad Zafar [mailto:mzafar@Fabri-Kal.com]
Sent: Tuesday, March 17, 2015 5:37 PM
To: JAMES GOLDTHORP
Cc: ELLIOTT CARNEVALE; Craig Bashore
Subject: FW: PP emissions permitting

Hi Jim:
Since you are sitting with me, I can ask the question.
Please respond asap and copy .
Thanks,
Mohammad/.

Saige J. Ballock-Dixon, P.E.

From: Mohammad Zafar <mzafar@Fabri-Kal.com>
Sent: Thursday, August 06, 2015 7:24 AM
To: Tom Bush
Cc: Craig Bashore
Subject: FW: PP emissions permitting

Here is what I got from Braskem on VOC. There is NO HAP.
For PP is using 0.5 ppm of VOC is much lower than what Dave used.

From: JAMES GOLDTHORP [mailto:JAMES.GOLDTHORP@BRASKEM.COM]
Sent: Thursday, March 19, 2015 6:47 PM
To: Mohammad Zafar; Craig Bashore
Cc: ELLIOTT CARNEVALE
Subject: RE: PP emissions permitting

Mohammad and Craig,

I am including the results of volatile organics testing performed on Inspire 6021N. I suggest using this data to estimate the emissions from our polypropylene.

Saige J. Ballock-Dixon, P.E.

From: Mohammad Zafar <mzafar@Fabri-Kal.com>
Sent: Thursday, August 06, 2015 9:26 AM
To: Tom Bush; Saige J. Ballock-Dixon, P.E.
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

The emissions will be same for all the PP homo and co PP.
Thanks,

Mohammad Zafar
Senior Polymer Development Engineer

Fabri-Kal
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4141 Manchester Road
Kalamazoo, MI 49001
T: 269-553-5633 , C: 269-720-9855
mzafar@fabri-kal.com

From: Tom Bush
Sent: Thursday, August 6, 2015 11:05 AM
To: 'Saige J. Ballock-Dixon, P.E.'; Mohammad Zafar
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

Mohammad, can you answer this

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Thursday, August 6, 2015 11:02 AM
To: Tom Bush
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

Do you have the same info for the CoPP as well- PP TI4020N?

NORTH WIND
A CIRI COMPANY

Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Services
Phone: (208) 557-7832
Email: sballock-dixon@northwindgrp.com

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From: Tom Bush [mailto:Tbush@Fabri-Kal.com]
Sent: Thursday, August 06, 2015 7:39 AM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

Here is what we actually received from our vendor. If you need more info, we can put you in touch with them.

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Wednesday, August 5, 2015 6:22 PM
To: Tom Bush
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

Hey Tom,

Do you happen to have the MSDS with the VOC and HAP data that this spreadsheet references? I looked at the on-line MSDS and RIS and it doesn't mention the 0.000% HAP value that was used in the spreadsheet.

Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Services
Phone: (208) 557-7832
Email: sballock-dixon@northwindgrp.com

Please consider the environment before printing.

From: Tom Bush [mailto:Tbush@Fabri-Kal.com]
Sent: Tuesday, April 07, 2015 8:17 AM
To: Saige J. Ballock-Dixon, P.E.; Grant Waschuk; Kevin Rewa
Subject: Hazleton Air Emissions Summary 2013.xlsx

Sage,
Here is some more info about emission from our Hazleton plant. This lists all of our materials, but in Burley, we will only be using the Homopolymer and copolymer polypropylene. The annual quantities will be 9.5 million lbs of HoPP and 2.5 million lbs of CoPP.

Saige J. Ballock-Dixon, P.E.

From: GARY P RABIK <gary.rabik@braskem.com>
Sent: Wednesday, September 23, 2015 11:14 AM
To: Saige J. Ballock-Dixon, P.E.
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

Yes

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Wednesday, September 23, 2015 11:33 AM
To: GARY P RABIK
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

Thank you Gary- I appreciate it. I assume this value can be used for the Inspire and TI4020N?

Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Services
Phone: (208) 557-7832
Email: sballock-dixon@northwindgrp.com

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From: GARY P RABIK [mailto:gary.rabik@braskem.com]
Sent: Wednesday, September 23, 2015 6:35 AM
To: Saige J. Ballock-Dixon, P.E.
Cc: mark.chappall@braskem.com
Subject: RE: Hazleton Air Emissions Summary 2013.xlsx

Saige,

First, sorry for the delay, but an emergency project filled my time the last couple weeks.

In any event, the 0.0033% VOC in the polypropylene would be conservatively high. If I did my math correctly, this would equate to 33 pounds of VOC per 1,000,000 pounds of pellets.

I looked at the headspace results for the La Porte Plant from January through August 2015 and the average pellet VOC content (based on headspace analysis) averaged of 1.8 ppm (or 1.8 pounds of VOC/1,000,000 pounds of pellets) with a max of 4.89 ppm and a min of 0.18 ppm.

Please call me if you have any questions,

Gary Rabik, PE
Lead Environmental Engineer
Braskem America, Inc.

610 497 8204

From: Saige J. Ballock-Dixon, P.E. [mailto:sballock-dixon@northwindgrp.com]
Sent: Tuesday, September 08, 2015 11:46 AM
To:mark.chappall@braskem.com; GARY P RABIK
Subject: FW: Hazleton Air Emissions Summary 2013.xlsx

Here is the VOC and HAP content per MSDS.

Saige J. Ballock-Dixon, P.E.
Engineer IV
North Wind Services
Phone: (208) 557-7832
Email: sballock-dixon@northwindgrp.com

Please consider the environment before printing.

From: Tom Bush [mailto:Tbush@Fabri-Kal.com]
Sent: Tuesday, April 07, 2015 8:17 AM
To: Saige J. Ballock-Dixon, P.E.; Grant Waschuk; Kevin Rewa
Subject: Hazleton Air Emissions Summary 2013.xlsx

Sage,
Here is some more info about emission from our Hazleton plant. This lists all of our materials, but in Burley, we will only be using the Homopolymer and copolymer polypropylene. The annual quantities will be 9.5 million lbs of HoPP and 2.5 million lbs of CoPP.

Antes de imprimir, avalie a real necessidade e pense em sua responsabilidade e compromisso com o meio ambiente.

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Fabri-Kal

Hazleton 2013 Facility Air Emissions Summary Report

Chemical Name	Quantity Purchased (Pounds)	VOC Content by weight per MSDS	VOC Emissions (Pounds)	HAP Content by weight per MSDS	HAP Emissions (Pounds)
HIPS	29,380,169.00	0.006200%	1821.57	0.00465%	1366.18
GPS	7,210,075.00	0.006200%	447.02	0.00465%	335.27
SBC	632,971.00	0.006200%	39.24	0.00465%	29.43
HDPE	3,523,966.00	0.0015%	52.86	0.00000%	0.00
APET	17,887,189.00	0.0010%	178.87	0.00050%	89.44
PLA	1,355,080.00	0.00	0.00	0.00000%	0.00
Homo-Polymer	22,970,577.00	0.00330%	758.03	0.00000%	0.00
Co-Polymer	4,062,174.00	0.00330%	134.05	0.00000%	0.00
Total	87,022,201.00		3,431.65		1,820.32

Definitions		VOC Emissions (Tons)	HAP Emissions (Tons)
HIPS	High Impact Polystyrene	1.72	0.91
GPS	General Purpose Polystyrene (crystal)		
K-resin	Styrene-butadiene copolymer (SBC)		
HDPE	High Density PolyEthylene		
APET	Amorphous Polyethylene Terephthalate		
PLA	Polylactic Acid		
Homo-polymer	Polypropylene Homo-polymer		
Co-polymer	Polypropylene Impact Copolymer		

Braskem

Regulatory Information Sheet

TI4020N Polypropylene Resin

This Information Sheet is intended for informational purposes only. This Information Sheet relates solely to the Braskem America, Inc. ("Braskem") polypropylene grade set forth above as currently manufactured by Braskem and not as incorporated in any grade or used in any process. Information provided is as of the date hereof and Braskem assumes no responsibility to update, revise or amend this information. Determination of the suitability or fitness of this product for any particular application is the sole responsibility of the purchaser. Braskem specifically disclaims any warranty of merchantability or fitness for a particular purpose. **Braskem makes no representations or warranties (express or implied) with respect to the accuracy or completeness of the information contained herein.** The presence, absence or lack of information herein with respect to any particular international, national, federal, state, or local law, statute, regulation, order or rule ("Laws") should not be construed to mean that the Braskem polypropylene grade set forth above is regulated under, complies, with or is exempt from such Laws.

COUNTRY OF ORIGIN
This product is manufactured in the U.S.

U.S. Regulatory Information:

FDA FOOD CONTACT STATUS:
This product will comply with the U.S. Food and Drug Administration as a food contact substance (FCN) as a result of a premarket notification with an effective date of April 15, 2005 under FCN 486. The FCN that covers this product can be found on the FDA website at the following link:

http://www.accessdata.fda.gov/scripts/fdcc/index.cfm?set=FCN&id=486

This notification allows for use of this product in articles or components of articles used in contact with all food types listed in Table 1, under Conditions of Use A-H, as described in Table 2, with a maximum use temperature of 250°F. Tables 1 and 2 are found at the website of U.S. FDA CFSAN/Office of Food Additive Safety April 2006, "Definitions of Food Types and Conditions of Use for Food Contact Substances":

http://www.fda.gov/Food/FoodIngredientsPackaging/FoodContactSubstancesFCS/ucm109358.htm.

The uses cited above are subject to good manufacturing practices and any limitations which are part of the notification and applicable regulations. The notification and regulations should be consulted for complete details.

ANIMAL BASED:
Based on this product's product formulation, Braskem does not intentionally incorporate any adjuvants in this product that are derived from animals, or any materials of human origin.

ALLERGEN STATEMENT:
The following allergens are not used in the manufacture of or formulation of this product. However, Braskem does not test our products for these substances.

- Peanuts, peanut oil, any peanut products;
- Tree nuts (almonds, Brazil nuts, chestnuts, filberts, hazelnuts, hickory nuts, macadamia nuts, pecans, pine nuts, pistachios, and walnuts);
- Refined or unrefined oils;

- Milk (casein) or milk products, dairy products, dairy derivatives, lactose with protein;
- Eggs or egg products;
- Fish (e.g. cod, salmon) or fish products; Shellfish, crustaceans (e.g. shrimp, crabs, lobsters, oysters, clams, scallops, crayfish); Molluscs (e.g. snails, clams, squid, octopi) or mollusc products;
- Sulfites;
- Food colors;
- Carmine;
- Cochineal;
- Corn;
- Celery or celery products;
- Wheat (gluten) or wheat products;
- Seeds (e.g. cotton, poppy, sesame, sunflower, mustard) or seed products;
- Aspartame;
- Monosodium glutamate (MSG);
- Caffeine;
- Hydrogenated vegetable protein (HVP);
- Hydrolized protein;
- Grains (e.g. rye, barley, oats);
- Lecithin;
- Lupine or lupine products.

This product may utilize additives that may contain material derived from soybeans or palm.

This evaluation is based on information provided by our raw material and additive suppliers relating to the presence or absence of the potential allergen-stimulating substances listed above. Any further adulteration or processing of this grade could introduce allergens. Braskem is not responsible for any further adulteration or processing which may occur to this grade.

GENETICALLY MODIFIED ORGANISM (GMO):
Based on this product's formulation, adjuvants derived from a genetically modified organism may be added during the manufacture of this product.

DRUG MASTER FILE (DMF) STATUS:
This grade is not listed in the Braskem Drug Master File.

UL:
This product has not been evaluated for UL clearance.

CONEG:
Braskem does not intentionally add lead, mercury, cadmium or hexavalent chromium to this product, and this product does not contain incidental levels of lead, mercury, cadmium or hexavalent chromium greater than 100 parts per million (ppm).

CALIFORNIA PROPOSITION 65:
Braskem does not manufacture with nor intentionally add any raw materials known to the State of California to cause cancer or reproductive toxicity as set forth in its latest Proposition 65 chemicals listing dated June 4, 2014.

This product may contain the following two chemical substances as impurities found in a manufacturing process aid used in the manufacture of this product:

Ethylene oxide	(CAS# 75-21-8)	carcinogen and reproductive toxin
1,4-Dioxane	(CAS# 123-91-1)	carcinogen

Based on a worst-case mass balance calculation, these substances are expected to be found at levels lower than 10 ppb.

This product may also contain trace levels of phthalates in amounts generally less than 10 ppm.

Each person doing business in California is responsible for determining the status of its own products under Prop 65 and developing his or her own regulatory plan. Braskem makes no representation or warranty in that regard.

CONSUMER PRODUCT SAFETY IMPROVEMENT ACT (CPSIA):
In regards to the Consumer Product Safety Improvement Act of 2008, P.L. 110-314 (the "Act"), this product does not contain lead at or above the limit of 100 parts per million specified in Section 101(a)(2)(C) of the Act. Braskem does not use lead as a raw material in the manufacture of polypropylene, and lead is not a significant component of any additives used in the manufacture of polypropylene.

This product does not contain phthalates at or above the limit of 0.1% (1000 ppm) specified in Section 108(a) and (b) of the Act.

This product, as manufactured and distributed by Braskem, is not a children's product, children's toy, child care article, or consumer product, and is therefore not subject to the Act. Each person or manufacturer doing business under the Act is responsible for determining the status of its own products under the Act and Braskem makes no representation or warranty in that regard.

STATE OF WASHINGTON CHILDREN'S SAFE PRODUCT ACT (CSPA):
Braskem does not manufacture with nor intentionally add any raw materials containing any of the 66 chemicals of high concern found on the "CHCC List" (as of December 1, 2014) in concentrations above 100 ppm. More specifically:

- This product does not contain lead or cadmium in quantities greater than 0.004 % by weight
- This product does not contain phthalates in quantities greater than 0.1 % by weight or above the designated PQL.

However, Braskem does not test for these substances.

Canadian Regulatory Information:

CANADIAN FOOD CONTACT STATUS:
A letter of "no objection" for food contact use of this product has been obtained from the Canadian Health Protection and Food Branch (HPFB). The HPFB publishes the polymer products which have "no objection" letters on their website at

http://www.hc-sc.gc.ca/fn-an/legislation/guide-ld/poymers_tc-polymere_tm_e.html.

Consult the HPFB polypropylene list at the above website for information on this product and for any limitations of use that may have been assigned to this product by HPFB.

CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999 (CEPA 1999) CHEMICAL MANAGEMENT PLAN (CMP) - SUBSTANCE GROUPINGS INITIATIVE:
Braskem does not intentionally use compounds found on the following 8 substance groupings during the manufacture of this product. However, Braskem does not analyze for these substances.

- Aromatic Azo and Benzidine Based Substances
- Boron-containing Substances
- Certain Organic Flame Retardants
- Cobalt-containing Substances
- Internationally Classified Substances
- Methylenediphenyl Diisocyanates and Diamines (MDI / MDAs)
- Selenium-containing Substances
- Substituted Diphenylamines

For the 9th Substance Grouping: Phthalates, Braskem America does not intentionally add phthalate additives or plasticizers in the manufacture of its polypropylene. This product may contain trace levels of phthalates from the polymerization. Any trace levels of phthalates in the polypropylene would be below regulatory and advisory standards.

A list of the substances considered for inclusion in each group and covered under this announcement of planned actions can be found at http://www.ec.gc.ca/ese-ees/default.asp?lang=En&n=F4633EDC-1.

CANADIAN DMF Status:
This product is not listed on the Canadian Drug Master File.

European Regulatory Information:

PACKAGING AND PACKAGING WASTE:
With respect to the European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste and its amendments 2004/12/EC of 18 February 2004, 2005/20/EC of April 5, 2005, and 2013/2/EU of 7 February 2013, Braskem does not intentionally add lead, mercury, cadmium or hexavalent chromium to this product. With respect to Article 11, this product does not contain incidentally present aggregate levels of lead, mercury, cadmium or hexavalent chromium greater than 100 parts per million (ppm).

In addition, this product has the potential to be recycled according to the requirements in these directives.

RESTRICTION OF HAZARDOUS SUBSTANCES (RoHS):
Braskem does not intentionally use lead, cadmium, chromium, mercury, any compounds of these metals, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) as listed in the RoHS regulation 2002/95/EC and its amendments in the manufacture of or formulation of this product.

EUROPEAN FOOD CONTACT STATUS:
This product satisfies the requirements of EU 10/2011 and its amendments on plastic materials and articles intended to come into contact with food.

- It meets the requirements of 1935/2004/EC Framework Regulation and its amendments as a plastic intermediate material.
- The resin is manufactured in accordance with good manufacturing practices as outlined in 2023/2006/EC.
- All monomers and additives used in the manufacturing of this resin are listed on the Union List of Authorized Substances (Annex I of EU 10/2011).

This product contains:
- at least one dual use additive as identified in the "Union Guidelines on Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food" and Annex II of EC 1333/2008
- at least one component in the formulation that has a specific migration limit (SML) and/or a total specific migration limit (SML(T)) and/or a QMA (residual content per food contact surface area) as defined in Tables 1-3 of Annex I of EU 10/2011

The identities of the components with an SML, SML(T) or QMA and those that are dual use additives can be obtained under a confidentiality agreement. Please contact your Braskem representative.

EU 10/2011 Plastics Regulation requires that the finished plastic material or article used in contact with food must meet an overall migration limit (OML) of 10 mg per square decimeter of the surface area of the material or article (mg/dm2). Migration testing is dependent on the specific intended conditions of use of the final article, including the food type that needs to be simulated and the time and temperature of exposure. Therefore, it is the responsibility of the manufacturer of the final food contact material or article to verify that the final article or material satisfies the OML and SML requirements for compliance.

It remains the responsibility of the manufacturer of the finished food contact material or article to make sure that the requirements of 1935/2004/EC pertaining to the final articles are met. It should be noted that thermal emissions such as aldehydes, ketones and organic acids are generated during typical processing of polypropylene. These emissions could have an impact on the organoleptic properties of the final article.

EPOXY DERIVATIVES
The materials Bisphenol A diglycidyl ether (BADGE), Bisphenol F diglycidyl ether (BFDGE) or Novolac Glycidyl Ether (NOGE) are not intentionally added in this product as referenced in Commission Regulation 1895/2005/EC on the use of certain epoxy derivatives in materials and articles intended to contact foods as plasticizers, additives or raw materials.

BIOCIDE DIMETHYL FUMARATE (DMF):
With respect to the European Union's "Commission Directive 2009/251/EC of 17th March, 2009 on the biocide dimethylfumarate (DMF), after review of the operating parameters for this grade, Braskem does not use DMF as a raw material in the manufacture of this product, and, to the best of Braskem's knowledge, DMF is not a significant component of any additives used in the manufacture of this product.

PHTHALATES:
Braskem America does not intentionally add phthalate additives or plasticizers in the manufacture of its polypropylene. This product may contain trace levels of phthalates from the polymerization. Any trace levels of phthalates in the polypropylene would be below regulatory and advisory standards. For more specific information, please contact your Braskem Account Manager or Product Regulatory.

Global Regulatory Information:

GLOBAL CHEMICAL INVENTORY COMPLIANCE:
This product complies with the following chemical inventories. Foreign purchasers or exporters of this product should consult the appropriate local governing authority to verify there are not regulatory requirements that would prohibit or restrict the import of this product into the applicable country.

Country	Inventory	Y/N/Unknown
Europe[1]	EINECS	Yes
Europe[1]	ELINCS	Unknown
Canada	DSL	Yes
Taiwan	NECSI	yes
United States[2]	TSCA	Yes
Australia	AICS	Yes

Country	Inventory	Y/N/Unknown
China	IECS	Yes
Japan	ENCS	Yes
Japan	ISHL	Unknown
Korea	KECI	Yes
New Zealand	NZIoC	yes
Philippines	PICCS	Yes

[1]EINECS and ELINCS are replaced by REACh
[2]This product has no special requirements under US TSCA (e.g. consent orders, test rules, 12(b) Requirements, etc.).

GLOBAL AUTOMOTIVE DECLARABLE SUBSTANCE LIST (GADSL):
Braskem does not intentionally add any of the chemicals on the Global Automotive Declarable Substance List (2014 GADSL Version 1.4, Revised 2014-11-18) at or above, 0.1%, or the stated threshold for a declarable or prohibited substance. Formaldehyde (CAS# 50-00-0) is not intentionally used in the manufacture of or formulation of the aforementioned product, however, it is commonly known that formaldehyde is a potential decomposition product of polypropylene. The amount of formaldehyde emissions is dependent on the process. It is recommended that customers monitor their operations for formaldehyde emissions.

Other Supporting Information:

DYES, INKS, PULP, etc...
After review of the operating parameters for this grade, Braskem does not intentionally add any inks, pigments, dyes, carbon black, registered pesticides, pulp, nor pulp based material to this product.

METALS:
After review of the operating parameters for this product, Braskem does not intentionally add any of the following metals during the production of this product.

• Antimony	• Gold	• Thallium
• Arsenic	• Hexavalent chromium	• Tin
• Barium	• Lead	• Vanadium
• Beryllium	• Mercury	
• Bromine	• Molybdenum	
• Cadmium	• Nickel	
• Chromium	• Palladium	
• Cobalt	• Silver	
• Copper	• Tantalum	

CONFLICT MINERALS:
To the best of our knowledge, this product is not intentionally manufactured or formulated with "Conflict Minerals", which include columbite-tantalite (also known as coltan) [source for tantalum], cassiterite [source for–tin], gold, and wolframite [source for tungsten], and their derivatives. However, Braskem does not analyze for these specific substances or compounds.

ORGANOTINS:
Braskem does not intentionally add any tributyl tin, tributyl tin oxide, triphenyl tin, trialkyl tin, triaryl tin, or organotins in the manufacture of this product. Braskem does not analyze for these substances.

OZONE DEPLETING CHEMICALS (ODCs):
This product is not manufactured with any of US EPA's Class I or Class II Ozone Depleting Chemicals (ODC) or the ODCs listed under the Montreal Protocol or EU Directive 1005/2009/EC.

BISPHENOL A, BISPHENOL F & BPX (Bisphenol based derivatives such as BPS):
Braskem does not intentionally add Bisphenol A, Bisphenol F, Bisphenol S, or BPX (Bisphenol based derivatives such as BPS) to this product. Braskem does not use Bisphenol A, Bisphenol F, Bisphenol S, or BPX (Bisphenol based derivatives such as BPS) as a raw material in the production of this product.

ALKYLPHENOLS & ALKYLPHENOL ETHOXYLATES:
Braskem does not intentionally add alkylphenol ethoxylates to this product. Braskem does not add the simple substituted phenols, nonyl phenol, octylphenol ethoxylates, or trisnonylphenylphosphite (TNPP) to this product. Polypropylene manufacturers, including Braskem, do add complicated phenolic materials as anti-oxidants to their polypropylene products, which are technically alkylphenols. This product may contain such an antioxidant. Accordingly, these anti-oxidants are approved for indirect food contact and are utilized by Braskem in accordance with 21 Code of Federal Regulations (CFR) 178.2010.

LATEX-SYNTHETIC, DRY, OR NATURAL:
Braskem does not manufacture synthetic rubber latex, natural rubber latex (NRL) or dry natural rubber latex (DRL), nor does Braskem add synthetic rubber latex, NRL or DRL to this grade; however Braskem does not analyze for these specific substances or compounds.

PERFLUOROCHEMICALs (PFCs):
Braskem does not manufacture any of the following compounds. Braskem does not intentionally add or use any of the following compounds during the manufacture of this product:

• Perfluorooctanoic acid	• Perfluorooctane sulfonate
• Perfluoro-n-butyric acid	• Perfluorooctane sulfonamide
• Pentafluoropropionic acid	• Perfluorononanoic acid
• Perfluoropentanoic acid	• Perfluorodecane sulfonate
• Perfluorohexane sulfonic acid	• Perfluorodecanoic acid
• Perfluoroheptanoic acid	• Perfluorododecanoic acid
• Perfluorooctanoic acid (PFOA)	• Perfluorooctyl sulfonate (PFOS)

POLYCYCLIC AROMATIC HYDROCARBONS:

Braskem does not manufacture any of the following compounds. Braskem does not intentionally add or use any of the following compounds during the manufacture of this product:

• Naphthalene	• Fluorene
• Acenaphthylene	• Phenanthrene
• Acenaphthene	• Anthracene
• Fluoranthene	• Benzo(b)fluoranthene
• Pyrene	• Benzo(k)fluoranthene
• Benzo(a)anthracene	• Indeno(1,2,3-cd) pyrene
• Chrysene	• Dibenzo(ah)anthracene
• Benzo(ghi)perylene	• Benzo(a)pyrene

ADDITIONAL SUBSTANCE INFORMATION:

Braskem does not intentionally add or use any of the following compounds during the manufacture of this grade:

• 1,1,1-Trichloroethane	• 4-aminodiphenyl
• 1,1,2,2-Tetrachloroethane	• 4-nitrobiphenyl +salts
• 1,1,2-Trichloroethane	• 4-nitrodiphenyl
• 1,2-Dichloroethane	• 4-nitrotoluene
• 1,4, Dioxane	• 4-Nonylphenol
• 2-(2-Hydroxy-3,5-di-tert-butylphenyl) benzotriazole	• Acenaphthene
• 2, 3, 7, 8-Tetrachlorodibenzo (para) dioxin	• Acenaphthylene
• 2,2-bis(4-hydroxyphenyl) propane bis(2,3-epoxypropyl) ether (BADGE)	• Adipates
• 2,4-Toluene diisocyanate	• Aldrin
• 2,6-Toluene diisocyanate	• Alkylphenol ethoxylates
• 2-Bromopropane	• Aminobiphenyl (4-) + salts
• 2-Ethoxyethanol	• Anthracene
• 2-Ethoxyethanol acetate	• Aromatic Amines
• 2-Ethyl hexyl acrylate (2-EHA)	• Arsenic compounds
• 2-Methoxy-1-propanol	• Artificial musks
• 2-Methoxyethanol	• Asbestos
• 2-Methoxyethanol acetate	• Azo compounds
• 2-naphtylamine + salts	• Azodicarbonamide (ADA

• Benzenamine, 2-ethyl-N-(2-ethylphenyl)-, (tripropenyl) derivs.	• Butylated Hydroxyanisole (BHA)
• Benzenamine, 4-(1,1,3,3-tetramethylbutyl)-N-[4-(1,1,3,3-tetramethylbutyl)phenyl]-	• Butylated Hydroxytoluene (BHT)
• Benzenamine, 4-(1-methyl-1-phenylethyl)-N-[4-(1-methyl-1-phenylethyl)phenyl]-	• Cadmium
• Benzenamine, 4-nonyl-N-(4-nonylphenyl)-	• Cellulose Acetate
• Benzenamine, 4-octyl-N-(4-octylphenyl)-	• Ceramic fibers
• Benzenamine, 4-octyl-N-phenyl-	• Chlordane
• Benzenamine, ar-nonyl-N-(nonylphenyl)-	• Chlordecone
• Benzenamine, ar-nonyl-N-phenyl-	• Chlorinated paraffin
• Benzenamine, ar-octyl-N-(octylphenyl)-	• Chlorine
• Benzenamine, N-phenyl-, (tripropenyl) derivs.	• Chloro-1-ethylene
• Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	• Chlorocresol (meta-)
• Benzenamine, N-phenyl-, reaction products with isobutylene and 2,4,4-trimethylpentene	• Chlorocresol (ortho-)
• Benzenamine, N-phenyl-, styrenated	• Chloroethylene
• Benzene	• Chlorofluorocarbons (CFCs)
• Benzidine (+ salts)	• Chloroform
• Benzo(a)anthracene	• Chloromethyl isothiazolinone (CIT)
• Benzo(a)pyrene	• Chromic acid
• Benzo(b)fluoranthene	• Chromium, hexavalent (Cr6+) compounds
• Benzo(ghi)perylene	• Coal tar
• Benzo(k)fluoranthene	• Colophony (rosin)
• Beryllium	• Congeners
• Bis(chloromethyl)ether (BCME)	• Creosote
• Bis-phenol A	• Deca-bromodiphenyl ether (DBDE)
• Bis-phenol ether	• Decabromodiphenyloxide
• Bisphenol-F-diglycidyl ether (BFDGE)	• DHTDMAC
• Bromide	• Diacetyl
• Bromine	• Dialkyl tin
• Butyl glycidyl ether (BGE)	• Dibenzo(a,h)anthracene

• Dichloromethane	• Hexachlorobenzene
• Dieldrin	• Hexachlorobutadiene
• Difurans	• Hexamethylene-1,6-diisocyanate
• Diisononyl phthalate (DINP)	• Hydrobromofluorocarbons (HBFCs)
• Dimethyl phthalate	• Hydrochlorofluorocarbons
• Dimethylformamide (free)	• Hydrofluoric acid (HF)
• Dioctyl phthalate	• Hydrofluorocarbons (HFCs)
• Dioctyl adipate	• Indeno(1,2,3-cd)pyrene
• Dry natural rubber latex (DRL)	• Insecticides
• Dyes or pigments	• Kathon CG
• Endrin	• Kepone
• Epichlorohydrin	• Lead and lead compounds
• Ethylene glycol	• Limonene
• Fluoranthene	• MDI (methyl-di-p-phenylene isocyanate)
• Fluorocarbons	• Melamine
• Formaldehyde	• Mercury + Mercury compounds
• Fumigants and Preservatives	• Methyl bromide
• Fungicides	• Methyl chloroform
• Furans	• Methyl isothiazolinone (MIT)
• Halogenated biphenyl methane compounds	• Methylene chloride
• Halogenated diphenyl methanes	• Methylenedianiline (4,4'-)
• Halogens	• Methylglycol
• HCFC 141 b	• Mirex
• HCFC 142 b	• Monoalkyl tin
• HCFC 22	• naphthalene
• Heptachlor	• N-butyl benzene
• Hexabromobiphenyls	• Nickel
• Hexabromocyclododecane (HBCDD)	• Nitrites

• Nitro musks	• Polychlorinated naphthalene (PCN)
• Nitrosamines	• Polychlorinated terphenyls (PCT)
• N-nitrosamines/N-nitrosamides	• Polycyclic aromatic hydrocarbons
• Nonylphenolethoxylates	• Polycyclic musks
• Novolac Glycidyl Ether (NOGE)	• Polyvinyl chloride (PVC)
• Octabromodiphenylether	• Poly-Vinylidene Dichloride
• Octylphenol	• Pyroxylin
• Octylphenol ethoxylates	• Radioactive substances
• Organoarsenic compounds	• Resorcinol
• Organohalogens	• Semicarbazide
• ortho-Anisidine	• Silicon
• Parabens	• Silicone
• Penta-bromodiphenyl ether (PBDE)	• Strontium chromate
• Perfluoro-alkyl sulfonate	• Stylene
• Perfluorocarbons	• Styrene
• Perfluorocarbons (PFCs; gaseous)	• Sulfur dioxins
• Pesticides	• Sulfur hexafluoride
• Phenol (free)	• Synthetic fungicides, preservatives, and fumigants
• Phenyl-b-naphthylamine	• Tartrazine
• Poly Brominated biphenyl (PBB)	• tert -Butylhydroquinone (TBHQ, tertiary butylhydroquinone)
• Polybrominated biphenyl oxide (PBBO)	• Tetrachloroethylene
• Polybrominated compounds	• Tetrachlorophthalic Anhydride (TCPA)
• Polybrominated diphenyl	• Thiocarbamide
• Polybrominated diphenylethers	• Thiocyanic acid (2-benzothiazolythiomethylester) (TCMTB)
• Polybrominated Fire Retardants	• Thiram (TMTD)
• Polybrominated Terphenyls	• Toluidine
• Polychlorinated biphenyls (PCB)	• Toxaphene
• Polychlorinated compounds	• Tributyl tin

• Tributyl tin oxide	• Triglycerin
• Trichloroethylene	• Triphenyl tin
• Triclosan (polychloro phenoxy phenol)	• Yellow phosphorous

For additional information or questions, contact:	Braskem Sales Person or Technical Service Representative
Email Address:	us_compliance@braskem.com
Product Regulatory Manager:	Jean Sullivan

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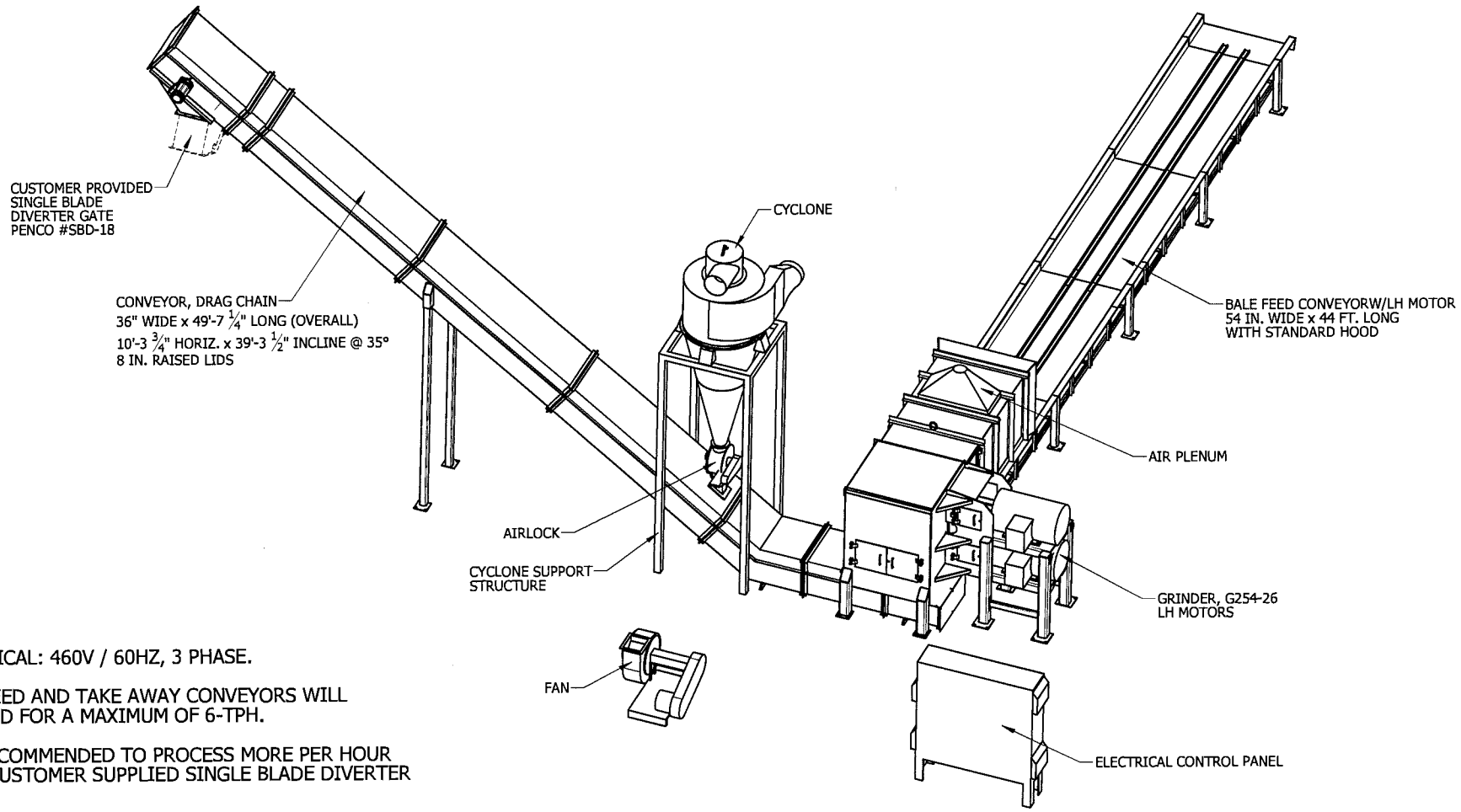
A	D.GRAY	INITIAL DRAWING RELEASE	7/30/2015



NOTES:

* ELECTRICAL: 460V / 60HZ, 3 PHASE.
* BALE FEED AND TAKE AWAY CONVEYORS WILL BE SIZED FOR A MAXIMUM OF 6-TPH.
* NOT RECOMMENDED TO PROCESS MORE PER HOUR THAN CUSTOMER SUPPLIED SINGLE BLADE DIVERTER GATE.
* MATERIAL GROUND THROUGH 2" SCREENS.
* PLEASE NOTE EQUIPMENT HEIGHT AND ENSURE THERE WILL NOT BE ANY BUILDING OR OTHER OVERHEAD INTERFERENCES.

WARREN & BAERG
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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONAL: ± 1/16
DECIMALS: .X ± .020, .XX ± .010, .XXX ± .005
ANGLES: ± .5°
BEND: ± 1/8

PRINT NO: FP1051
DO NOT SCALE DRAWING

DESCRIPTION: **GRINDING SYSTEM, G254-26 GRINDER, BALE FEED CONV 54 IN W x 44 FT, CONV 36 IN**

DRAWN:	DATE:	SIZE:	SCALE:	SHEET	REV:
D.GRAY	7/30/2015	B	1:60	1 OF 5	A

7/31/2015 S:\Customer\00 D - FP\ABRL-KAL\02-ENGINEERING\00-LAYOUT\GRINDING SYSTEM G254-26\FP1051-REV A-GRINDING SYS, G254-26, BF CONV 54 x 44 FT, CONV 36 IN W TO DIV Y.150728.SLDDRW

NWI-RI151-003

Air Impact Modeling Analysis for the Fabri-Kal Facility in Burley, ID

Fabri-Kal

Burley, Idaho

Facility Permit No. < to be determined >

May 2016

Prepared for:
Fabri-Kal
2457 Washington Ave
Burley, ID 83318

Prepared by:
North Wind Resource Consulting
1425 Higham Street
Idaho Falls, ID 82402

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1.0 Summary

This air impact modeling analysis has been prepared for Fabri-Kal in support of the construction air permit application for the full buildout of the thermoforming facility located in Burley, Idaho. Based on the analysis and results presented in the following sections of this report, the Fabri-Kal facility under the operational conditions included in the permit application will maintain compliance with all applicable ambient air quality standards and maximum allowable concentrations.

A pre-application meeting was held via teleconference on July 2, 2015 during which the State identified requirements and guidance for an air impact modeling analysis. Construction and operation of the facility is being implemented in two phases over several years. The facility is currently operating under the first building phase. The proposed second phase, for which this air permit application has been submitted, will complete the full buildout of the facility scheduled to occur in 2017. The facility emission sources include raw material handling, heating processes, space heating, and an emergency generator.

On November 16, 2015, and prior to performing the impact analysis, an air dispersion modeling protocol describing the proposed emission sources and analysis methodology was submitted to the Idaho Department of Environmental Quality (IDEQ). The protocol was accepted by IDEQ on December 10, 2015 pending incorporation of comments. The approval letter and protocol are provided in Appendix A.

Revisions to the proposed Potential-To-Emit (PTE) emissions inventory have occurred since the modeling protocol was submitted and approved. The updated emissions inventory and emission calculations are provided in Appendix B. The PTE emission levels and hourly emission rates were based on capacity operation for 8,760 operating hours per year with the exception of the emergency shutdown heaters and generator which are being permitted with restricted annual operating hours.

Facility-wide PTE hourly emission rates were compared to IDEQ screening emission levels. Any pollutant with an emission rate exceeding the screening level must be included in dispersion modeled is required with the permit application. The applicable averaging period for each of these pollutants is also listed.

Criteria Pollutants

- NOx ..... 1-hr & Annual
- PM10 ..... 24-hr
- PM2.5 ..... 24-hr & Annual

Idaho Toxic Air Pollutants (TAPs)

- Arsenic .....Carcinogen TAP.....Annual
- Cadmium .....Carcinogen TAP.....Annual
- Formaldehyde .....Carcinogen TAP.....Annual
- Nickel .....Carcinogen TAP.....Annual

Since this is a new facility that has never been modeled, a Significant Impact Analysis was not performed. Instead, a Cumulative NAAQS Impact Analysis was performed to demonstrate compliance with all applicable air quality standards.

The US EPAs AERMOD air dispersion modeling system was used to perform the air quality impact analysis. For the criteria pollutants, the modeling results were added to ambient background concentrations (provided by IDEQ) and compared to the applicable National Ambient Air Quality Standards (NAAQS). For the carcinogenic TAPs, the modeling results were compared to the Idaho Acceptable Ambient Concentrations for Carcinogens (AACCs).

The dispersion modeling as detailed in this report was based on the following guidance documents from the IDEQ and EPA air modeling websites:

- State of Idaho Guideline for Performing Air Quality Impact Analyses
- AERMOD Users Guide and Addendum (version 15181)
- EPA Clarification Memos (Modeling Guidance for PM2.5, 1-hour NO2, and 1-hour SO2)
- 40 CFR 51 Appendix W – Guideline on Air Quality Models.

2.0 Project Description and Background

2.1 General Facility Description

Fabri-Kal is proposing to construct and operate a 100,000 square foot design and manufacturing facility for ag-based and plastic packaging solutions for the foodservice, consumer product, and retail markets. Wheat and soy straw, sodium hydroxide, and polypropylene pellets are the raw materials. Natural gas will be combusted to supply process heat for material preparation and thermoforming, space heating, and emergency power. Material handling and natural gas combustion will result in air emissions.

The process includes the following types of equipment: storage silos (for polypropylene pellets), hammer mill grinder (for wheat and soy straw), cooking tank, extruder, process boilers, process heaters (furnaces and infrared heaters), air handling units, emergency process shutdown heaters, and an emergency generator. Natural gas will be the only fuel for heating and emergency power.

Raw ag-fiber material is received by truck in the form of wheat and soy straw bales. It is then ground into short pieces. The grinding occurs outside in a covered bunker attached to the main building. Ground straw is loaded into a cooking tank, mixed with hot water and sodium hydroxide, and heated with steam from process boilers. All steam from the cooking process will be vented outside. The pulp slurry is pressed to remove the cooking liquid. It is then rehydrated through a process sequence to achieve the desired fiber length and consistency. The finished pulp is placed in a storage tank that feeds into the thermoforming process. Additional raw material (polypropylene) received by railcar or truck in pelletized form is vacuum unloaded to storage silos. It is then vacuum-fed to an extruder that utilizes heat and pressure to form a thin plastic sheet.

The finished pulp and plastic sheet is fed into thermoforming machines where a vacuum forms the product shape. Plastic product is cooled with water, dried, trimmed to the final shapes, stacked, and box packed. Trimmed waste is reground and pneumatically fed back into the production line.

2.2 Facility Location

The facility location is approximately 1 mile southwest of the city center as shown on Figure 1. Its address and coordinates are:

Address

- 2457 Washington Avenue
  Burley ID 83318

Coordinates

- Lat/Long 42° 31' 38" N, 113° 48' 42" W (approx. center of proposed site)
- UTMs Zone 12, 269.000 km East, 4712.100 km North.

Burley is a small city situated in south central Idaho along the Snake River (see Figure 1). Most of the city lies in Cassia County, with only a small portion extending northward into Minidoka County. The population is just over 11,000 within the city boundaries and about 43,000 within these two counties.

The terrain is relatively flat ranging in elevation between 4,150 and 4,250 ft above sea level within 5-10 kilometers of Burley, and then gently sloping to 4,400 ft at the base of the Albion mountain range 15 km to the southeast (SE) and further to the south (S). The mountain peaks range in elevation from 4,600 (17 km SE) to 10,339 ft (Cache Peak, 40 km S).

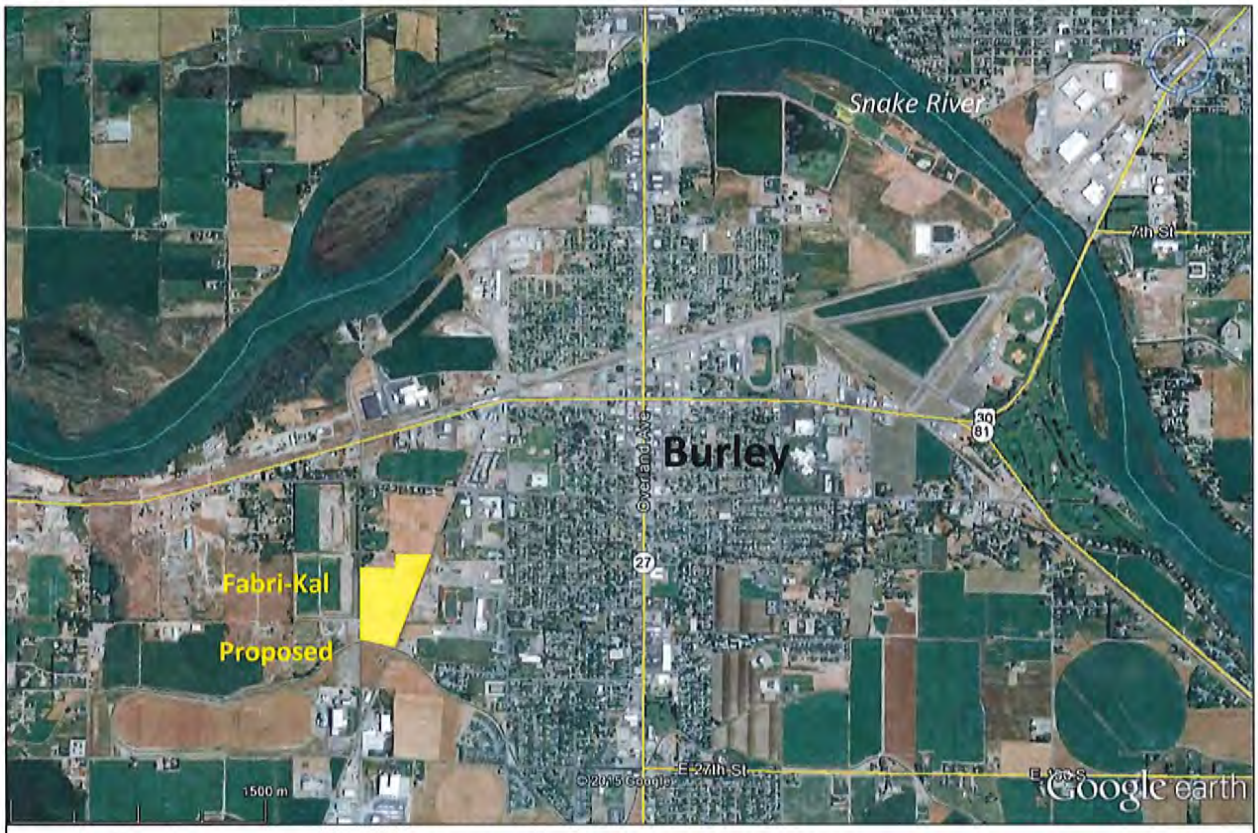


Figure 1 – Site Location in Burly, Idaho

2.3 Existing Permits and Modeling Analyses Performed

There are no permits currently existing for the facility, and air quality modeling has not been previously performed.

3.0 Modeling Analysis Applicability and Protocol

A demonstration that a facility will be in compliance with applicable air quality standards is generally required with an air permit application. This is typically done through an emissions assessment and air dispersion modeling analysis.

The general approach for determining applicability and compliance with air quality standards is summarized below:

(1) All emission sources at the facility submitting the air permit application that emit a criteria pollutant and/or an Idaho TAP are to be considered in the evaluation.

(2) Facility-wide PTE emission rates, both in terms of maximum hourly and annual average hourly, are calculated and compared to respective screening emission levels to identify pollutants of concern.

(3) Pollutants of concern are identified as those which have a facility-wide PTE emission rate exceeding the respective screening emission levels listed in IDEQ dispersion modeling guidance or ID regulations.

(4) Pollutants of concern must be included in an air dispersion modeling analysis. All other emitted pollutants are deemed to be in compliance with the applicable ambient air quality standard or allowable ambient concentration based on screening.

(5) For the pollutants of concern, all sources contributing to the facility-wide PTE emissions of these pollutants must be included in dispersion modeling with the following exceptions:

   (a) Exclusion – NOx emissions from emergency power equipment that is intended to operate intermittently 100 hr/yr or less were excluded from the cumulative NAAQS analysis for 1-hour NO2 (see the *Idaho Guideline for Performing Air Quality Impact Analysis – Appendix A – Guidance for 1-Hour NO2 Modeling of Intermittent Sources*). Since the facility will be requesting a permit limit of 100 hr/yr operation for the natural gas-fired Emergency Generator, this source met the conditions for exclusion from the 1-hr NOx modeling analysis.

   (b) Exclusion – TAP emissions from sources covered under a NESHAP were excluded from dispersion modeling. Since the natural gas-fired Emergency Generator is subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR 63, subpart ZZZZ), this source met the conditions for exclusion of its TAP from the modeling analysis.

(6) Results from the dispersion modeling are compared to the applicable air quality standards to determine the facility's air quality compliance status. For criteria pollutants, ambient background concentrations are fist added to the model results before comparing to the regulatory limit.

3.1 Applicable Standards

Criteria Pollutants

Air emissions of criteria pollutants emitted by the facility must be demonstrated to be in compliance with the applicable National Ambient Air Quality Standards (NAAQS) listed in **Table 1**. Note that the NAAQS are specific to pollutants and averaging periods. Additional information relevant to a dispersion modeling analysis is also provided in **Table 1**.

Table 1 – Applicable Regulatory Limits – Criteria Pollutants

Pollutant	Screening [A] Emission Level (lb/hr)	Averaging Period	Significant Impact Level ($\mu g/m^3$)	NAAQS [B] Regulatory Limit ($\mu g/m^3$)	Dispersion Modeling [C] Design Value for Full Impact Analysis
Carbon Monoxide (CO)	15	1-hour	2,000	40,000	Maximum 2nd highest
		8-hour	500	10,000	Maximum 2nd highest
Nitrogen Dioxide (NO2)	0.20	1-hour	7.5	188	Mean of maximum 8th highest
		Annual	1.0	100	Maximum 1st highest
PM10	0.22	24-hour	5.0	150	Maximum 6th highest
PM2.5	0.054	24-hour	1.2	35	Mean of maximum 8th highest
		Annual	0.3	12	Mean of maximum 1st highest
Sulfur Dioxide (SO2)	0.21	1-hour	7.8	196	Mean of maximum 4th highest
		3-hour	25	1,300	Maximum 2nd highest
Lead (Pb)	0.019	3-month Rolling	-	0.15	Maximum 1st highest
Ozone (O3)	(Not emitted by the facility)				

(A) Screening emission level values shown are the Level 1 modeling thresholds for criteria pollutants as listed in *Table 2 of the State of Idaho Guideline for Performing Air Quality Impact Analyses*. Level 1 thresholds are emission rates below which modeling will not be required in most instances. Thorough justification for using Level 1 thresholds is not generally required.
(B) NAAQS listing as of May 2016 (Source – https://www.epa.gov/criteria-air-pollutants/naaqs-table)
(C) Application of the dispersion modeling design values is discussed in Section 5.0 – Modeling Methodology.

Idaho Toxic Air Pollutants

Air emissions of Idaho TAPs emitted by the facility from sources must be demonstrated to be in compliance with the applicable allowable ambient concentrations (AACs or AACCs) for TAPs. These are designated in Idaho Air Rules Section 585 for non-carcinogenic TAPs (AACs) and in Section 586 for carcinogenic TAPs (AACCs). IDEQ exempts from air modeling analyses any TAP emissions from sources subject to a federal National Hazardous Emissions Standard for Hazardous Air Pollutants (NESHAPs) or Maximum Achievable Control Technology (MACT) regulation. **Table 2** lists the Idaho TAPs applicable to the non-exempt Fabri-Kal emission sources along with the standards and dispersion modeling considerations (see also Appendix B Table B-3 and Table B-4).

Table 2 – Applicable Regulatory Limits – Idaho TAPs

Pollutant	Screening [A] Emission Level (lb/hr)	Averaging Period	AAC [B] ($\mu g/m^3$)	AACC [B] ($\mu g/m^3$)	Dispersion Modeling [C] Design Value for Full Impact Analysis
Non-Carcinogenic (from Idaho Air Rules Section 585)					
Barium	0.033	24-hour	0.025	-	Maximum 1st highest
Chromium	0.033	"	0.025	-	"
Cobalt	0.0033	"	0.0025	-	"
Copper	0.013	"	0.01	-	"
Dichlorobenzene (as 1,4-)	30	"	22.5	-	"
Hexane	12	"	9	-	"
Manganese	0.067	"	0.05	-	"
Molybdenum	0.333	"	0.25	-	"
Naphthalene	3.33	"	2.5	-	"
Pentane	118	"	88.5	-	"
Selenium	0.013	"	0.01	-	"
Toluene	25	"	18.75	-	"
Vanadium	0.003	"	0.0025	-	"
Zinc	0.667	"	0.5	-	"
Carcinogenic TAPs (from Idaho Air Rules Section 586)					
Arsenic	1.50E-06	Annual	-	2.3E-04	Maximum 1st highest
Benzene	8.00E-04	"	-	1.2E-01	"
Benzo(a)pyrene	2.00E-06	"	-	3.0E-04	"
Beryllium	2.80E-05	"	-	4.2E-03	"
Cadmium	3.70E-06	"	-	5.6E-04	"
Formaldehyde	5.10E-04	"	-	7.7E-02	"
3-Methylchloranthrene	2.50E-06	"	-	3.7E-04	"
Nickel	2.70E-05	"	-	4.2E-03	"
PAH (except 7-PAH group)	9.10E-05	"	-	1.4E-02	"
POM (7-PAH group)	2.00E-06	"	-	3.0E-04	"

(A) Threshold screening level values shown are from Idaho Air Rules Section 585 for non-carcinogenic TAPs and Section 586 for carcinogenic TAPs. The is the Level 1 modeling threshold for criteria pollutants as listed in *Table 2 of the State of Idaho Guideline for Performing Air Quality Impact Analyses*. Level 1 thresholds are emission rates below which modeling will not be required in most instances. Thorough justification for using Level 1 thresholds is not generally required.

(B) AAC – Acceptable Ambient Concentration for non-carcinogenic TAPs from Idaho Air Rule Section 585. AACC – Acceptable Ambient Concentration for carcinogenic TAPs from Idaho Air Rule Section 586.

(C) Application of the dispersion modeling design values is discussed in Section 5.0 – Modeling Methodology.

3.2 Criteria Pollutant Modeling Applicability

Maximum hourly and annual average hourly emission rates are compared to screening emission levels in Appendix B Table B-3 and Table B-4 to identify the pollutants that must be included in dispersion modeling. The results of this comparison are summarized below in **Table 3** for the criteria pollutants.

Table 3 – Modeling Applicability – Criteria Pollutants

Criteria Pollutant	Averaging Period	Modeled (yes/no)	Basis for Exclusion from Modeling
CO	1-hour, 8-hour	No	Max Hourly Emission Rate Below Level 1 Threshold
NO2	1-hour, Annual	Yes	-
PM10	24-hour	Yes	-
PM2.5	24-hour, Annual	Yes	-
SO2	1-hour, 3-hour	No	Max Hourly Emission Rate Below Level 1 Threshold

3.3 TAP Modeling Applicability

Maximum hourly and annual average hourly emission rates are compared to screening emission levels in Appendix B Table B-3 and Table B-4 to identify the pollutants that must be included in dispersion modeling. The results of this comparison are summarized below in **Table 4** for the Idaho TAPs.

Table 4 – Modeling Applicability – TAPs

Criteria Pollutant	Averaging Period	Modeled (yes/no)	Basis for Exclusion from Modeling
Non-Carcinogenic (from Idaho Air Rules Section 585)			
Barium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold\
Chromium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Cobalt	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Copper	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Dichlorobenzene (as 1,4-)	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Hexane	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Manganese	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Molybdenum	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Naphthalene	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Pentane	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Selenium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Toluene	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Vanadium	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Zinc	24-hour	No	Max Hourly Emission Rate Below Screening Threshold
Carcinogenic TAPs (from Idaho Air Rules Section 586)			
Arsenic	Annual	Yes	-
Benzene	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Benzo(a)pyrene	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Beryllium	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Cadmium	Annual	Yes	-
Formaldehyde	Annual	Yes	-
3-Methylchloranthrene	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
Nickel	Annual	Yes	-
PAH (except 7-PAH group)	Annual	No	Avg Hourly Emission Rate Below Screening Threshold
POM (7-PAH group)	Annual	No	Avg Hourly Emission Rate Below Screening Threshold

3.4 Modeling Protocol

A modeling protocol was submitted to IDEQ prior to the application, on November 16, 2015. The protocol was submitted by North Wind Resource Consulting. Conditional IDEQ protocol approval was received on December 10, 2015. The project-specific modeling analysis was conducted using data and methods described in the protocol and in the Idaho Air Quality Modeling Guideline. The protocol and approval notice is included in Appendix A.

Concerns identified by DEQ in the protocol approval notice have been addressed in the analyses performed and in this Modeling Report as follows:

- Comment 1 – Release Parameters:
  Documentation and justification of release parameters are provided in the application.

- Comment 2 – Emergency Generator Emissions:
  Operating limit of 100 hr/yr has been requested for this source in the application. Therefore, NOx emissions from the generator qualify for exemption from the 1-hr NO2 NAAQS modeling per IDEQ guidelines. However, the NOx emissions have been included in the Annual NO2 NAAQS. In addition, since the emergency generator is subject to the requirements of the NESHAP for stationary reciprocating internal combustion engines (40 CFR 63, subpart ZZZZ), the TAP emissions from the generator are also exempt from modeling.

- Comment 3 – Ambient Air Boundary:
  The ambient air boundary has been redefined as the property line based on the following discussion submitted to IDEQ by Saige Ballock-Dixon (North Wind Resource Consultants) via email on December 15, 2015 and approved by Thomas Swain (IDEQ Air Quality Division) via email on January 12, 2016.

  "The facility is located in a rural area with farmland to the west, southwest and northeast. A farm area with buildings and residence exists to the north. School sports fields exist to the east, but are separated by approximately one quarter mile and a fenced borrow material area. The school is located to the east of the sports fields and people from the school are not expected to access the facility property. The facility is located on the outskirts of the city in farmland near other industrial buildings (half mile to the south). Due to these reasons it is not likely that the general public will access the facility property. No trespassing signs will be posted around the property and site personal will periodically check the area and ask any trespassers to leave the property."

- Comment 4 – Meteorology:
  Data from Burley Idaho airport for the period 2008-20012 is deemed appropriate by IDEQ and was used in the modeling.

- Comment 5 – Roof Vents:
  Roof vents for air handling units have been redefined as individual point sources instead of being treated collectively as an area source. Since flow rate data is not available for these roof vents, an exit velocity of 0.001 m/sec was conservatively applied in the modeling.

- Comment 6 – Ambient Background Concentrations:
  IDEQ provided updated ambient background concentrations to use in the cumulative NAAQS analysis. These values were provided in an email from Thomas Swain (IDEQ Air Quality Division) on February 18, 2016 and were obtained from the Northwest International Air Quality Environmental Science and Technology Consortium' s NW AIRQUEST tool via. These ambient background values are applicable to Latitude 42.529°N and Longitude 113.91°W.

- Comment 7 – Emissions Data:
  The emissions inventory for this project have been revised since submittal and approval of the protocol. The updated emission inventory, complete with detailed emission calculations, are provided in Appendix B of this air impact modeling analysis document. These emission calculations are also included in the permit application for IDEQ's review.

- Comment 8 – Ground Elevation Data:
  The base elevation for the two facility buildings was determined as 4183 ft MSL (1275.0 m) from survey data provided on facility drawings. This value was used for the buildings and source base elevations in the dispersion modeling. This value was also confirmed by AERMAP which provided a ground elevation of 1274.74 m for the approximate facility center coordinates of 269.000 km East, 4712.100 km North.

- Comment 9 – Ambient Ratio Method (ARM) for NOx to NO2 Conversion:
  The modeling for 1-hr and annual NO2 NAAQS was performed using NOx emission rates as input to AERMOD. The ARM adjustment factors of 0.80 for 1-hour NO2 and 0.75 for annual NO2 were then applied after modeling with the NOx emission rates. The application of the ARM adjustment factor is presented in modeling results table in this document.

- Comment 10 – IDEQ Modeling Report Template:
  The IDEQ modeling template has been used for this modeling analysis report.

4.0 Modeled Emission Sources

The modeled emission sources are identified along with their annual operating hours in **Table 5** (see Appendix B Table B-1 for additional source detail). Operating limits of 500 hours per year for each emergency shutdown heater and 100 hours per year for the emergency generator are being requested in the permitting process. All other emission sources are being permitted to potentially operate up to 8,760 hours per year. The boilers are equipped with reduced NOx burners and the air handling units are equipped with low NOx burners.

Table 5 – Modeled Emission Sources

Modeling ID	Description	PTE Operation (hr/yr)
Point Sources		
B.1	Boiler 1	8760
B.2	Boiler 2	8760
B.3	Boiler 3	8760
F.A1	Furnace 1	8760
F.A2	Furnace 2	8760
F.A3	Furnace 3	8760
F.A4	Furnace 4	8760
IRH.B1	Infrared Heater 1	8760
IRH.B2	Infrared Heater 2	8760
MAU.A1	Make-Up Air (MAU) Unit 1	8760
MAU.D1	Make-Up Air (MAU) Unit 3	8760
MAU.F1	Make-Up Air (MAU) Unit 4	8760
MAU.F2	Make-Up Air (MAU) Unit 5	8760
UH.B1	Emergency Shutdown Heater 1	500
UH.C1	Emergency Shutdown Heater 2	500
UH.C2	Emergency Shutdown Heater 3	500
UH.C3	Emergency Shutdown Heater 4	500
UH.D1	Emergency Shutdown Heater 5	500
UH.D2	Emergency Shutdown Heater 6	500
UH.F1	Emergency Shutdown Heater 7	500
UH.F2	Emergency Shutdown Heater 8	500
UH.F3	Emergency Shutdown Heater 9	500
EMGEN	Emergency Generator	100
Volume Sources		
GRINDER	Grinding System (Grinder, Bale Feed Conveyor, Conveyor)	8,760

Calculations of PTE emission annual levels and hourly rates are provided in Appendix B. All process heating units and the emergency generator will combust natural gas only. Emission factors from equipment suppliers, AP-42 Section 1.4 (External Combustion – Natural Gas), and AP-42 Section 3.2 (Stationary Internal Combustion – Natural Gas) were applied to these emission units. For the hay grinding operation, no direct AP-42 emission factors were identified. Therefore, emissions from this unit

were estimated using information from AP-42 Section 9.3 (Grain Harvesting). Emissions from the polypropylene processes (storage and heating) were based on WebFire emission factors for Source Classification Code (SCC) 03101811, manufacturer headspace testing for the thermoforming process, and mass balance.

For dispersion modeling, maximum hourly emission rates based on capacity operation were used for short-term modeled averaging periods (i.e., 24-hours or shorter). For long-term modeled averaging periods, annual average hourly emission rates were used. The annual average hourly rates were calculated as:

Average Annual Emission Rate (lb/hr) = Max Hourly Emission Rate (lb/hr) × PTE operation (hr/yr) / 8,760 hr/yr

4.1 Criteria Pollutants

Criteria pollutants that may potentially be emitted at levels above the screening emission levels are required to be modeled. This includes NO2, PM10, and PM2.5 (see **Table 3** and Appendix B Table B-3 and Table B-4).

4.1.1 Modeled Emissions Rates for Significant Impact Level Analyses

A significant impact level analysis has not been performed for this facility since it is a new facility that has never been modeled. Instead, only a cumulative impact analysis has been performed that includes all existing and proposed emission sources.

4.1.2 Modeled Emissions Rates for Cumulative Impact Level Analyses

Emission rates used for the NAAQS cumulative impact analysis are provided in **Table 6** (see also Appendix B Table B-3 and Table B-4). Note that NOx emissions from the Emergency Generator are listed as exempt from the 1-hour NO2 NAAQS analysis per IDEQ guidance for emergency equipment permitted for 100 hr/yr or less.

4.1.3 NO2/NOx Ratio for NOx Chemistry Modeling

The U.S. EPA allows using a Tier 2 Ambient Ratio Method (ARM) for conversion of NOx to NO2 without additional justification by the applicant as follows:

- Annual Average: NO2 = NOx × 0.75 (per 40 CFR 51 Appendix W Section 5.2.4.c)
- 1-Hour Average: NO2 = NOx × 0.80 (per EPA Memorandum, Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO2 NAAQS (dated Mar 01 2011).

The dispersion modeling was run using NOx emission rates. The ARM adjustment factors were then applied to the modeling results.

4.1.4 Special Methods for Modeling Criteria Pollutant Emissions

No special or unique methods were used for handling emissions.

Table 6 – Modeled Emission Rates for NAAQS Cumulative Impact Analysis

Modeling ID	Hourly Emission Rate (lb/hr)				
	NOx 1-hour	NOx Annual	PM10 24-hour	PM2.5 24-hour	PM2.5 Annual
Point Sources					
B.1	0.554	0.554	0.047	0.047	0.047
B.2	0.554	0.554	0.047	0.047	0.047
B.3	0.329	0.329	0.025	0.025	0.025
F.A1	0.006	0.006	0.0004	0.0004	0.0004
F.A2	0.006	0.006	0.0004	0.0004	0.0004
F.A3	0.004	0.004	0.0003	0.0003	0.0003
F.A4	0.006	0.006	0.0004	0.0004	0.0004
IRH.B1	0.020	0.020	0.0015	0.0015	0.0015
IRH.B2	0.020	0.020	0.0015	0.0015	0.0015
MAU.A1	0.211	0.211	0.032	0.032	0.032
MAU.D1	0.211	0.211	0.032	0.032	0.032
MAU.F1	0.211	0.211	0.032	0.032	0.032
MAU.F2	0.211	0.211	0.032	0.032	0.032
UH.B1	0.015	0.0008	0.0011	0.0011	0.00006
UH.C1	0.015	0.0008	0.0011	0.0011	0.00006
UH.C2	0.015	0.0008	0.0011	0.0011	0.00006
UH.C3	0.015	0.0008	0.0011	0.0011	0.00006
UH.D1	0.015	0.0008	0.0011	0.0011	0.00006
UH.D2	0.015	0.0008	0.0011	0.0011	0.00006
UH.F1	0.015	0.0008	0.0011	0.0011	0.00006
UH.F2	0.015	0.0008	0.0011	0.0011	0.00006
UH.F3	0.015	0.0008	0.0011	0.0011	0.00006
EMGEN	(exempt)	0.028	0.01	0.01	0.00012
Volume Sources					
GRINDER	-	-	0.027	0.027	0.027

4.2 Toxic Air Pollutants

Idaho TAPs that may potentially be emitted at levels above the screening emission levels are required to be modeled. This includes the carcinogenic TAPs arsenic, cadmium, formaldehyde, and nickel (see **Table 4** and Appendix B Tables B-3 and B-4).

Emission rates used for the TAP impact anaysis are provided in **Table 7** (see also Appendix B Tables B-3 and B-4). Note that the TAP emissions from the Emergency Generator are listed as exempt due to this emission unit being subject to a federal NESHAP.

No special or unique methods were used for handling emissions.

Table 7 – Modeled Emission Rates for TAP Impact Analysis

Modeling ID	Hourly Emission Rate (lb/hr)			
	Arsenic Annual	Cadmium Annual	Formaldehyde Annual	Nickel Annual
Point Sources				
B.1	1.24E-06	6.79E-06	4.63E-04	1.30E-05
B.2	1.24E-06	6.79E-06	4.63E-04	1.30E-05
B.3	6.59E-07	3.62E-06	2.47E-04	6.92E-06
F.A1	1.18E-08	6.47E-08	4.41E-06	1.24E-07
F.A2	1.18E-08	6.47E-08	4.41E-06	1.24E-07
F.A3	7.84E-09	4.31E-08	2.94E-06	8.24E-08
F.A4	1.18E-08	6.47E-08	4.41E-06	1.24E-07
IRH.B1	3.92E-08	2.16E-07	1.47E-05	4.12E-07
IRH.B2	3.92E-08	2.16E-07	1.47E-05	4.12E-07
MAU.A1	8.43E-07	4.64E-06	3.16E-04	8.85E-06
MAU.D1	8.43E-07	4.64E-06	3.16E-04	8.85E-06
MAU.F1	8.43E-07	4.64E-06	3.16E-04	8.85E-06
MAU.F2	8.43E-07	4.64E-06	3.16E-04	8.85E-06
UH.B1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.C1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.C2	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.C3	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.D1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.D2	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.F1	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.F2	1.68E-09	9.23E-09	6.30E-07	1.76E-08
UH.F3	1.68E-09	9.23E-09	6.30E-07	1.76E-08
EMGEN	(exempt)	(exempt)	(exempt)	(exempt)
Volume Sources-				
GRINDER	-	-	-	-

4.3 Emission Release Parameters

Release parameters for the modeled sources are provided in **Table 8** (Point Sources) and **Table 9** (Volume Sources). Source descriptions have been provided in **Table 5**.

Table 8 – Point Source Stack Parameters

POINT SOURCES								
Modeling ID	UTM Coordinates (m)		Base Elevation (m)	Stack Height (m)	Exit Temp (°K)	Exit Velocity (m/s)	Stack Diameter (m)	Release Orientation
	East	North						
B.1	268955	4712095	1275.0	11.1	489.8	4.52	0.41	Vertical
B.2	268955	4712230	1275.0	11.1	489.8	4.52	0.41	Vertical
B.3	268955	4712088	1275.0	11.1	477.6	4.04	0.30	Vertical
F.A1	268953	4712145	1275.0	9.2	338.7	7.176	0.08	Vertical
F.A2	268953	4712135	1275.0	9.2	338.7	4.784	0.08	Vertical
F.A3	268953	4712126	1275.0	9.2	338.7	7.176	0.08	Vertical
F.A4	268953	4712107	1275.0	9.2	338.7	7.176	0.08	Vertical
IRH.B1	269019	4712141	1275.0	9.2	491.5	0.001	0.15	Raincap
IRH.B2	269019	4712120	1275.0	9.2	491.5	0.001	0.15	Raincap
MAU.A1	268975	4712147	1275.0	9.2	295.4	0.001	0.13	Raincap
MAU.D1	269009	4712095	1275.0	9.2	295.4	0.001	0.13	Raincap
MAU.F1	268975	4712283	1275.0	9.2	295.4	0.001	0.13	Raincap
MAU.F2	269009	4712231	1275.0	9.2	295.4	0.001	0.13	Raincap
UH.B1	269005	4712159	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.C1	268957	4712060	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.C2	268957	4712076	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.C3	268957	4712046	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.D1	269021	4712055	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.D2	269021	4712080	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.F1	268957	4712216	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.F2	268957	4712194	1275.0	9.2	463.7	0.001	0.13	Raincap
UH.F3	268957	4712180	1275.0	9.2	463.7	0.001	0.13	Raincap
EMGEN	268946	4712095	1275.0	1.2	866.5	0.001	0.06	Raincap

For point sources, the stack heights and diameters were provided by the project engineer. For the boilers (B Units) and furnaces (F Units), the exit temperature and velocity were also provided by the project engineers, but calculations of these values were not made available to the modeler for inclusion in this report as supporting documentation. For the make-up air units (MAUs), exhaust temperatures could not be provided by the project engineers. Therefore 72°F (equivalent to a normal indoor temperature) was conservatively used. For rooftop exhaust vents associated with infrared heaters (IRH Units), make-up air units (MAU Units), and Emergency Shutdown Heaters (UH Units), exhaust flow rates could not be provided by the project engineers. Therefore, it was conservatively assumed that these vents were equipped with raincaps and were modeled with an exit velocity of 0.001 m/sec. For the emergency generator, the exhaust temperature and flow rate were obtained from the operating data sheet for the specific spark-ignited generator set engine identified by the project engineers.

Table 9 – Volume Source Release Parameters

POINT SOURCES								
Modeling ID	UTM Coordinates (m)		Base Elevation (m)	Structure Height (m)	Structure Width (m)	Release Height (m)	Lateral Sigma-Y (m)	Vertical Sigma-Z (m)
	East	North						
GRINDER	268963	4712027	1275.0	8.64	24.38	4.32	5.67	4.02

For the volume source, the grinding system will be a ground-based operation located under an open-air roof immediately adjacent to the south end of the main manufacturing building. This grinding operation will be open to the atmosphere on the other three sides. The height of the open-air roof is 28.4 ft. The horizontal dimensions of the covered grinding area is 80 ft × 80 ft. For modeling of a volume source, the Release Height, Initial Lateral Dimension (Sigma-Y), and Initial Vertical Dimension (Sigma-Z) are used to define the model input values. These are calculated from the volume source structure height and width using the following equations:

- Release Height = Source Structure Height × 0.5
- Lateral Dimension = Source Structure Width / 4.3
- Vertical Dimension = Source Structure Height / 2.15

5.0 Modeling Methodology

A summary of key modeling components in the impact analyses is presented in **Table 10**. Details of these various modeling components are provided in the following subsections.

Table 10 – Summary of Modeling Methodology

Modeling Component	Description/Values	Documentation/Addition Description
General Facility Location	• Rural • Attainment for all NAAQS	Determination of rural environment was made from review of satellite data of the Burley, Idaho area and 3-km surrounding the Fabri-Kal facility site.
Model	• AERMOD	AERMOD with the PRIME downwash algorithm, version 15181.
Meteorological Data	• 24133 surface data • 24131 upper air data	Meteorological data input files for this project were provided by IDEQ Division of Air Quality.
Terrain	• National Elevation Dataset • AERMAP	USGS National Elevation Dataset (NED) digital elevation data was obtained from the Multi-Resolution Land Characteristic (MRLC) Consortium Viewer (http://www.mrlc.gov/viewerjs/) for the Burley, Idaho area and encompassing several kilometers beyond the expanse of the receptor grid established for the modeling analysis. The data was downloaded as a seamless 1/3-arc second (30-m resolution) NED dataset in GeoTiff format that adequately frames the entire receptor grid. AERMAP version 11103 was used to process the NED dataset to determine each receptor's elevation and hill height scale.
Building Downwash	• BPIP-PRM	Plume downwash was considered for the stacks and structures associated with the facility. The BPIP-PRIME program was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
NOx Chemistry	• Ambient Ratio Method	Ambient Ratio Method (ARM) adjustment factors of 0.80 were used for 1-hour NO2 and 0.75 for annual NO2. These factors were applied after modeling with the NOx emission rates.
Receptor Grid (for All Analysis)	• Grid 1	25-meter spacing along the ambient air boundary
	• Grid 2	50-meter spacing beyond the ambient air boundary and out to a distance of 500 meters from the facility center.
	• Grid 3	100-meter spacing between 500 and 2,000 meters from the facility center.
	• Grid 4	250-meter spacing between 2,000 to 5,000 meters from the facility center.
Ambient Background Concentrations	• NW QUEST Tool	IDEQ provided ambient background concentrations obtained from the NW QUEST tool. The values were applied to the NAAQS cumulative impact analysis.

5.1 Model Selection

The US EPA's AERMOD (version dated 15181) air dispersion modeling system was used for all short-term and long-term NAAQS and TAP modeling. This is the most recent version of the preferred model for performing an air quality impact analysis in support of an air permit application for a typical industrial manufacturing facility. This modeling system consists of the following models and programs:

- AERMOD .....version 15181.....Dispersion model
- AERMAP.....version 11103.....Terrain processor
- BPIP-PRM.....version 04274.....Building profile processor

AERMOD was used in a refined modeling mode since IDEQ provided pre-processed 5-year surface/upper air meteorological data suitable for Burley, ID. The model is very well suited for the flat to gently sloping terrain environment found within 15 km of the proposed site. The AERMAP and BPIP-PRM programs were used to develop terrain and building profile parameters to be used as input to AERMOD.

5.1.1 BPIP-PRM Setup

AERMOD includes algorithms to calculate impacts due to building downwash. These require building/tier profile information generated by Building Profile Input Program (BPIP) with Plume Rise Model Enhancements (PRM). The BPIP-PRM (version dated 04274) utility program provided the required direction-specific building dimensions for near and far wake downwash calculations in AERMOD.

Required inputs to BPIP-PRM are:

- Prime processing switch (i.e., switch set to 'P')
- Building/tier base elevations and corner coordinates
- Stack IDs, base elevations, and coordinates.

Facility stacks the building corners were included in the BPIP-PRM input file using UTM Zone 12 coordinates. The base elevation for buildings and stacks was obtained from site design specifications.

The BPIP-PRM output included, for each point source point, 36 direction-dependent building heights, crosswind widths, and stack-building offsets. This direction-dependent information was input to AERMOD for wake downwash calculations.

5.1.2 AERMAP Setup

The AERMAP terrain processor was used to extract the elevation and hill height scale height for each receptor in the modeling analysis. AERMOD uses as input digital U.S. Geological Survey National Elevation Datasets (NED). Required inputs to AERMAP are:

- Domain Coordinates
- Anchor Point Coordinates
- Source/Building Center Coordinates (optional)
- Receptor Coordinates
- Output File Names

The domain includes two coordinates (lower left and upper right) that define the aerial bounds for the analysis area (i.e., the receptor grid) with a sufficient buffer for AERMAP to determine hill scale heights. The anchor point coordinates represent the approximate facility center. Source and building center coordinates can be entered as a way to either establish base elevations to use in the modeling or to double-check elevations obtained from site survey drawings. In this case, it was used as a double check.

AERMAP output includes two files containing coordinates, elevations, and hill height scales: one file for the receptors, and one for the sources/buildings. The receptor file was used as direct input to AERMOD.

5.1.3 AERMOD Setup

AERMOD was used as downloaded from the EPA's Support Center for Regulatory Atmospheric Modeling (SCRAM) website (https://www3.epa.gov/scram001/dispersion_prefrec.htm). No third party software (such as Breeze or BEE-Line) was used. AERMOD option settings are summarized below.

- *Program Control*
  - *Regulatory default settings*
  - *Concentration values*
  - *Pollutant ID*
  - *1-hr, 3-hr, 8-hr, 24-hr and annual averaging periods (as applicable)*
- *Sources*
  - *Maximum or Average hourly emission rates for each source (as applicable)*
  - *Direction dependent building dimensions for point sources (BPIP-PRM output)*
  - *Source group = ALL*
- *Receptors*
  - *Discrete receptors for ambient air boundary and off-site locations out to 5 km*
  - *Terrain elevations and hill height scales (AERMAP output)*
- *Meteorology*
  - *5-year meteorology data set (5 individual years or concatenated, as applicable)*
- *Output Control*
  - *Due to the statistical nature of the various NAAQS and AACC evaluated in this analysis, the model was instructed to provide output per the settings in* ***Table 11****:*

Table 11 – AERMOD Program and Output Control Settings

Pollutant	Average Period	Meteorology	AERMOD Settings		
			Program Control		Output Control
NAAQS Modeling					
NO2	1-hour	5-yr dataset	POLLUTID NO2	AVERTIME 1	RECTABLE ALLAVE EIGHTH
	Annual	Five 1-yr datasets	POLLUTID NO2	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
PM10	24-hour	5-yr dataset	POLLUTID PM10	AVERTIME 24	RECTABLE ALLAVE SIXTH
PM2.5	24-hour	5-yr dataset	POLLUTID PM2.5	AVERTIME 24	RECTABLE ALLAVE FIRST
	Annual	5-yr dataset	POLLUTID PM2.5	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Carcinogenic TAP Modeling					
Arsenic	Annual	5-yr dataset	POLLUTID ARS	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Cadmium	Annual	5-yr dataset	POLLUTID CAD	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Formaldehyde	Annual	5-yr dataset	POLLUTID FOR	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Nickel	Annual	5-yr dataset	POLLUTID NIC	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST

5.2 Meteorological Data

IDEQ has provided the preprocessed National Weather Service (NWS) meteorology for this AERMOD dispersion modeling analysis. It consists of five separate 1-year datasets and a concatenated 5-year dataset of Burley Airport (NWS station 24133) surface data and coincident Boise (NWS station 24131) upper air data for the years 2008-2012.

5.3 Effects of Terrain

The AERMAP terrain processor was used to extract receptor elevation and hill scale heights from a Geological Survey National Elevation Datasets (NED). Since the USGS no longer provides NED data in the AERMET-required GeoTiff format, a different source for the NEDs data was found. A seamless 1/3-arc second (30-m resolution) NED dataset in GeoTiff format that adequately frames the entire receptor grid has been obtained from the Multi-Resolution Land Characteristics (MRLC) Consortium Viewer (website - http://www.mrlc.gov/viewerjs/) and successfully processed with AERMAP for the entire receptor grid. Building and source elevations were based on site design drawings that included survey data.

5.4 Facility Layout

Scaled facility plot plans are provided in Figure 2 (site construction plan), Figure 3 (overlay on Google Map image), and Figure 4 (emission source locations). The emission source locations were obtained from detailed site construction plans and additional information provided by the project engineer.

5.5 Effects of Building Downwash

The BPIP-PRM program was used to generate building profile data for input to the dispersion modeling analysis to account for building downwash effects. The locations and dimensions of the on-site buildings are required along with any nearby off-site buildings that may affect dispersion. The maximum dimensions for the on-site buildings are listed in **Table 12**. The nearest off-site building shown on **Figure 3** are sufficiently small or distant to not override the downwash effects from the on-site buildings.

Table 12 – On-Site Building Dimensions

Building	Base Elevation (m)	Height (m)	East-West (m)	North-South (m)
Building 1	1275.0	9.1	109.7	121.9
Building 2	1275.0	9.1	73.2	121.9
Offices	1275.0	4.6	12.2	48.8

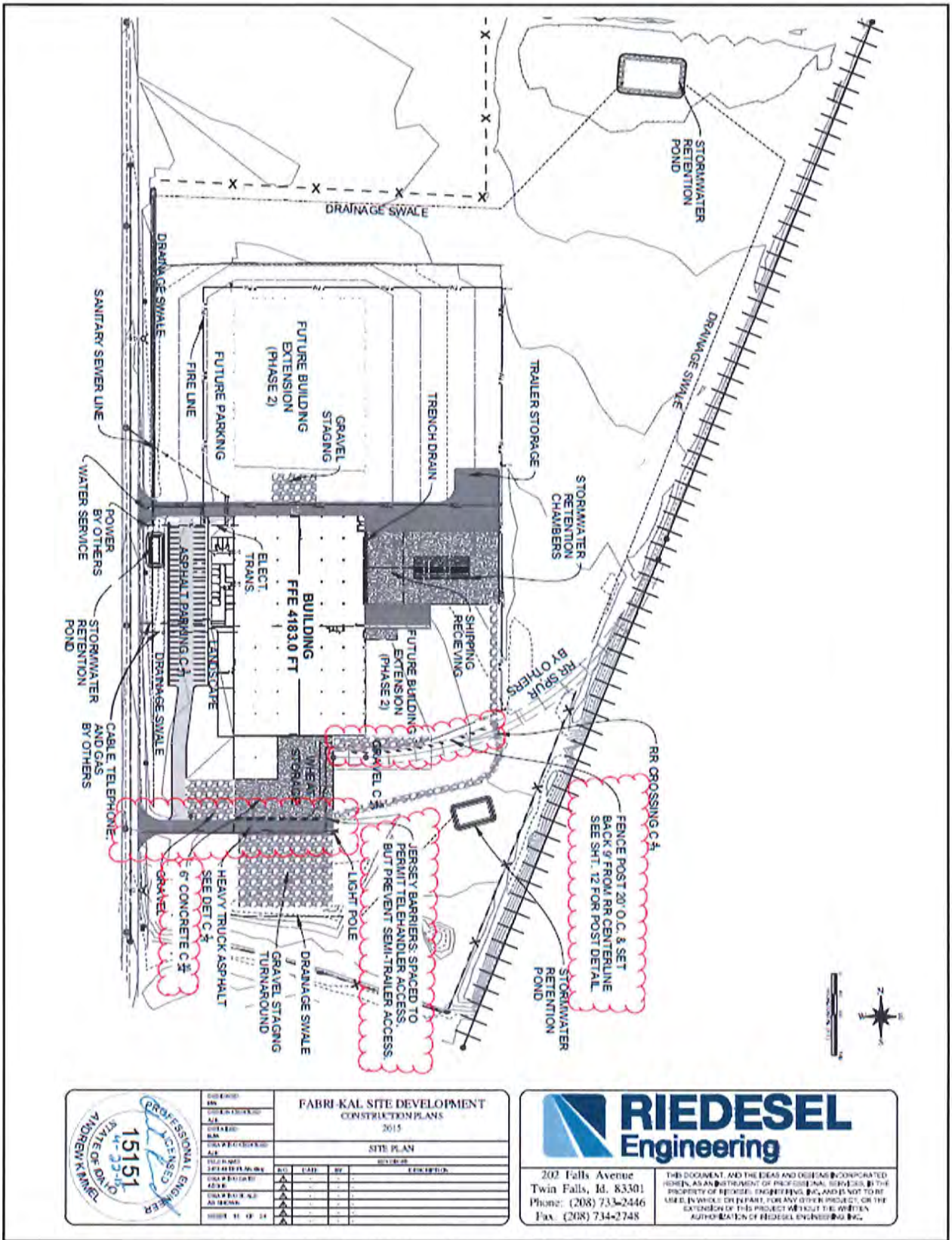


Figure 2 – Site Design Drawing

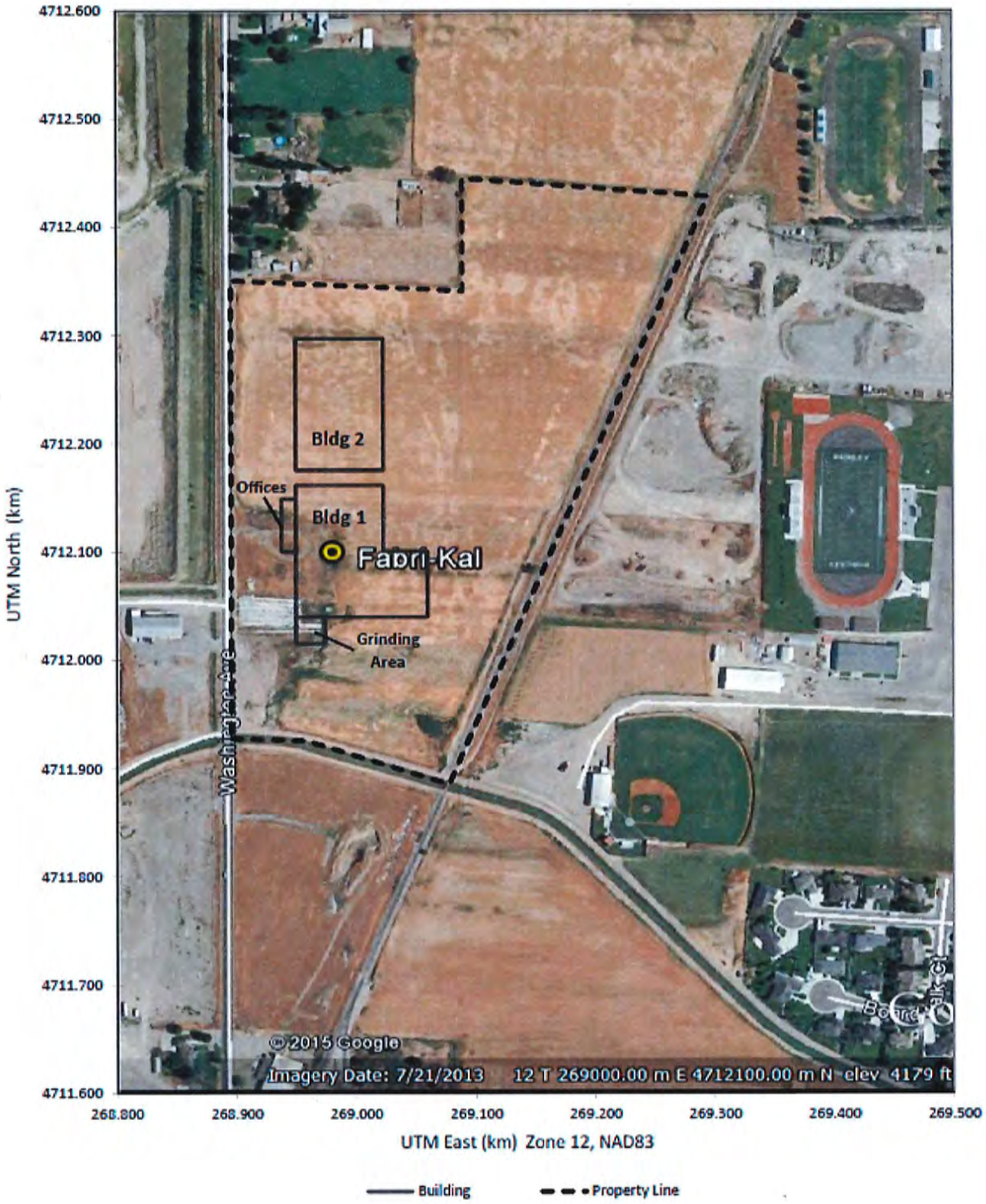


Figure 3 – Fabri-Kal Site Plan

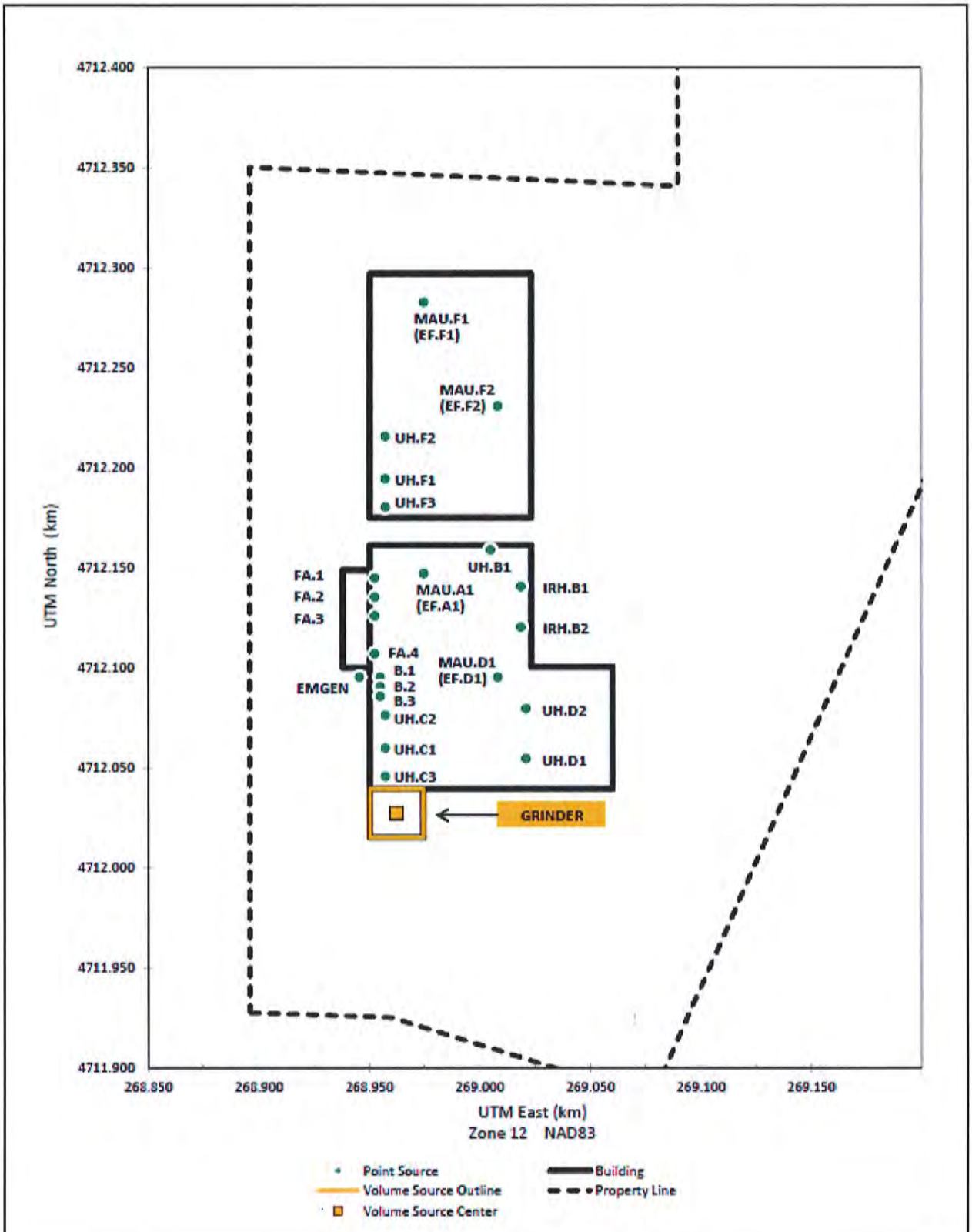


Figure 4 – Emission Source Locations

5.6 Ambient Boundary

The ambient boundary for this project has been defined as the facility property line as shown in Figure 3. Justification to use the property line was addressed in Section 3.4 – Modeling Protocol in the response to IDEQ Comment to the protocol, and is reiterated in the paragraph below.

The facility is located in a rural area with farmland to the west, southwest and northeast. A farm area with buildings and residence exists to the north. School sports fields exist to the east, but are separated by approximately one quarter mile and a fenced borrow material area. The school is located to the east of the sports fields and people from the school are not expected to access the facility property. The facility is located on the outskirts of the city in farmland near other industrial buildings (half mile to the south). Due to these reasons it is not likely that the general public will access the facility property. No trespassing signs will be posted around the property and site personal will periodically check the area and ask any trespassers to leave the property.

5.7 Receptor Network

Receptors represent locations where the dispersion model is instructed to evaluate air quality impacts associated with the input source data. These must be place along the ambient boundary and in the area surrounding the facility. Each receptors has both a horizontal (x and y coordinates) and vertical (elevation) component.

Receptor Locations – Receptors were selected to ensure that dispersion modeling will identify the maximum pollutant concentrations to which the general public may be exposed. This included a combination of ambient boundary receptors and a grid of receptors beyond this boundary. Receptor spacing is:

- Ambient Boundary..... 25-m spacing
- Off-Site Grid..... 50-m spacing near the ambient boundary
- Off-Site Grid..... 100-m spacing out to 2 km from facility center
- Off-Site Grid..... 250-m spacing out to 5 km from facility center.

Note – Because dispersion at the facility will be influenced by building downwash, the maximum impacts are anticipated to occur at or very close to the ambient boundary. The receptor spacing listed above should be more than adequate to identify the location of the maximum facility impacts.

The ambient boundary and receptor grid is presented in a series of three figures: Figure 5 showing the ambient boundary receptors and 50-m spaced receptors out to 500 m from the facility center, Figure 6 showing the 100-m spaced receptors between 500 and 2000 m from the facility center, and Figure 7 showing the 250-m spaced receptors beyond 2000 m from the facility center and out to a distance of 5 km.

Elevation Data – The EPA's AERMAP terrain processor was used to extract receptor elevations from Geological Survey National Elevation Datasets (NED) as described above in Section 5.3 – Effects of Terrain.

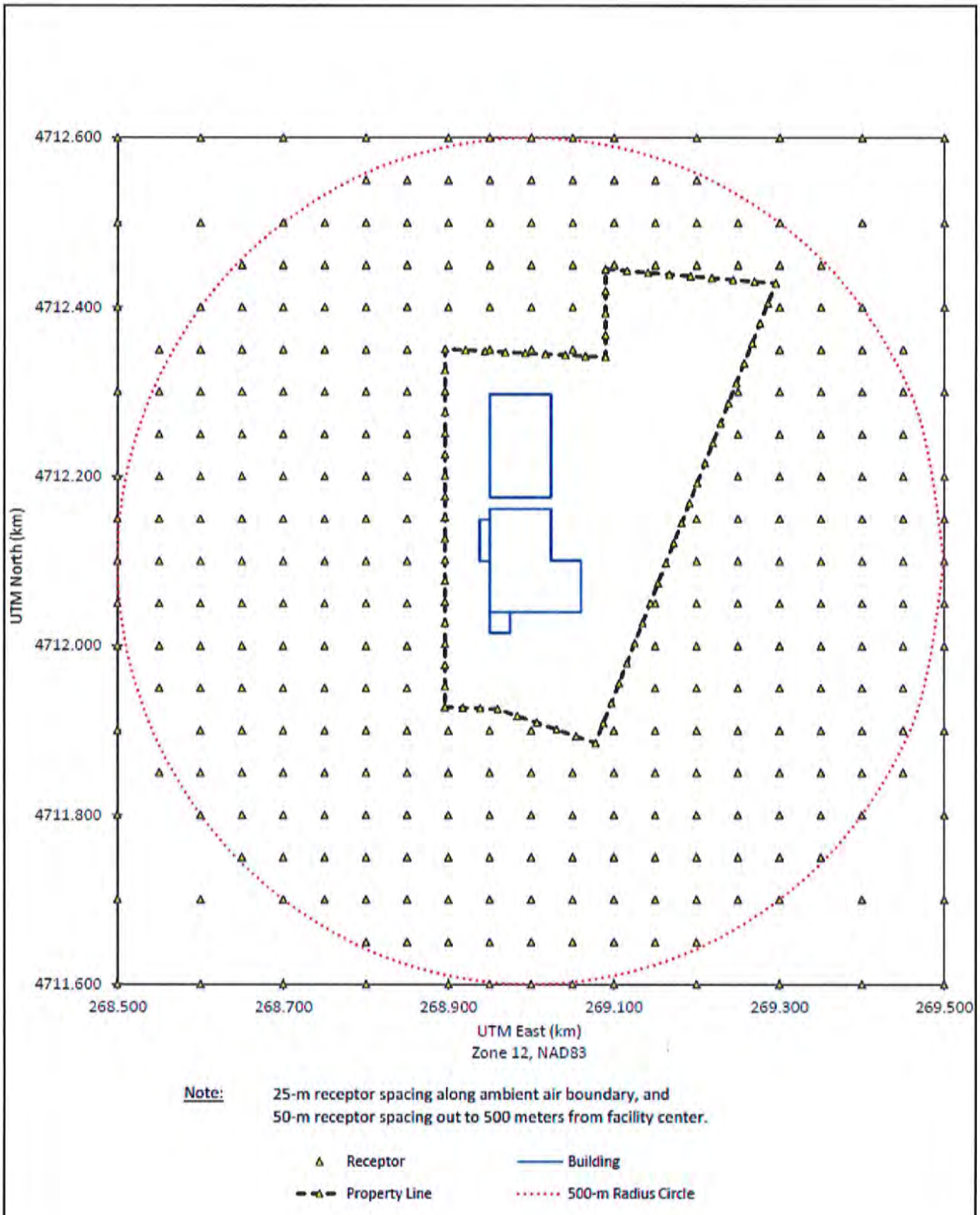


Figure 5 – Ambient Boundary and 50-m Receptor Grid

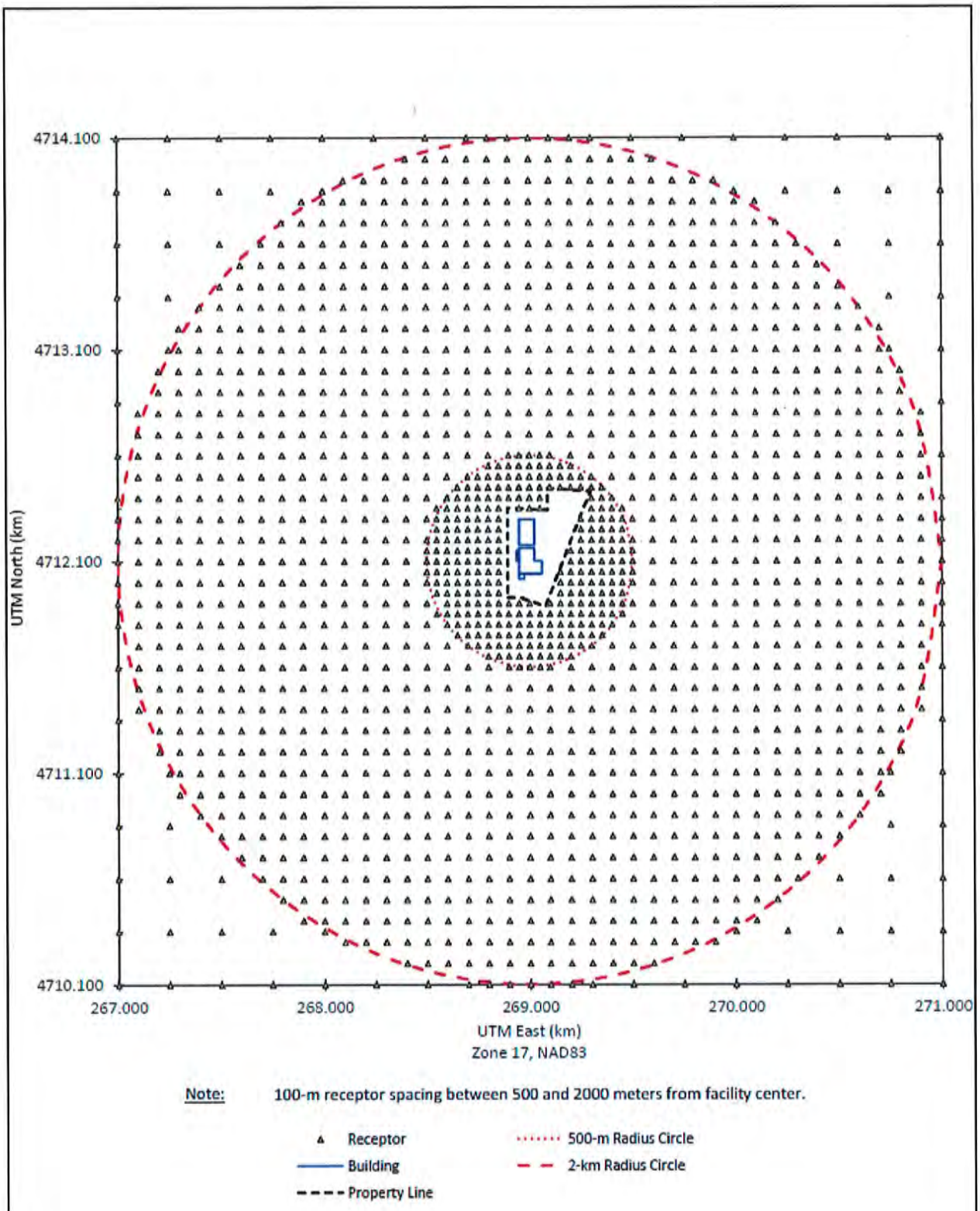


Figure 6 – 100-m Receptor Grid

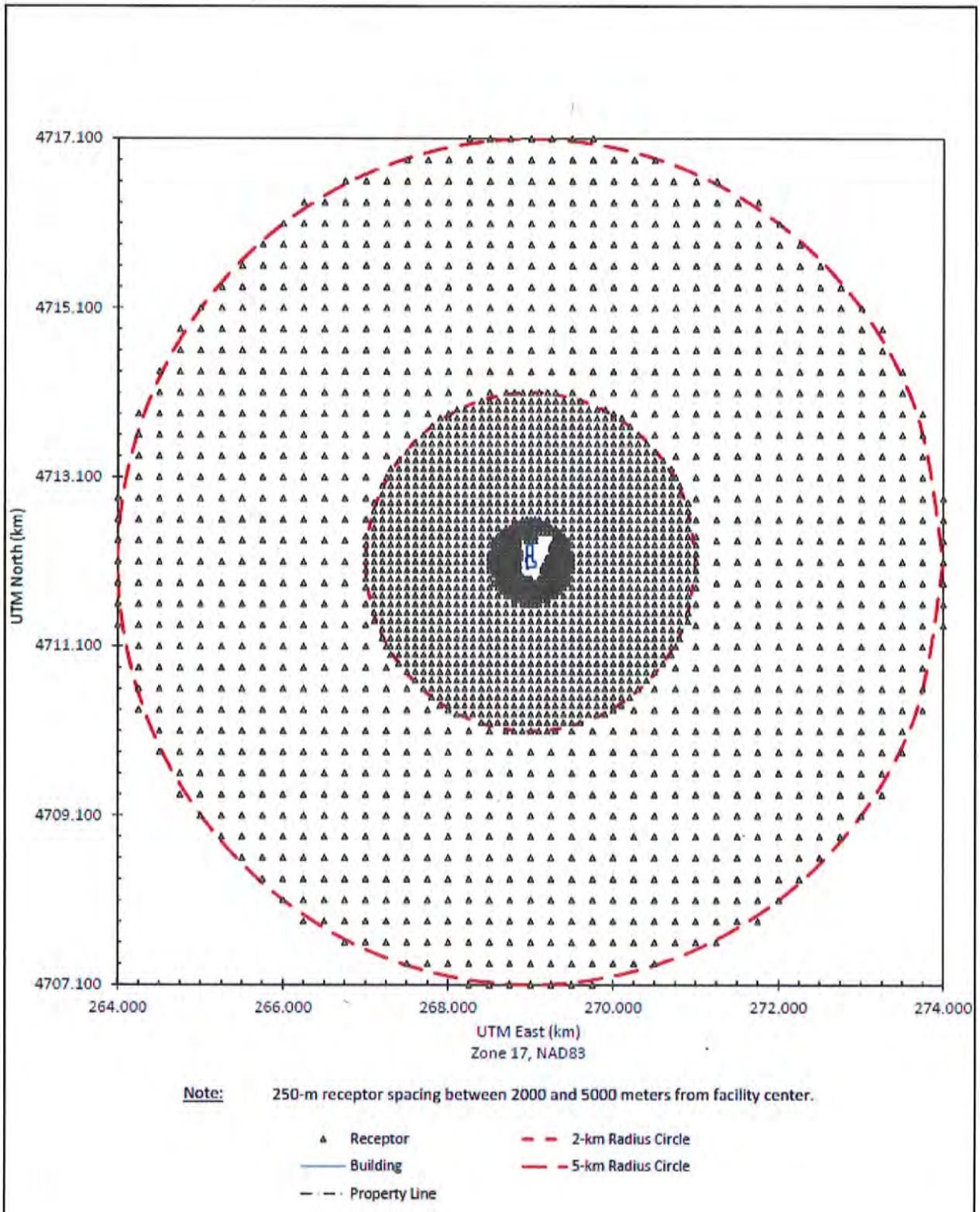


Figure 7 – 250-m Receptor Grid

5.8 Background Concentrations

IDEQ provided ambient background concentrations of the criteria pollutants for use in the cumulative NAAQS analysis. Justification to use this data was addressed in Section 3.4 – Modeling Protocol in the response to IDEQ Comment 6 to the protocol. These concentrations were obtained by IDEQ from the Northwest International Air Quality Environmental Science and Technology Consortium' s NW AIRQUEST lookup tool (http://lar.wsu.edu/nw-airquest/lookup.html) for criteria pollutant design values. Ambient background concentrations are listed in **Table 13** for the criteria pollutants that are required to be modeled. Note that IDEQ converted the NW AIRQUEST values for NO2 from parts per billion (ppb) to micrograms per cubic meter ($\mu g/m^3$).

Table 13 – Ambient Background Concentrations – Criteria Pollutants

Criteria Pollutant	Averaging Period	Ambient Background ($\mu g/m^3$)
NO2	1-hour	31.96
	Annual	5.83
PM10	24-hour	47
PM2.5	24-hour	13
	Annual	4.3

5.9 NOx Chemistry

The 1-hour an annual NAAQS for nitrogen oxides are defined in terms of nitrogen dioxide (NO2) concentrations. However, U.S. EPA's AP-42 emission factors for fuel combustion (in the case of this project, natural gas). IDEQ requires that dispersion modeling for NO2 be performed using the NOx emission rates developed from the AP-42 emission factors. However, IDEQ also allows the applicant to take credit for in-plume conversion of NOx to NO2. There are several approaches that can be applied for this; some requiring no additional justification by the applicant, and others that require additional data and further justification. For the Fabri-Kal project, the U.S. EPA's Ambient Ratio Method (ARM) was used. Specifically, the U.S. EPA allows using a Tier 2 Ambient Ratio Method (ARM) for conversion of NOx to NO2 without additional justification by the applicant as follows:

- Annual Average: NO2 = NOx × 0.75 (per 40-CFR-51 Appendix W Section 5.2.4.c)
- 1-Hour Average: NO2 = NOx × 0.80 (per EPA Memorandum, Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO2 NAAQS (dated Mar 01 2011).

To apply the ARM conversion factors, the dispersion modeling was run using the NOx emission rates. The ARM adjustment factors were then applied to the modeling results presented in Section 6.1 – Criteria Pollutant Impact Results.

Justification to use the ARM method was also addressed in Section 3.4 – Modeling Protocol in the response to IDEQ Comment 9 to the protocol and in Section 4.1.3 – NO2/NOx Ratio for NOx Chemistry Modeling.

6.0 Results and Discussion

Results of the NAAQS and TAP dispersion modeling are presented in this section of the report along with a determination of the facility's compliance status with regard to the applicable air quality standards.

6.1 Criteria Pollutant Impact Results

The Fabri-Kal facility at full buildout will maintain compliance with the NAAQS (i.e., will not cause or contribute to a NAAQS violation).

6.1.1 Significant Impact Level Analyses

A Significant Impact Level analysis was not performed for this facility. Instead, the applicant chose to proceed directly to the cumulative NAAQS impact analysis.

6.1.2 Cumulative NAAQS Impact Analyses

The results of the individual AERMOD modeling runs for the NAAQS analysis are presented in **Table 14**. The highest modeled value from all receptors for the selected the AERMOD Output Option is shown for each individual model year or the 5-yr concatenated meteorology dataset, as appropriate. The compliance demonstration is presented in **Table 15**. Note that the NOx-to-NO2 chemistry is applied in this compliance demonstration. Also, ambient background concentrations were added to the maximum facility impacts to determine the maximum total impact for comparison to the NAAQS. In all cases, the total impact is shown to be less than the NAAQS; indicating that the Fabri-Kal facility will maintain compliance with the NAAQS.

Table 14 – AERMOD Modeling Results – Criteria Pollutants

Pollutant (A)	Averaging Period	Basis for Model Results			Facility Maximum Off-site Impact (µg/m3)						AERMOD Maximum Facility Impact (µg/m^3)
		Hourly Emission Rate (B)	Meteorological Data Set (C)	AERMOD Output Option (D)	2008	2009	2010	2011	2012	5-year 2008-2012	
NOx	1-Hour	Max	Concatenated	A7	-	-	-	-	-	162.29	**162.29**
	Annual	Average	Individual Years	A1	9.46	10.52	12.02	9.59	9.91	-	**12.02**
PM10	24-hour	Max	Concatenated	A3	-	-	-	-	-	7.37	**7.37**
PM2.5	24-hour	Max	Concatenated	A4	-	-	-	-	-	6.10	**6.10**
	Annual	Average	Concatenated	A5	-	-	-	-	-	1.25	**1.25**

(A) Only the pollutants with Facility-Wide PTE emission rates exceeding the respective Threshold Screening Levels have been included in the AERMOD dispersion modeling analysis.

(B) Maximum hourly emission rates used for modeling of 24-hour or shorter averaging periods. Average annual hourly emission rates used for modeling of annual averaging periods.

(C) Maximum modeled facility impacts based on AERMOD refined analysis using 5 years of meteorological data provided by Idaho DEQ: Individual year and 5-year concatenated datasets for years 2008 - 2012 for Surface Station ID = 24133 and Upper Air Station ID = 24131.

(D) AERMOD Output Option used for defining maximum facility impacts:

- A1 - Highest 1st High over 5 years.
- A2 - Highest 2nd High over 5 years.
- A3 - Highest 6th High over 5 years.
- A4 - Highest average of 8th High over 5-years.
- A5 - Highest average of annual mean over 5-years.
- A6 - 5-year average of 4th High daily 1-hour maximum.
- A7 - 5-year average of 8th High daily 1-hour maximum.

Table 15 – Air Quality Compliance Summary – Criteria Pollutants

Pollutant	Averaging Period	Maximum Off-site Air Quality Impact (µg/m3)					Air Quality Standard		
		AERMOD Maximum Facility Impact	Tier 2 NO2/NOx Ratio	Tier 2 Ratio Applied (A)	Ambient Back-Ground	Total Impact (B)	NAAQS	Percent of NAAQS	Compliance with NAAQS
NOx	1-Hour	162.29	0.80	129.83	31.96	161.79	188	86%	Yes
	Annual	12.02	0.75	9.02	5.83	14.85	100	15%	Yes
PM10	24-hour	7.37	-	-	73	80.37	150	54%	Yes
PM2.5	24-hour	6.10	-	-	13	19.10	35	55%	Yes
	Annual	1.25	-	-	4.3	5.55	12	46%	Yes

(A) NO2 Tier 2 Ratio Applied = (NO2 Facility Impact) × (Tier 2 NO2-NOx Ratio)
(B) Total Impact = (Facility Impact) + (Background Concentration)

6.2 TAP Impact Analyses

Results of the individual AERMOD modeling runs for the TAP analysis are presented in **Table 16**. The highest modeled value from all receptors for the selected AERMOD Output Option is shown for each individual model year. The compliance demonstration is presented in **Table 17**. Since ambient background concentrations are not applicable to the TAP analysis, the facility maximum impact represents the total impact. In all cases, the total impact is shown to be less than the AACC; indicating that the Fabri-Kal facility will maintain compliance with the Idaho TAP air quality standards.

Table 16 – AERMOD Modeling Results – Carcinogenic TAP Pollutants

Pollutant (A)	Averaging Period	Basis for Model Results			Maximum Off-site Air Quality Impact (µg/m3)					AERMOD Maximum Modeled Impact ($\mu g/m^3$)
		Hourly Emission Rate (B)	Meteorological Data Set (C)	AERMOD Output Option (D)	2008	2009	2010	2011	2012	
Arsenic	Annual	Average	Individual Years	A1	0.00003	0.00003	0.00003	0.00003	0.00003	**0.00003**
Cadmium	Annual	Average	Individual Years	A1	0.00016	0.00016	0.00016	0.00017	0.00017	**0.00017**
Formaldehyde	Annual	Average	Individual Years	A1	0.01063	0.01097	0.01082	0.01130	0.01178	**0.01178**
Nickel	Annual	Average	Individual Years	A1	0.00030	0.00031	0.00030	0.00032	0.00033	**0.00033**

(A) Only the pollutants with Facility-Wide PTE emission rates exceeding the respective Threshold Screening Levels have been included in the AERMOD dispersion modeling analysis.
(B) Maximum hourly emission rates used for modeling of 24-hour or shorter averaging periods. Average annual hourly emission rates used for modeling of annual averaging periods.
(C) Maximum modeled facility impacts based on AERMOD refined analysis using 5 years of meteorological data provided by Idaho DEQ: Individual year and 5-year concatenated datasets for years 2008 - 2012 for Surface Station ID = 24133 and Upper Air Station ID = 24131.
(D) AERMOD Output Option used for defining maximum facility impacts:
- A1 - Highest 1st High over 5 years.
- A2 - Highest 2nd High over 5 years.
- A3 - Highest 6th High over 5 years.
- A4 - Highest average of 8th High over 5-years.
- A5 - Highest average of annual mean over 5-years.
- A6 - 5-year average of 4th High daily 1-hour maximum.
- A7 - 5-year average of 8th High daily 1-hour maximum.

Table 17 – Air Quality Compliance Summary – TAPs

Pollutant	Averaging Period	Maximum Off-site Air Quality Impact (µg/m3)					Air Quality Standard		
		AERMOD Maximum Facility Impact	Tier 2 NO2/NOx Ratio	Tier 2 Ratio Applied (A)	Ambient Back-Ground (B)	Total Impact (C)	AACC (DC)	Percent of AACC	Compliance with AACC
Arsenic	Annual	0.00003	-	-	-	0.00003	2.30E-04	13%	Yes
Cadmium	Annual	0.00017	-	-	-	0.00017	5.60E-04	30%	Yes
Formaldehyde	Annual	0.01178	-	-	-	0.01178	7.70E-02	15%	Yes
Nickel	Annual	0.00033	-	-	-	0.00033	4.20E-03	8%	Yes

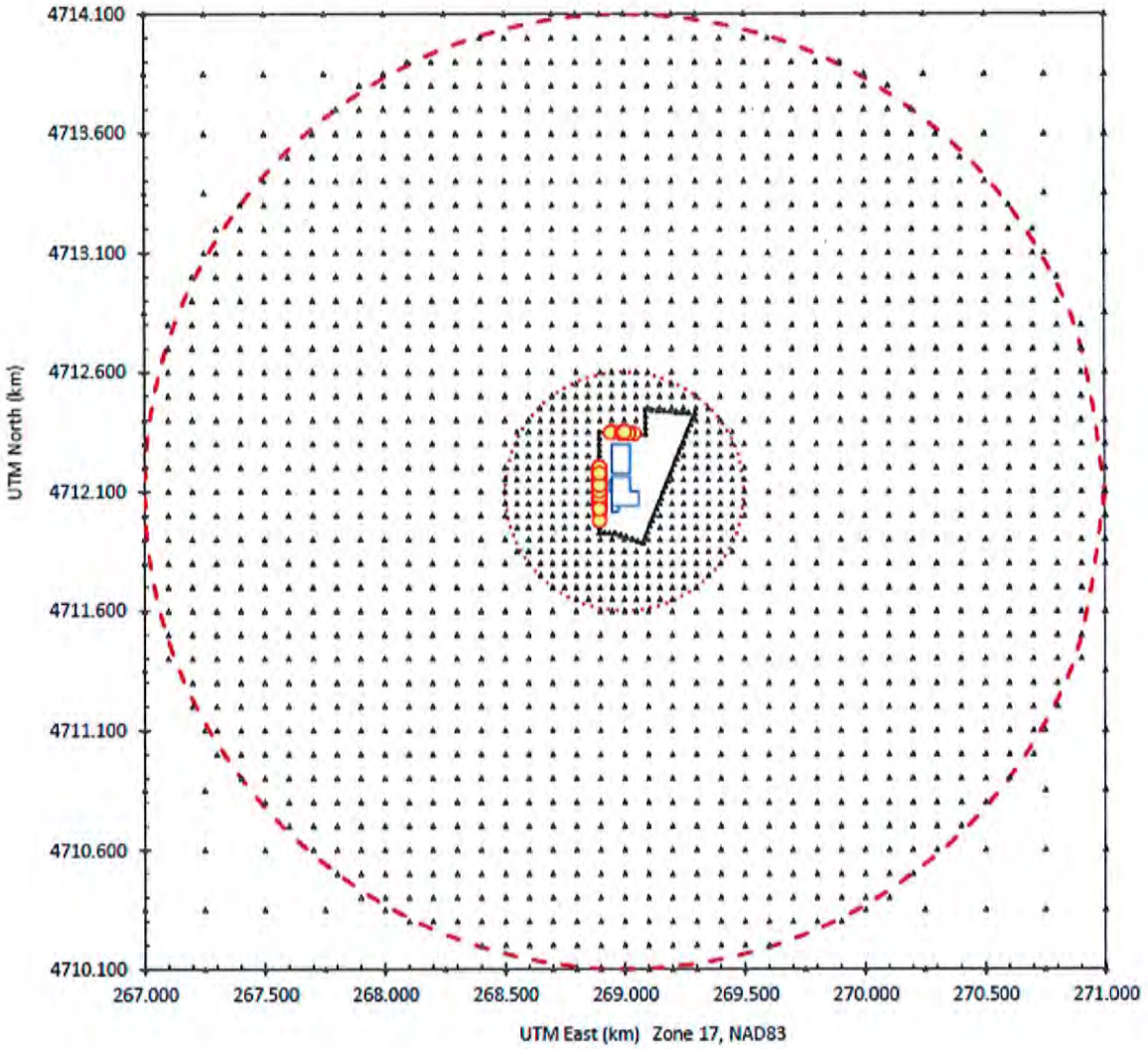
(A) NO2 Tier 2 Ratio is not applicable to TAPs.
(B) Ambient Background is not applicable to TAPs.
(C) Total Impact = Maximum Facility Impact (for TAPs).
(D) AACC = Acceptable Ambient Concentration for Carcinogens.

6.3 Location of Maximum Impacts

A requirement of the NAAQS and TAP impact analyses is a sufficiently dense receptor grid to reasonably resolve the maximum modeled concentration and confidently demonstrate compliance with standards. To verify the sufficiency of the receptor grid used in these analyses, the maximum modeled impact locations have been plotted against the receptor grid for all NAAQS pollutants and averaging periods in **Figures 8** and for all TAP pollutants in **Figure 9** (TAPs). In all cases, the maximum impacts are shown to occur along the property line in the area with 25-m receptor spacing. From this, it is concluded that the maximum modeled impacts have been adequately resolved.

6.4 Electronic Copies of Modeling Files

The modeling files for AERMAP, BPIP-PRM, and AERMOD have been included in Appendix C of this document for IDEQ's review



Notes:
(1) - Max impact locations are for 5 years of NAAQS air dispersion modeling.
(2) - For pollutants modeled with individual years of meteorology, the chart includes results from 5 model runs.
(3) - For pollutants modeled with 5-year concatenated meteorology, the chart includes results from 1 model run.
(4) - There is duplication of maximum impact locations from year-to-year and pollutant-to-pollutant.

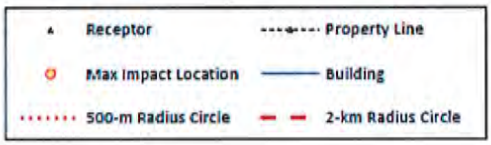
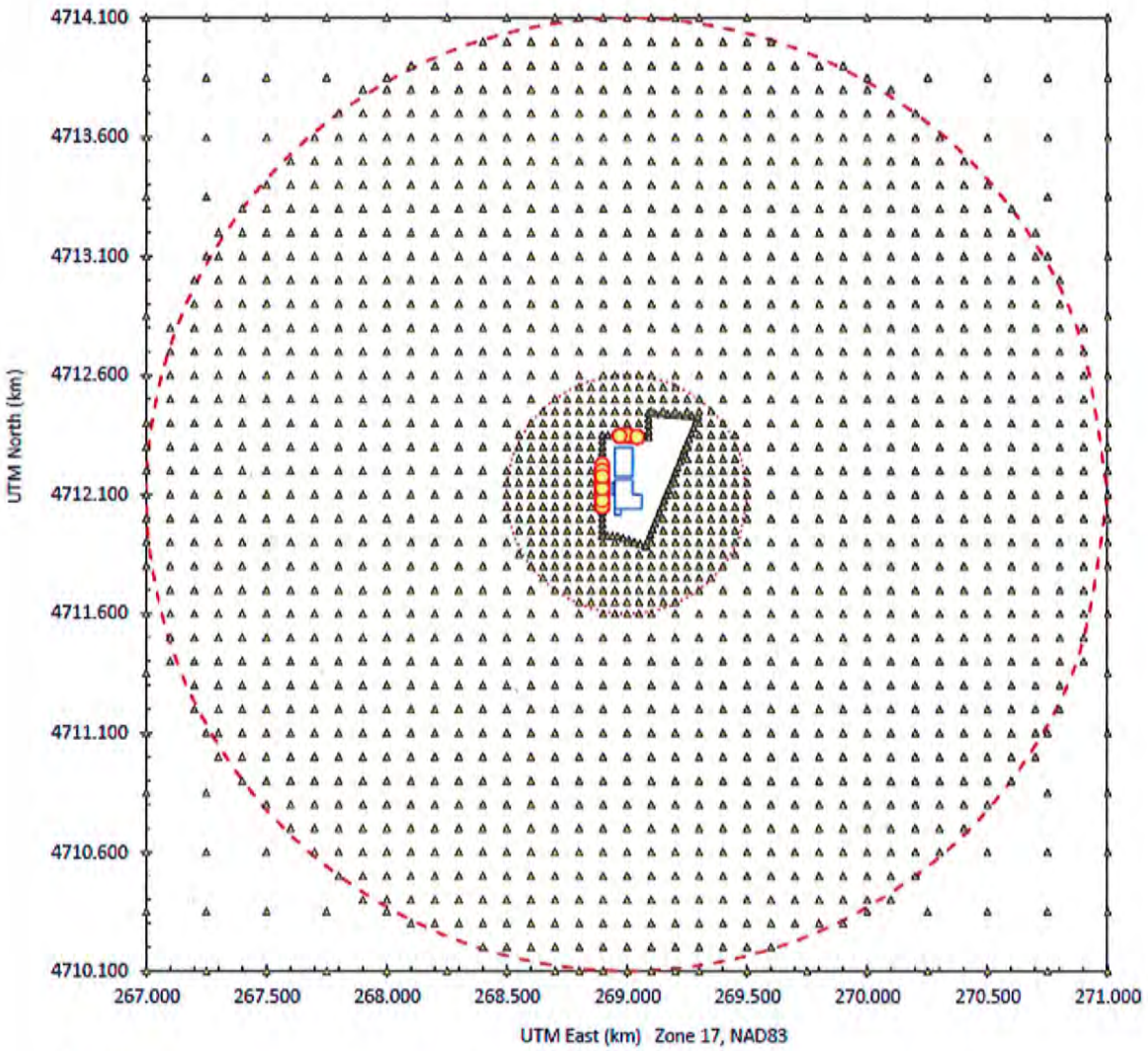


Figure 8 – Maximum Impact Locations – NAAQS Analysis



Notes:
(1) - Max impact locations are for 5 years of TAP air dispersion modeling.
(2) - For pollutants modeled with individual years of meteorology, the chart includes results from 5 model runs.
(3) - For pollutants modeled with 5-year concatenated meteorology, the chart includes results from 1 model run.
(4) - There is duplication of maximum impact locations from year-to-year and pollutant-to-pollutant.

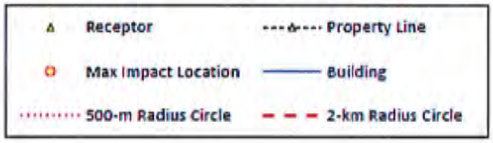


Figure 9 – Maximum Impact Locations – TAP Analysis

7.0 Quality Assurance/Control

This dispersion modeling analysis was performed by a degreed North Wind meteorologist with experience in dispersion modeling. Quality assurance methodology for the various modeling components are summarized below.

- Emission Release Parameters – Parameters used in the dispersion modeling (building dimensions, source locations, stack heights, exhaust parameters, etc.) were provided to the project engineer for verification.
- Meteorological Data – This was provided by IDEQ and used without an independent validation by North Wind for accuracy.
- Ambient Background Concentrations – This was provided by IDEQ. North Wind performed an independent validation of this data for accuracy using the Northwest International Air Quality Environmental Science and Technology Consortium' s NW AIRQUEST lookup tool (http://lar.wsu.edu/nw-airquest/lookup.html).
- Building Data – This was provided by the Fabri-Kal project engineers through site design drawings and used without an independent validation by North Wind for accuracy.
- Terrain Data – U.S. Geological Survey digital elevation data was obtained from the Multi-Resolution Land Characteristics (MRLC) Consortium Viewer website (http://www.mrlc.gov/viewerjs/) and successfully processed with AERMAP for the entire receptor grid. Had the downloaded digital dataset not adequately covered the modeling receptor grid domain, AERMAP would identify this as an error.
- Dispersion Model and Related Programs – The EPA SCRAM website was consulted May 2016 to verify the most recent model versions were used: AERMOD (version date 15181), AERMAP (version date 11103), and BPIP-PRM (version date 04274).
- Location of Maximum Impacts – The location of maximum impacts have been plotted against the receptor grid to verify adequate spatial resolution of the maximum impacts (see **Figure 8** (NAAQS analysis) and **Figure 9** (TAP analysis).
- Electronic Copies of the Modeling Files – The modeling files have been included in Appendix C of this document for IDEQ's review.

APPENDIX A

Dispersion Modeling Protocol
and
IDEQ Approval Letter

APPENDIX B

Detailed Air Emission Calculations

APPENDIX C

Air Modeling Files
(CD-ROM)

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 NORTH HILTON, BOISE, ID 83706 · (208) 373-0502

C. L. "BUTCH" OTTER, GOVERNOR

JOHN TIPPETS, DIRECTOR

December 10, 2015
Saige Ballock-Dixon
North Wind Resource Consulting on behalf of Fabri-Kal of Burley, Idaho

Re: Modeling Protocol for the Fabri-Kal facility in Burley, Idaho

Dear Saige:

DEQ received your dispersion modeling protocol (revised) via email on November 16, 2015 on behalf of the Fabri-Kal (FK) facility in Burley, Idaho. The modeling protocol was submitted by Saige Ballock-Dixon of North Wind Resource Consulting (NWRC). This protocol replaced an earlier protocol received on November 5, 2015. The modeling protocol proposes methods and data for use in the ambient impact analyses of a Permit to Construct (PTC) application for a new facility in order to show compliance with ambient air quality standards for their facility. DEQ has the following comments:

- Comment 1: Documentation and justification of release parameters must be provided in the application. Refer to Section 3.4.3 of the *State of Idaho Guideline for Performing Air Quality Impact Analyses*, September 2013(http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf). Simply stating that values are "manufacturer data" does not constitute adequate documentation and/or justification. DEQ requests that the application describe how the values were obtained (measurement, similar source, combustion evaluation, fan curves, etc.). If values were obtained from an equipment/engineering firm, then those forms, specification sheets, etc. provided by the firm should be included in the application as documentation for the values used in the modeling analyses. The application should be treated as a stand-alone document. If values have been taken from previous permit applications or permits, then the data and derivation from those permit applications or permits

must be included in the document. If data was taken from a stack test, then the stack test report and data should also be included in the document

- Comment 2: NWRC states that operation of the emergency generator will be limited to 100 hours a year, and therefore will not be modeled for the NO_2 1-hour NAAQS analysis, per DEQ modeling guidelines. DEQ reminds NWRC that the emissions for the emergency generator still need to be accounted for in the modeling analyses for other pollutants and for annual NO_2 analysis. Unless a permit provision limiting the source to total operations of less than 100 hours/year is requested by the applicant, annual modeling of emergency generators should assume 500 hours/year (a value EPA determined represents PTE, considering both testing, maintenance, and potential use during emergencies

- Comment 3: Descriptions of the facility process are generally adequate. The ambient air boundary, as stated in the State of Idaho Guideline for Performing Air Quality Impact Analyses, should be defined by an area where the public access is legally and practically precluded. This includes separation from areas of habitation or activities by people not employed by the facility. The protocol states that the ambient boundary will not be controlled by a physical barrier and general access is not discouraged , so the boundary will be defined as that part of the facility property where employees will not regularly be present. The protocol gives discussion on the establishment of the boundary; the applicant should strive to provide a very detailed description of the facility and boundary in the modeling report provided in the final submittal as described in section 1c of section 6.5 in the Modeling Guideline [1] If a physical barrier is not used to preclude public access from areas excluded from ambient air, then the application must thoroughly describe the methods used to practically preclude access.

- Comment 4: NWRC has proposed to use the meteorological data provided by DEQ. This data was collected at the nearby Burley Idaho airport for the period 2008-20012, and is deemed to be appropriately representative of the facility locale.

- Comment 5: NWRC has proposed to treat roof vent sources in the facility as area sources. DEQ requires that these theses sources be treated as point sources in most circumstances; if the existing flow from the vents can be derived from reliable exhaust flow data, then that data should be used in the analyses. If that data is not available then a conservative treatment can be used. For example, if the vents are capped, a velocity of 0.001 meters/second (m/s) is adequate. If the vents are not capped, a velocity of 1 m/s is acceptable.

- Comment 6: DEQ is providing updated ambient background concentrations to be used in the modeling analyses. These data were taken from NW QUEST tool using the refined coordinates of the facility, and are slightly different than those listed in the protocol,

- Comment 7: NWRC provided detailed emission data with the modeling protocol. It should be noted that review and acceptance of the emission calculation and their usage with respect to

modeling thresholds is the responsibility of the assigned permit writer, and DEQ review of such emissions estimates will be performed during DEQ's review of the submitted application. Therefore, modeling applicability and estimated modeling emissions are considered preliminary as submitted in the protocol. Therefore modeling applicability and estimated modeling emissions are preliminary as submitted in the protocol.

- Comment 8: NWRC lists the elevation of the facility as 8147 feet above msl in the report section "Other Unique Methods". NWRC is reminded to carefully check all elevation data used in the modeling analyses. In particular, data used for the building wake analyses with BPIP-Prime should be confirmed to have the same base elevations for both buildings and stack data. Inconsistent base elevations are a common error in AERMOD modeling, and can lead to incorrect air impact results in the model output.
- Comment 9: In Table 1 of the modeling protocol, NWRC uses ARM factors when estimating NO_2 emissions with respect to Level I modeling thresholds. The applicant should be aware that for modeling purposes total NO_X emissions should be entered into the modeling data files, and ARM NO_2 adjustment factors of 0.8 for short term and 0.75 for annual modeling can be used when assessing the final results AFTER modeling with NO_X emission rates.

- Comment 10: DEQ has recently developed a modeling report template form for consultants/applicants to use when submitting modeling analyses. An electronic copy of this template should have been attached to the email delivering this protocol approval notice. DEQ now **requires** that this template be used for the submitted modeling analyses.

DEQ modeling staff considers the submitted dispersion modeling protocol, with consideration and resolution of the additional items noted above, to be approved. It should be noted, however, that the approval of this modeling protocol is not meant to imply approval of a completed dispersion modeling analysis. Please refer to the *State of Idaho Air Quality Modeling Guideline*, which is available on the Internet at http://www.deq.state.id.us/air/permits_forms/permitting/modeling_guideline.pdf, for further guidance.

DEQ modeling staff requests submission of electronic copies of all modeling input and output files (including BPIP and AERMAP input and output files) with an analysis report. Also, please include with the application materials a copy of the protocol and this protocol approval in the appendix of the application. If you have any questions, please call at 208 373 0220

Sincerely,

Thomas Swain
Analyst 3 , Air Modeling
Idaho Department of Environmental Quality
208 373-0220

thomas.swain@deq.idaho.gov

(1) *State of Idaho Guideline for Performing Air Quality Impact Analyses*, September 2013

NWI-RI151-002a

Air Dispersion Modeling Protocol for the Fabri-Kal Facility in Burley, ID

Fabri-Kal

Burley, Idaho

Facility Permit No. < to be determined >

November 2015

(Revision 1a)

Prepared for:

Fabri-Kal

2457 Washington Ave

Burley, ID 83318

Prepared by:

North Wind Resource Consulting

1425 Higham Street

Idaho Falls, ID 82402

NORTHWIND

A CIRI COMPANY

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Air Dispersion Modeling Protocol
for the
Fabri-Kal Manufacturing Facility – Burley, Idaho

1.0 Introduction

Fabri-Kal, a plastics thermoforming company, is proposing to construct and operate a 100,000 square foot design and manufacturing facility in Burley, Idaho. Over the past several months, Fabri-Kal and its environmental consultant, North Wind Services in Idaho Falls, have been coordinating the air permitting effort with the Idaho Department of Environmental Quality (IDEQ) Air Quality Division. A pre-application meeting was held via teleconference on July 2, 2015 during which the State identified requirements and guidance for an air quality impact analysis. Construction and operation of the facility will be implemented in two phases over the two years of operation.

This document serves as the air dispersion modeling protocol for the above referenced facility. It follows the checklist outline presented in Appendix D of the *Guideline for Performing Air Quality Impact Analysis* (ID 2013). It is being submitted to the IDEQ Air Quality Division for review and approval prior to performing the air quality analysis supporting Fabri-Kal's air permit to construct (PTC) application for the final buildout through Phase 2.

2.0 Modeling Protocol Checklist

2.1 Purpose

- **General Overview, Facility Description, Description of Area where facility is located**

  Fabri-Kal is proposing to construct and operate a plastics thermoforming facility in Burly, Idaho (Cassia County). It will manufacture a plant-based ag-fiber material to be used in packaging solutions for the foodservice, consumer product, and retail markets. The thermoforming process will include wheat and soy straw, sodium hydroxide, and polypropylene pellets as raw materials. Natural gas will be combusted to supply process, space heating, and emergency power. The material handling and natural gas combustion will result in air emissions.

  The facility is located approximately 1 mile southwest of the city center as shown on **Figure 1**. Its address and coordinates are:

  2457 Washington Avenue
  Burley ID 83318
  Lat/Long = 42° 31' 38" N / 113° 48' 42" W (approx. center of proposed site).

  Burley is a small city situated in south central Idaho along the Snake River (see Figure 1). Most of the city lies in Cassia County, with only a small portion extending northward into Minidoka County. The population is just over 11,000 within the city boundaries and about 43,000 within these two counties. The terrain is relatively flat ranging in elevation between 4,150 and 4,250 ft above sea level within 5-10 kilometers of Burley, and then gently sloping to 4,400 ft at the base

of the Albion mountain range 15 km to the southeast (SE) and further to the south (S). The mountain peaks range in elevation from 4,600 (17 km SE) to 10,339 ft (Cache Peak, 40 km S).

Figure 1 –Site Location in Burly, Idaho

- **Project Overview**

Raw material is received by truck in the form of wheat and soy straw bales. It is then ground into short pieces. The grinding is done outside in a covered bunker attached to the main building. Ground straw is loaded into a cooking tank, mixed with hot water and sodium hydroxide, and heated with steam from process boilers. All steam from this cooking process will be vented outside. The pulp slurry is pressed to remove the cooking liquid and then rehydrated, at which point it goes through a sequence to achieve the desired fiber length and consistency. The finished pulp is placed in a storage tank which feeds to the thermoforming process.

Additional raw material (polypropylene) received by railcar or truck in pelletized form is vacuum unloaded to storage silos. It is then vacuum fed to an extruder that utilizes heat and pressure to form a thin plastic sheet.

The finished pulp and plastic sheet is fed into thermoforming machines where vacuum is used to form of the product shape. The plastic product is cooled with water, dried, trimmed to the final product shapes, stacked, and box packed. Trimmed waste is reground and pneumatically fed back into the production line.

- **Goals of the Air Quality Impact Analysis**

  The facility will be completed in two phases, with the air quality analysis supporting the air permitting process by demonstrating compliance with applicable air quality standards and allowable ambient concentrations based on the facility's proposed potential-to-emit (PTE) emission levels at full build out (i.e., Phase 1 plus Phase 2).

- **Applicable Regulations and Requirements**

  The regulatory drivers for air permitting and air quality impact analyses are the federal *Clean Air Act* (CAA) and state *Rules for the Control of Air Pollution in Idaho* (IDAPA 58.01.01).

  The proposed process boilers will be natural gas fired and, therefore, are not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Boilers at Area Sources (40 CFR 63, subpart DDDD).

  The proposed natural gas fired emergency generator is subject to the requirements of the NESHAP for stationary reciprocating internal combustion engines (40 CFR 63, subpart ZZZZ).

- **Pollutants of Concern and "Need to Model"**

  Natural gas combustion byproducts include the criteria pollutants (CO, NOx, PM10, PM2.5 and SO2) and HAPs/TAPs identified in EPA's emission factor document AP-42 Section 1.4. Process material handling will result in additional PM10 and PM2.5 emissions. The pollutants of concern in the proposed air quality impact analysis have been identified in the following "need to model" evaluation based on facility-wide PTE hourly emission levels.

  > *Note – For TAP emissions associated with emission units subject to a federal NESHAP, Idaho DEQ policy allows these emissions to be excluded from the facility-wide emission levels used in the "need to model" evaluation.*

  Facility-wide hourly PTE levels are summarized in **Table 1** for the criteria pollutants, **Table 2** for Noncarcinogenic TAPs, and **Table 3** for Carcinogenic TAPs. These facility-wide hourly PTE levels are compared to the respective IDEQ modeling threshold emission levels for criteria pollutants (from Table 2 of the IDEQ modeling guidance) and TAP screening emission levels (from Idaho Air Rules Section 585 and 586). Detailed emission calculations are provided in **Appendix A.**

  Air dispersion modeling is required and will be performed for the following pollutants that exceed the applicable modeling threshold emission levels:

  - NOx ..... Criteria Pollutant ..... 1-hr & Annual
  - PM10 ..... Criteria Pollutant 24-hr
  - PM2.5 ..... Criteria Pollutant ..... 24-hr & Annual
  - Arsenic ..... Idaho TAP – Carcinogen ..... Annual
  - Cadmium ..... Idaho TAP – Carcinogen ..... Annual
  - Formaldehyde ..... Idaho TAP – Carcinogen ..... Annual
  - Nickel ..... Idaho TAP – Carcinogen ..... Annual

Table 1 – Facility-wide Emission Levels for Criteria Pollutants (lb/hr)

Pollutant	Facility Total Max Hourly (lb/hr)	Idaho DEQ Threshold Level (lb/hr)	Air Dispersion [A] Modeling Required
Pollutants with Short-Term (1, 3, 8, and/or 24-hr) Standards			
CO	7.173	15	No
NO2 (= 0.80 NOx Level II Conversion)	2.287	0.20	**YES**
PM10	0.354	0.22	**YES**
PM2.5	0.354	0.054	**YES**
SO2	0.026	0.21	No
Lead	2.09E-05	0.019	No
Pollutant	Facility Total Average Hourly (lb/hr)	Idaho DEQ Threshold Level (lb/hr)	Air Dispersion [A] Modeling Required
Pollutants with Annual Standards [B]			
NO2 (= 0.75 NOx Level II Conversion)	2.068	0.20	**YES**
PM2.5	0.335	0.054	**YES**

(A) Modeling required if the facility hourly emission level is greater than the Idaho IDEQ Threshold Level.
(B) Annual Average Hourly emission rate takes into account annual operating limits on emergency equipment.

Table 2 – Facility-wide Emission Levels for Noncarcinogenic TAPs (lb/hr)

Pollutant	Facility Total [A] Max Hourly (lb/hr)	Idaho Rule §585 Screening Level (lb/hr)	Air Dispersion [B] Modeling Required
TAPs with 24-Hour Standards			
Acrolein	-	0.017	No
Barium	1.84E-04	0.033	No
Chlorobenzene	-	23.3	No
Chromium	5.86E-05	0.033	No
Cobalt	3.51E-06	0.0033	No
Copper	3.56E-05	0.013	No
Dichlorobenzene (as 1,4-)	5.08E-05	30	No
1,2-Dichloropropane	-	23.133	No
Ethyl Benzene	-	29	No
Hexane	7.53E-02	12	No
Manganese	1.59E-05	0.067	No
Methanol	-	17.3	No
Molybdenum	4.60E-05	0.333	No
Naphthalene	2.55E-05	3.33	No
Pentane	1.09E-01	118	No
Selenium	1.00E-06	0.013	No
Styrene	-	6.67	No
Toluene	1.42E-04	25	No
Vanadium	9.62E-05	0.003	No
Xylene	-	29	No
Zinc	1.21E-03	0.667	No

(A) Listed TAPs without facility hourly emissions are associated with the exempt emergency generator.
(B) Modeling required if the facility hourly emission level is greater than the Idaho IDEQ Screening Level.

Table 3 – Facility-wide Emission Levels for Carcinogenic TAPs (lb/hr)

Pollutant	Facility Total [A] Average Hourly (lb/hr)	Idaho Rule §586 Screening Level (lb/hr)	Air Dispersion [B] Modeling Required
TAPs with Annual Standards			
Acetaldehyde	-	3.00E-03	No
Arsenic	8.11E-06	1.50E-06	**YES**
Benzene	8.52E-05	8.00E-04	No
Benzo(a)pyrene	4.87E-08	2.00E-06	No
Beryllium	4.87E-07	2.80E-05	No
1,3-Butadiene	-	2.40E-05	No
Cadmium	4.46E-05	3.70E-06	**YES**
Carbon Tetrachloride	-	4.40E-04	No
Chloroform	-	2.80E-04	No
1,1-Dichloroethane	-	2.50E-04	No
1,2-Dichloroethane	-	2.50E-04	No
1,3-Dichloropropene	-	1.90E-07	No
Ethylene Dibromide	-	3.00E-05	No
Formaldehyde	3.04E-03	5.10E-04	**YES**
3-Methylchloranthrene	7.30E-08	2.50E-06	No
Methylene Chloride	-	1.60E-03	No
Nickel	8.52E-05	2.70E-05	**YES**
PAH (except 7-PAH group)	3.11E-06	9.10E-05	No
POM (7-PAH group) per ID	4.62E-07	2.00E-06	No

(A) Listed TAPs without facility hourly emissions are associated with the exempt emergency generator.
(B) Modeling required if the facility hourly emission level is greater than the Idaho IDEQ Screening Level.

2.2 Emissions and Source Data

- **Description of Facility Processes and Emissions Controls**

This permit action will affect the entire facility process and emission controls. The process includes the following types of equipment: storage silos (for polypropylene pellets), electric haybuster, cooking tank, extruder, process boilers, air handling units, process heaters (furnaces and infrared heaters), emergency process shutdown heaters, and an emergency generator. Natural gas will be used as the only fuel for the heating and emergency power units.

There will be no emission control devices associated with the thermoforming process. However, operating limits of 500 hours per year of each emergency shutdown heater and 100 hours per year for the emergency generator will be requested in the permitting process.

- **List of Emissions Points Included in the Modeling Analyses**

Table 4 lists the emission units that represent the full facility buildout for Phase 1 and Phase 2. A description of the exhaust characteristics and source identification used for the modeling analysis are also presented. Where practical, emission units with multiple rooftop vents are combined into single area sources.

Table 4 – Emission Sources

Emission Unit	Exhaust Description	Modeled Source Type	Modeled Source ID
Haybuster	Fugitive - covered open area adjacent to bldg	Volume (surface-based)	V.HAY
Storage Silos	Silo bin vents	Do not emit pollutants of concern.	
Cooking Tank	Rooftop vent		
Extruder	Rooftop vent		
Boiler 1	Rooftop stack	Point	P.B1
Boiler 2	Rooftop stack	Point	P.B2
Boiler 3	Rooftop stack	Point	P.B3
MAU Unit 1 MAU Unit 2 MAU Unit 3	Make-up air units with multiple rooftop vents	Area (elevated)	A.MAU1
MAU Unit 4 MAU Unit 5	Make-up air units with multiple rooftop vents	Area (elevated)	A.MAU2
Furnace 1 Furnace 2 Furnace 3 Furnace 4	Process heaters with multiple rooftop vents	Area (elevated)	A.FUR
Infrared Heater 1 Infrared Heater 2	Process heaters with multiple rooftop vents	Area (elevated)	A.IRH
Emergency Shutdown Heater 1 Emergency Shutdown Heater 2 Emergency Shutdown Heater 3 Emergency Shutdown Heater 4 Emergency Shutdown Heater 5 Emergency Shutdown Heater 6	Emergency heaters with multiple rooftop vents	Area (elevated)	A.ESH1
Emergency Shutdown Heater 7 Emergency Shutdown Heater 8 Emergency Shutdown Heater 9	Emergency heaters with multiple rooftop vents	Area (elevated)	A.ESH2
Emergency Generator	Stack	Point	P.EMGEN

- **Good Engineering Practice (GEP) Stack-Height Analysis**

The main building will have maximum horizontal dimensions of 360 feet by 400 feet. It will have a slightly sloped roof ranging in height from 28'-4"at the eaves to 31'-8" at the peak. For modeling purposes, the average building height of 30' will be used.

GEP stack height is defined by the EPA as the height necessary to insure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of aerodynamic downwash, eddies, or wakes which may be caused by

nearby structures (i.e., buildings). For the proposed Fabri-Kal building, GEP stack height is determined by the equation $H_{GEP} = 2.5 \times H_{Bldg}$. This would indicate a GEP stack height of of 2.5 × 30' = 75'. Note that a GEP stack height analysis is only applicable to point sources.

Since discharges to the atmosphere from the boiler stacks will be at several feet above the roof height, there will be no stacks approaching GEP height. Therefore, aerodynamic downwash effects will be included in the dispersion modeling.

- **Graphic – Facility Site Plan and Emission Source Locations**

Facility site plans showing the buildings, emission source locations, property line, and ambient air boundary are shown **Figure 2** and **Figure 3**.

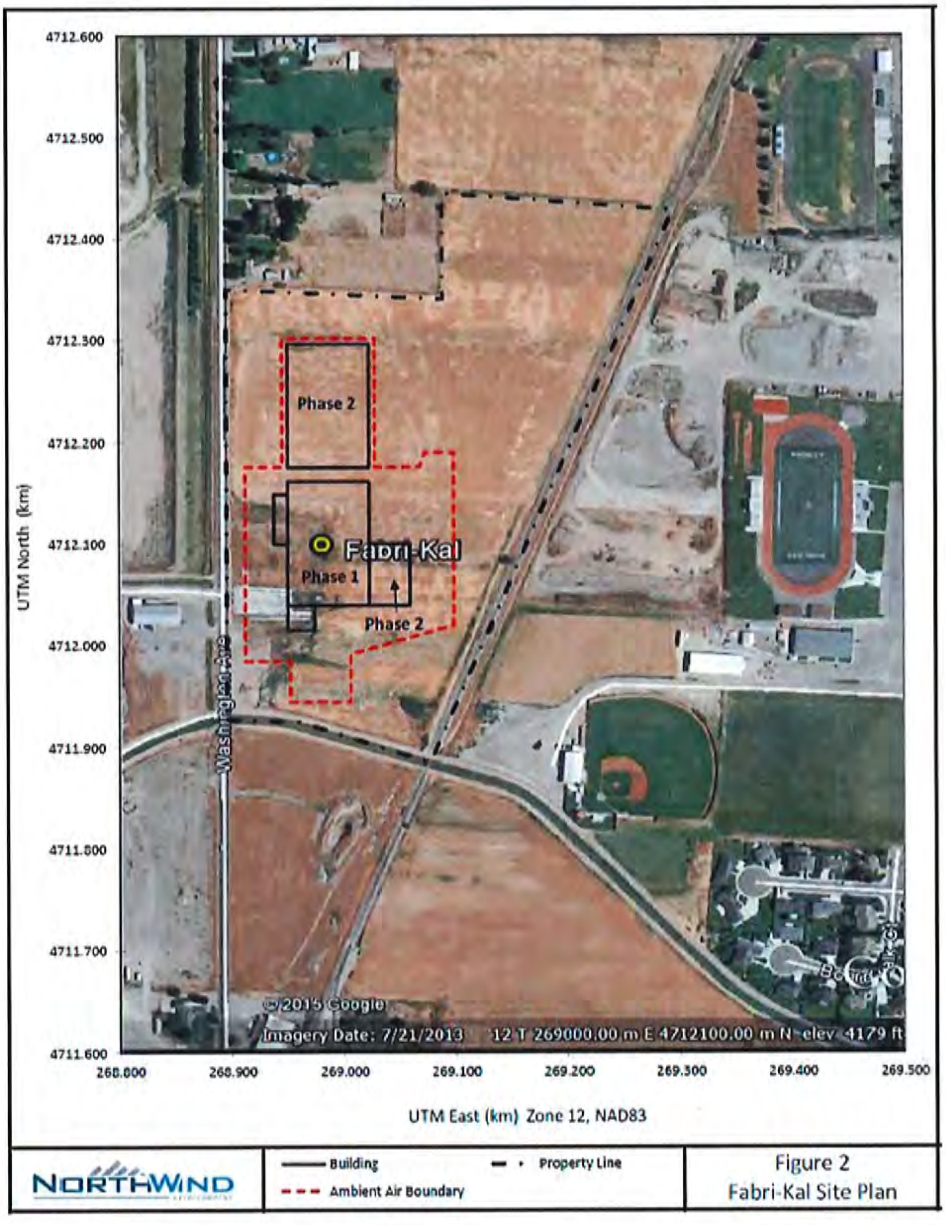
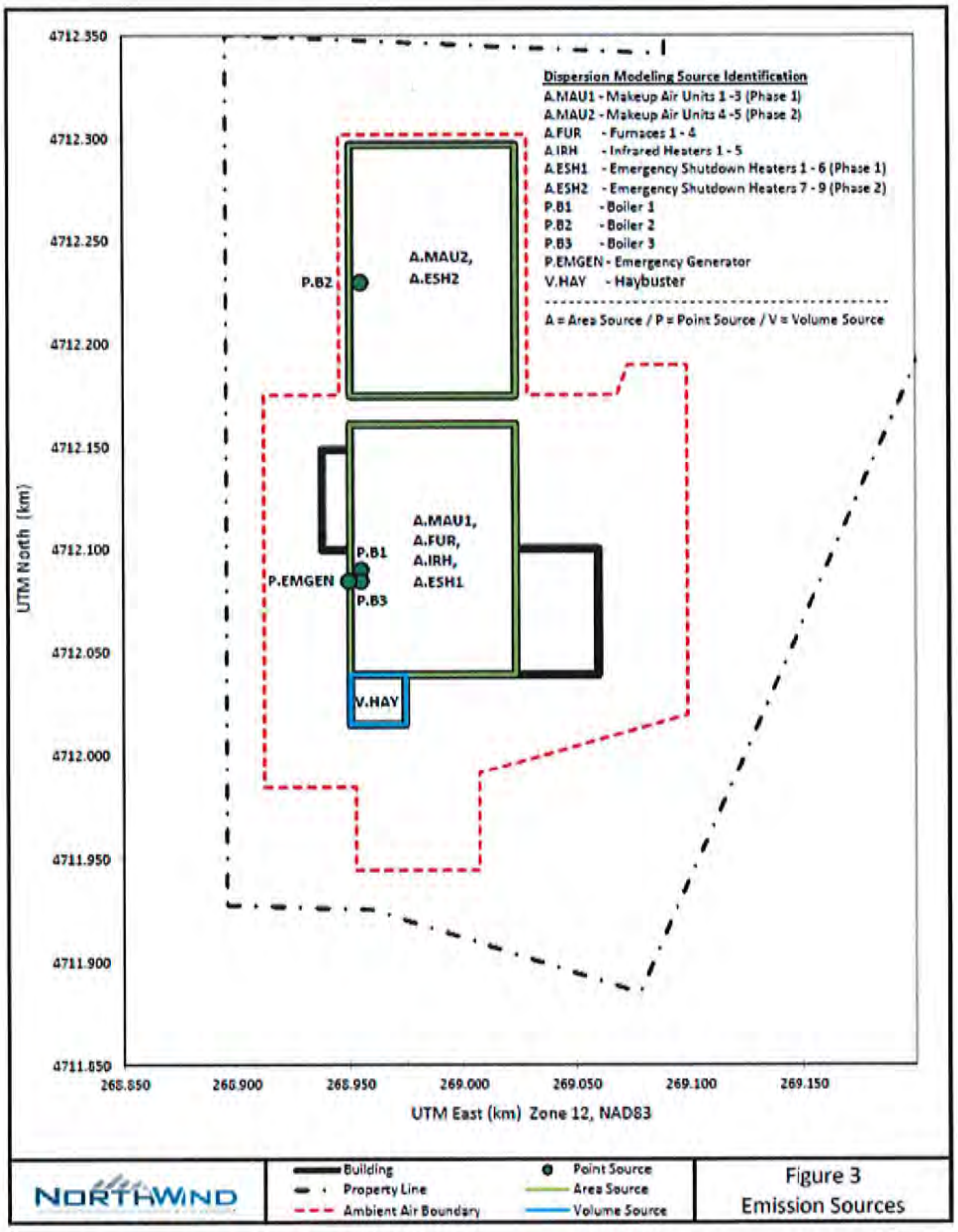


Figure 2
Fabri-Kal Site Plan



- **Point Sources & Area Sources – Emission Calculations and Source Parameters**

  Table 5 and **Table 6** present the source parameters (English and metric units, respectively) for emission units that will be modeled.

  - Point source parameters include coordinates, stack base elevation, stack height, stack diameter, stack orientation, exhaust flow rate and exit velocity, exhaust temperature. All the stacks will be modeled at the facility will be vertical without raincaps.
  - Area source parameters include coordinates (of the southwest corner), base elevation, release height, east dimension, north dimension, and rotation angle relative to north.

Process and space heating sources to be modeled are vented though multiple roof-mounted exhaust vents. These will be combined and modeled as area sources since individual vent parameters cannot be quantified.

- Volume source parameters include coordinates (of the center), base elevation, release height, lateral dimension, and vertical dimension. The Haybuster is the only source at the facility that will be modeled as a volume source. It will be located in a partially enclosed and covered area directly adjacent to the main building. It will be modeled as a surface-based volume source with a release height set at 50% of the covering height.

Table 7 presents the Maximum and Average hourly PTE emission for these sources (English units). Maximum hourly emission rates will be used to model impacts for 24-hour and shorter averaging periods. Average hourly emission rates will be used to model annual average impacts. Detailed emission calculations are presented in **Appendix A** of this protocol.

Table 5 –Source Parameters (English Units)

POINT SOURCES								
Modeling ID	UTM Coordinates [A] (km)		Base Elevation (ft MSL)	Stack Orientation	Stack Height (ft)	Stack Diameter (ft)	Exit Temp (°F)	Flow Rate (acfm)
	East	North						
P.B1	268.955	4712.090	4183	Vertical	32	1.33	422	1237
P.B2	268.955	4712.230	4183	Vertical	32	1.33	422	1237
P.B3	268.955	4712.085	4183	Vertical	32	1.00	400	625
P.EMGEN	268.950	4712.085	4183	Vertical	4	0.30	1100	636
AREA SOURCES								
Modeling ID	UTM Coordinates (km)		Base Elevation (ft MSL)		Release Height (ft)	East Length (ft)	North Length (ft)	Rotation Angle from North
	East	North						
A.MAU1	268.950	4712.040	4183		30	240	400	0
A.MAU2	268.950	4712.175	4183		30	240	400	0
A.FUR	268.950	4712.040	4183		30	240	400	0
A.IRH	268.950	4712.040	4183		30	240	400	0
A.ESH1	268.950	4712.040	4183		30	240	400	0
A.ESH2	268.950	4712.175	4183		30	240	400	0
VOLUME SOURCES								
Modeling ID	UTM Coordinates (km)		Base Elevation (ft MSL)	Release Height (ft)		Length of Side (ft)	Vertical Height (ft)	
	East	North						
V. HAY	268.950	4712.015	4183	14.2		80	28.4	
(A) Universal Transverse Mercator (UTM) coordinates for Zone 12, WGS84 NAD83 datum.								

Table 6 –Source Parameters (Metric Units for Modeling)

POINT SOURCES							
Modeling ID	UTM Coordinates (km)	Base Elevation	Stack [A] Orientation	Stack Height	Stack Diameter	Exit Temp	Exit [A] Velocity

	East	North	(m)		(m)	(m)	(°K)	(m/s)
P.B1	268.955	4712.090	1275.0	Vertical	9.8	0.41	489.8	4.52
P.B2	268.955	4712.230	1275.0	Vertical	9.8	0.41	489.8	4.52
P.B3	268.955	4712.085	1275.0	Vertical	9.8	0.30	477.6	4.04
P.EMGEN	268.945	4712.095	1275.0	Vertical	1.2	0.09	866.5	45.71

AREA SOURCES

Modeling ID	UTM Coordinates (km)		Base Elevation (m)	Release Height (ft)	East Length (ft)	North Length (ft)	Rotation Angle from North
	East	North					
A.MAU1	268.950	4712.040	1275.0	9.1	73.0	122.0	0
A.MAU2	268.950	4712.175	1275.0	9.1	73.0	122.0	0
A.FUR	268.950	4712.040	1275.0	9.1	73.0	122.0	0
A.IRH	268.950	4712.040	1275.0	9.1	73.0	122.0	0
A.ESH1	268.950	4712.040	1275.0	9.1	73.0	122.0	0
A.ESH2	268.950	4712.175	1275.0	9.1	73.0	122.0	0

VOLUME SOURCES

Modeling ID	UTM Cooridnates (km)		Base Elevation (ft MSL)	Release Height (m)	Initial Dimensions	
	East	North			Lateral σ_{yo}	Vertical σ_{yo}
V. HAY	268.950	4712.015	1275.0	4.3	5.7	4.0

(A) Point sources with raincaps would be modeled with an exit velocity of 0.001 m/s to eliminate momentum plume rise. However, modeled point sources at this facility are vertical without raincaps.

Table 7 – Emission Rates for Modeling (English Units)

MAXIMUM HOURLY [A]						**(for Modeling of 1, 3, 8, and 24-Hour Impacts)**
Modeling ID	NO2 (as 0.80 NOx) [B] (lb/hr)	PM10 (lb/hr)	PM2.5 (lb/hr)	-	-	-
P.B1	0.452	0.048	0.048	-	-	-
P.B2	0.452	0.048	0.048	-	-	-
P.B3	0.272	0.026	0.026	-	-	-
P.EMGEN	(exempt) [C]	0.009	0.009	-	-	-
A.MAU1	0.585	0.111	0.111	-	-	-
A.MAU2	0.390	0.074	0.074	-	-	-
A.FUR	0.014	0.001	0.001	-	-	-
A.IRH	0.032	0.003	0.003	-	-	-
A.ESH1	0.072	0.007	0.007	-	-	-
A.ESH2	0.036	0.003	0.003	-	-	-
V. HAY	-	0.027	0.027	-	-	-
AVERAGE HOURLY [A]						**(for Modeling of Annual Impacts)**
Modeling ID	NO2 (as 0.75 NOx) [B] (lb/hr)	PM2.5 (lb/hr)	Arsenic (lb/hr)	Cadmium (lb/hr)	Formaldehyde (lb/hr)	Nickel (lb/hr)
P.B1	0.424	0.048	1.26E-06	6.93E-06	4.73E-04	1.32E-05
P.B2	0.424	0.048	1.26E-06	6.93E-06	4.73E-04	1.32E-05
P.B3	0.255	0.026	6.80E-07	3.74E-06	2.55E-04	7.14E-06
P.EMGEN	0.019	0.0001	(exempt) [D]	(exempt) [D]	(exempt) [D]	(exempt) [D]
A.MAU1	0.548	0.111	2.93E-06	1.61E-05	1.10E-03	3.07E-05
A.MAU2	0.366	0.074	1.95E-06	1.07E-05	7.31E-04	2.05E-05
A.FUR	0.014	0.001	3.60E-08	1.98E-07	1.35E-05	3.78E-07
A.IRH	0.030	0.003	8.00E-08	4.40E-07	3.00E-05	8.40E-07
A.ESH1	0.004	0.0004	1.03E-08	5.65E-08	3.85E-06	1.80E-07
A.ESH2	0.002	0.0002	5.14E-09	2.83E-08	1.93E-06	5.39E-08
V. HAY	-	0.027	-	-	-	-

(A) For modeling, emission rates will be converted to metric units of gram/second (g/s) for point sources and gram/second/square meter ($g/s/m^2$) for area sources.

(B) Credit is taken for Level II conversion of NOx to NO2 (1-hr NO2 = 0.80 NOx and Annual NO2 = 0.75 NOx) per IDEQ guidance which allows this credit without prior approval. Calculation details presented in Appendix A.

(C) Source is exempt from 1-hour NOx modeling per Appendix A of the IDEQ guidance for emergency generators with an operational limit of 100 hour per year.

(D) Source is exempt from Carcinogenic TAP modeling per IDEQ guidance for emission units subject to a federal NESHAP.

- **Inclusion/Exclusion of Sources – Justification**

All emission sources that emit a criteria pollutant and/or an Idaho TAP will be considered in the air quality analysis as follows:

(1) Proposed emissions from all these sources are first used to develop facility-wide PTE emission rates which are then compared to the respective threshold and screening emission levels (see **Table 1**, **Table 2**, and **Table 3**).

(2) Pollutants of concern are identified as those which have a facility-wide PTE emission rate exceeding the respective threshold or screening emission level need to be included in the dispersion modeling. All other emitted pollutants are deemed to in compliance with the applicable ambient air quality standard or allowable ambient concentration based on screening. The pollutants of concern for this project are the criteria pollutants NOx, PM10, PM2.5, and the carcinogenic TAPs arsenic, cadmium, formaldehyde, and nickel.

(3) For the pollutants of concern identified above, all sources that contribute to the facility-wide PTE emission levels of these pollutants will be included in the dispersion modeling with the following exceptions:

   a. Exclusion – NOx emissions from emergency power equipment that is intended to operate intermittently 100 hr/yr or less may be excluded from the cumulative NAAQS analysis for 1-hour NO2 (see *Appendix A – Guidance for 1-Hour NO2 Modeling of Intermittent Sources* of the IDEQ modeling guideline (ID 2013)). Since the facility will be requesting a permit limit of 100 hr/yr operation for the natural gas-fired Emergency Generator, this source will meet the conditions for exclusion from the 1-hr NOx modeling analysis.

   b. Exclusion – TAP emissions from sources covered under a NESHAP may be excluded from dispersion modeling. Since the natural gas-fired Emergency Generator is subject to the NESHAP for Stationary Reciprocating Internal Combustion Engines (40 CFR 63, subpart ZZZZ), this source will meet the conditions for exclusion of its TAP from the modeling analysis.

2.3 Air Quality Modeling Methodology

- **Model Selection and Justification**

The US EPA's AERMOD (version dated 15181) air dispersion modeling system will be used for all short-term and long-term modeling. This is the most recent version of the preferred model for performing an air quality impact analysis in support of an air permit application for a typical industrial manufacturing facility. The model will be used in a refined mode since DEQ has provided a pre-processed 5-year surface/upper air meteorological data set suitable for Burley, ID. This model is very well suited for the flat to gently sloping terrain environments found within 15 km of the proposed site in Burley, ID.

AERMOD will be used as downloaded from the EPA's SCRAM website. No third party graphical interface software (such as Breeze or BEE-Line) will be applied.

- **Model Setup and Application**

Averaging Periods – For the criteria pollutants included in the "pollutants of concern" listing above, averaging periods for the NAAQS analysis in Table 4 of the IDEQ guideline (ID 2013) include 1-hour, 24-hour, and annual. For the carcinogenic TAPs included in the "pollutants of concern" listing above, Idaho Air Rules Section 586 establishes acceptable ambient concentrations for carcinogens (AACCs) in terms of annual averages. For the 1-hour and 24-hour periods, maximum hourly emission rates will be modeled. For annual periods, the annual average hourly emission rates will be modeled; calculated as Maximum Hourly Rate (lb/hr) × (Permitted Annual Hours / 8,760 hours).

- NO2 ..... 1-hour and Annual
- PM10 ..... 24-hour and Annual
- PM2.5 ..... 24-hour and Annual
- Arsenic ..... Annual
- Cadmium ..... Annual
- Formaldehyde ..... Annual
- Nickel ..... Annual

Setup Options – AERMOD will be instructed to use the following setup options and input:

- *Program Control*
  - ☐ *Regulatory default settings*
  - ☐ *Concentration values*
  - ☐ *1-hr, 3-hr, 8-hr, 24-hr and annual averaging periods (as applicable)*
- *Sources*
  - ☐ *Elevation units in meters*
  - ☐ *Maximum or Average hourly emission rates for each source (as applicable)*
  - ☐ *Direction dependent building dimensions for point sources*
  - ☐ *Source group = ALL*
- *Receptors*
  - ☐ *Discrete receptors for ambient air boundary and off-site locations out to 5 km*
  - ☐ *Terrain elevations (from AERMAP and Geological Survey national elevation data (NED))*
  - ☐ *Elevation units in meters*
- *Meteorology*
  - ☐ *5-year historical meteorology data set (as 5 individual years)*
- *Output Control*
  - ☐ *Due to the statistical nature of the various NAAQS and AACC, the model will be instructed to provide output per the settings listed in* ***Table 8*** *below for the "pollutants of concern" (based on EPA, IDEQ, and AERMOD guidance):*

Table 8 – AERMOD Program and Output Control Settings

Pollutant	Average Period	Meteorology	AERMOD Settings		
			Program Control		Output Control
NAAQS Modeling					
NOx	1-hour	5-yr dataset	POLLUTID NO2	AVERTIME 1	RECTABLE ALLAVE EIGHTH
	Annual	Five 1-yr datasets	POLLUTID NO2	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
PM10	24-hour	5-yr dataset	POLLUTID PM10	AVERTIME 24	RECTABLE ALLAVE SIXTH
PM2.5	24-hour	5-yr dataset	POLLUTID PM2.5	AVERTIME 24	RECTABLE ALLAVE FIRST
	Annual	5-yr dataset	POLLUTID PM2.5	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Noncarcinogenic TAP Modeling					
N/A	24-hour	-	-	-	-
Carcinogenic TAP Modeling					
Arsenic	Annual	5-yr dataset	POLLUTID ARS	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Cadmium	Annual	5-yr dataset	POLLUTID CAD	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Formaldehyde	Annual	5-yr dataset	POLLUTID FOR	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST
Nickel	Annual	5-yr dataset	POLLUTID NIC	AVERTIME ANNUAL	RECTABLE ALLAVE FIRST

- **Land-Use**

  A land-use analysis is required where "Urban" is used or where land use is not obviously "Rural." A review of **Figure 1** reveals that the area surrounding the Fabri-Kal site is common residential to the northeast, east, and southeast, and undeveloped/agricultural to the north, west, and south. Therefore, the land-use will be considered Rural for dispersion modeling purposes.

- **Building Downwash**

  Airflow past a building creates two zones of turbulence that can cause emissions from nearby stacks to mix downward toward the ground (i.e., downwash): the cavity (or near wake) and the far wake. Each zone has different turbulence characteristics, but both have the potential to increase the ground-level air quality impacts just downwind of the building. AERMOD includes algorithms to calculate impacts in the near and far wake, based on building/tier profile information generated by the U.S EPA's BPIP-PRM utility program with the Plume Rise Model Enhancements (PRIME). BPIP-PRM (version dated 04274) will be used to develop the direction specific building dimensions for near and far wake downwash calculations in AERMOD.

  Required inputs to BPIP-PRM are:

  - *Prime processing switch (i.e., switch set to 'P')*
  - *Building/tier base elevations and corner coordinates*
  - *Stack IDs, base elevations, and coordinates.*

  The stacks (i.e., point sources) listed in **Table 5** and the buildings shown on **Figure 2** and **Figure 3** will be included in the BPIP-PRM input file. All coordinates will be in NAD83 UTM Zone 12 coordinates. The base elevation for buildings and stacks was obtained from site design specifications. The BPIP-PRM output includes, for each point source point, 36 direction-

dependent building heights, crosswind widths, and stack-building offsets. This direction-dependent information will be used as input to AERMOD for wake downwash calculations.

- **Treatment of Chemical Transformations**

The only chemical transformation considered in this analysis will be a Level II conversion of NOx to NO2. Specifically, 1-hour NO2 = 0.80 NOx and Annual NO2 = 0.75 NOx. The DEQ Quick Reference Guide for air dispersion modeling allows the use of this conversion without prior approval. The NOx to NO2 conversion is documented in the emission calculations presented in Appendix A.

Although not a chemical transformation, calculations of PM10 and PM2.5 emissions from natural gas combustion include both filterable and condensable particulates. The total PM2.5 annual impacts will then be compared to the lower primary annual NAAQS.

- **Other Unique Methods**

A site design and survey drawing provided by Fabri-Kal presented in **Figure 4** was used to determine the base elevation for the buildings and emission sources. It shows a base elevation of 8147 feet above mean seal level (ft MSL).

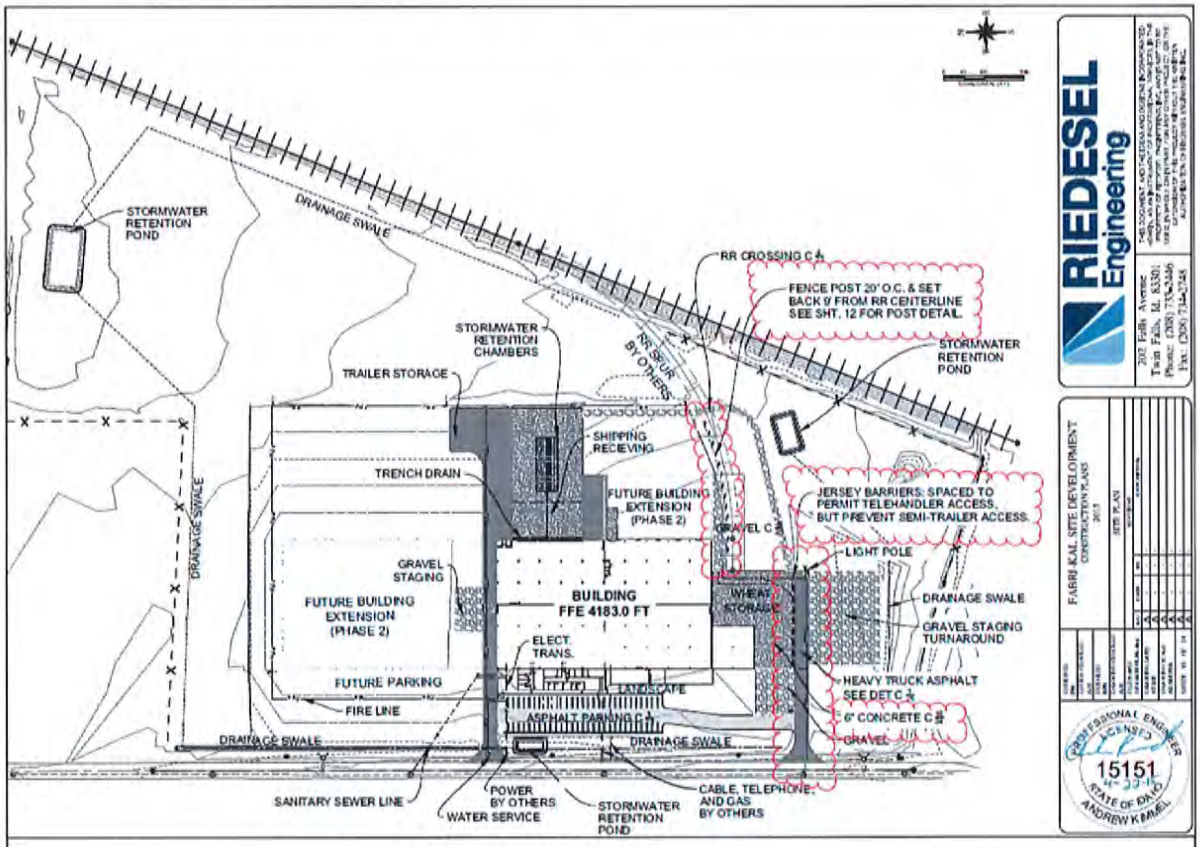


Figure 4 – Site Design Drawing

Receptor Network

Receptors are selected to ensure that dispersion modeling will identify the maximum concentrations to which the general public may be exposed. This includes a combination of ambient boundary receptors and a grid of receptors beyond this boundary. Receptor spacing is:

- Ambient Boundary ..... 25-m spacing
- Off-Site Grid..... 50-m spacing near the ambient boundary
- Off-Site Grid..... 100-m spacing out to 2 km from facility center
- Off-Site Grid..... 250-m spacing out to 5 km from facility center.

Note – Because the emission sources are characterized by area sources and short stacks, the maximum impacts are anticipated to occur at or very close to the ambient boundary. The receptor spacing listed above should be more than adequate to identify the location of the maximum facility impacts.

Ambient Air Boundary – The property line cannot be used to define the ambient air boundary for the following two reasons: (1) a fence will not be installed to limit access to the property and, (2) the facility is bounded to the north by a residence and to the east by a public access facility (i.e., high school and athletic fields as shown in **Figure 1**). Therefore, the ambient air boundary will be defined as a perimeter around the facility beyond which employees will not regularly be present. This perimeter will be established around the following employee areas (see **Figure 3 and Figure 4**): employee parking and driveways, material shipping/receiving, outside storage, gravel staging, and Phase 1 and Phase 2 buildings while allowing a minimal buffer around the Phase 2 building.

Off-Site Grid – The ambient air receptor grid based on the spacing listed above is presented in a series of three figures: **Figure 5** showing the ambient boundary receptors and 50-m spacing out to 500-m from the facility center, **Figure 6** showing the 100-m spaced receptors between 500 and 2000-m from the facility center, and **Figure 7** showing the 250-m spaced receptors beyond 2000-m from the facility center and out to a distance of 5-km.

Elevation Data – The EPA AERMAP terrain processor will be used to extract receptor elevations from Geological Survey National Elevation Datasets (NED) using the AERMAP terrain processor per the DEQ guidance. However, since the USGS no longer provides NED data in the AERMET-required GeoTiff format, a different source for the NEDs data was found. A seamless 1/3-arc second (30-m resolution) NED dataset in GeoTiff format that adequately frames the entire receptor grid has been obtained from the Multi-Resolution Land Characteristics Consortium (MRLC) – MLRC Consortium Viewer (website - http://www.mrlc.gov/viewerjs/) and successfully processed with AERMAP for the entire receptor grid. Building and source elevations will be based on the site design and survey drawing.

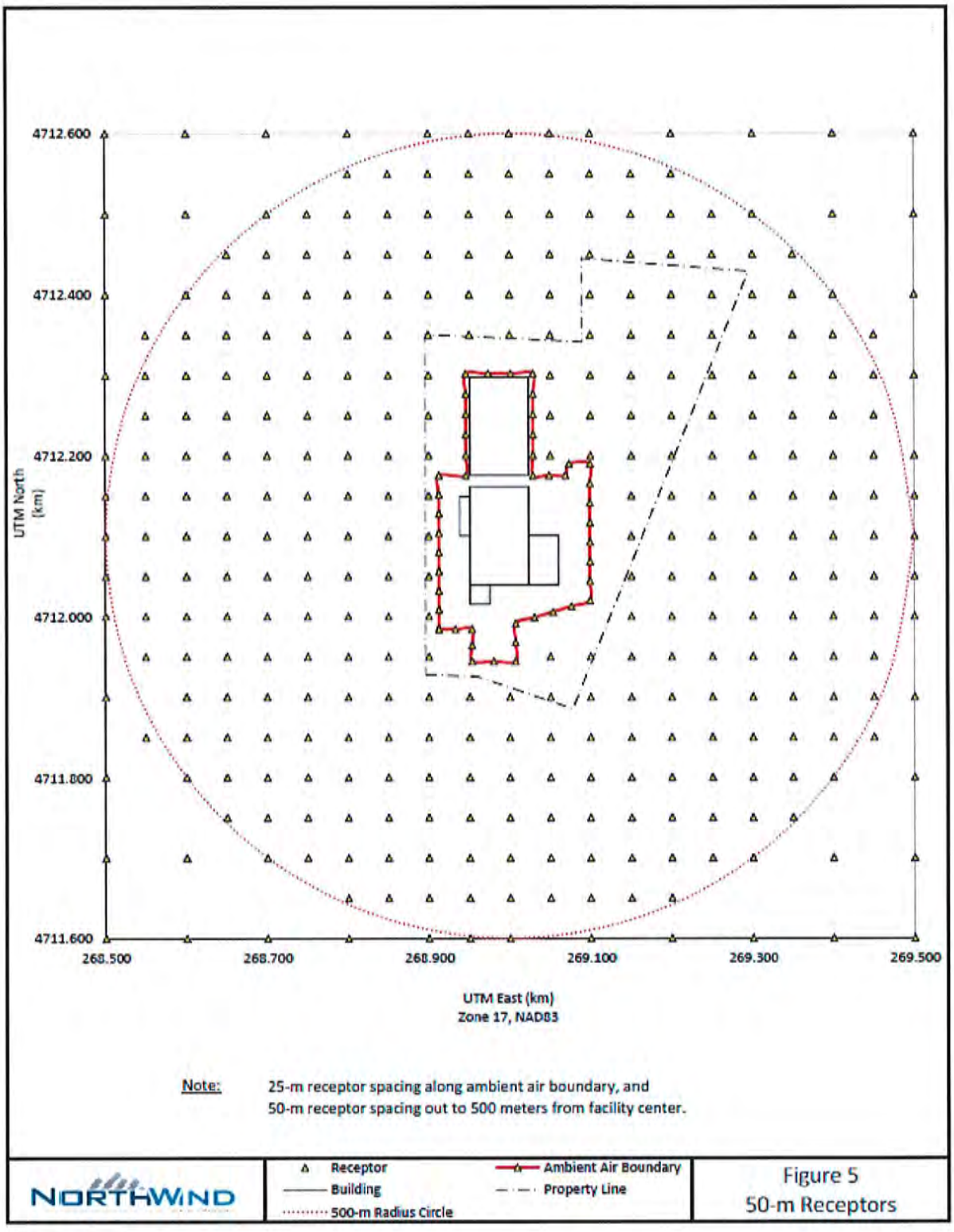
- **Meteorological Data**

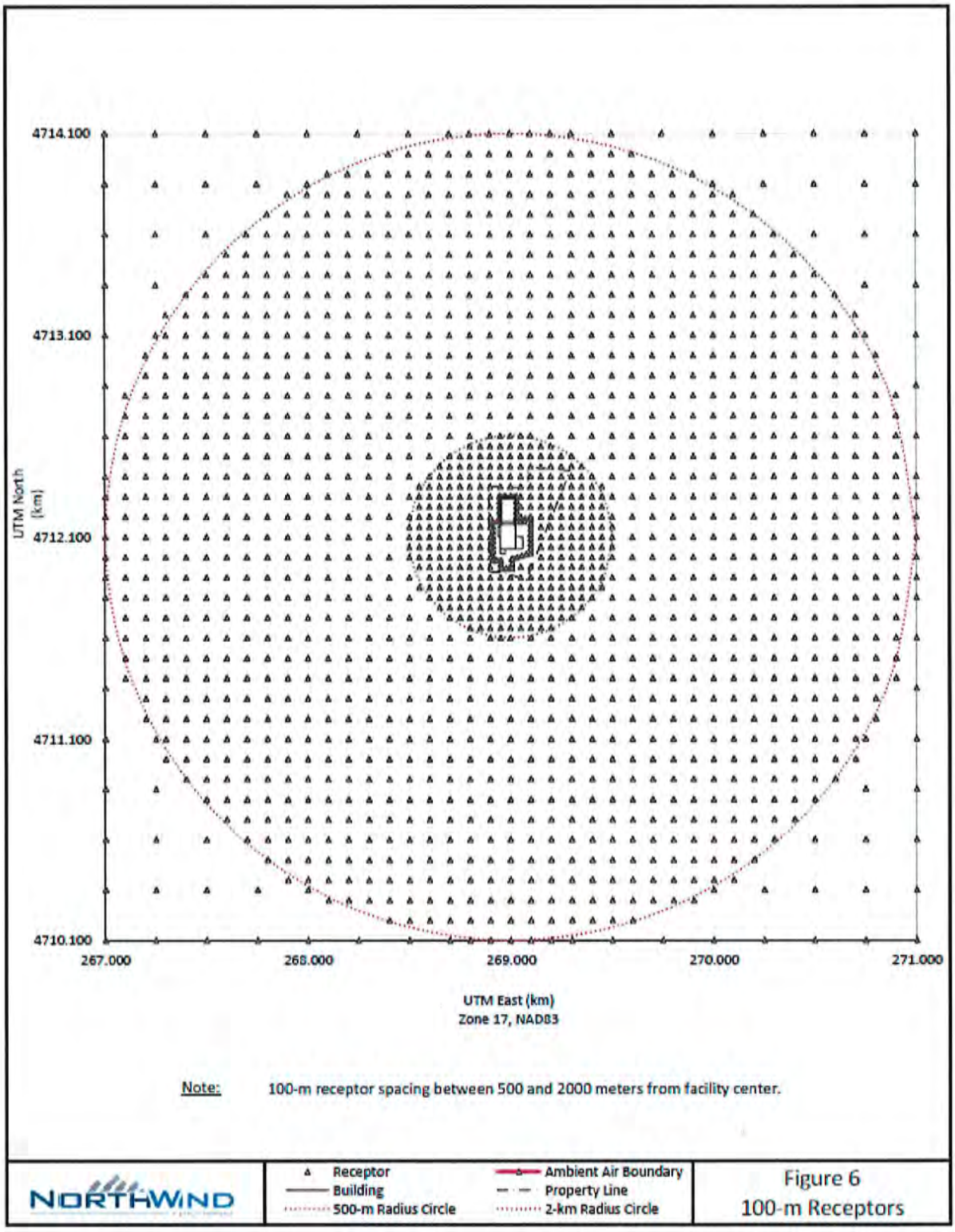
  The Idaho DEQ has provided the preprocessed National Weather Service (NWS) meteorology for this AERMOD dispersion modeling analysis. It consists of five separate 1-year datasets and a concatenated 5-year dataset of Burley Airport (NWS station 24133) surface data and coincident Boise (NWS station 24131) upper air data for the years 2008-2012. The associated wind rose diagram provided by the Idaho DEQ for the Burley Airport is shown in **Figure 8**. The Fabri-Kal site is located approximately 4 km to the southwest of the Burley airport as shown in **Figure 1**.

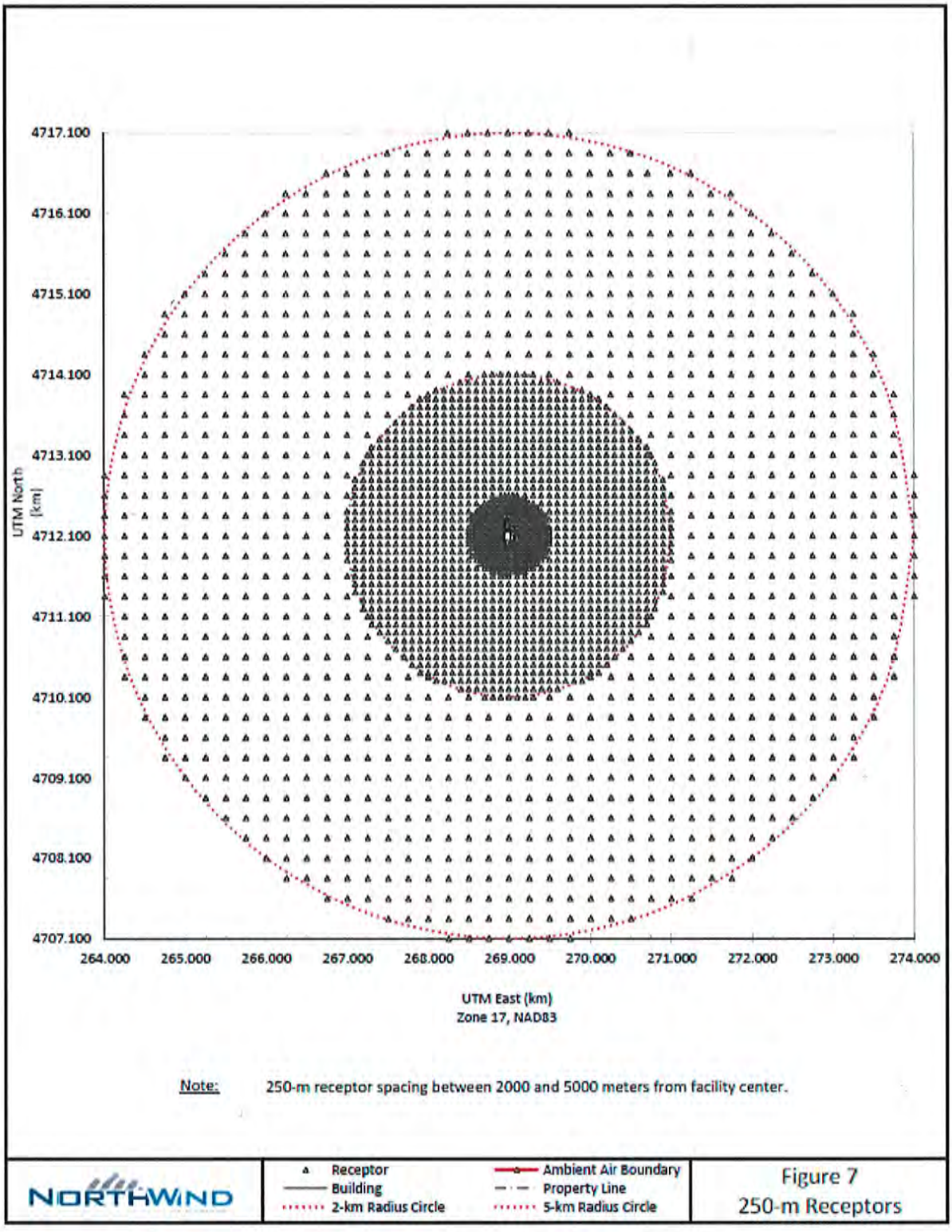
- **Background Concentrations**

  The Idaho DEQ has provided the following background concentrations for the Burley area that are based on a regional scale modeling performed for Washington, Oregon, and Idaho:

  - NO2 ..... 1 Hour 35.7 ug/m3
  - NO2 ..... Annual 4.14 ug/m3
  - PM10 ..... 24-Hour 62 ug/m3
  - PM2.5 ..... 24-Hour 14 ug/m3
  - PM2.5 ..... Annual 4.9 ug/m3
  - SO2 ..... 1-Hour 5.75 ug/m3
  - SO2 ..... 3-Hour 6.53 ug/m3

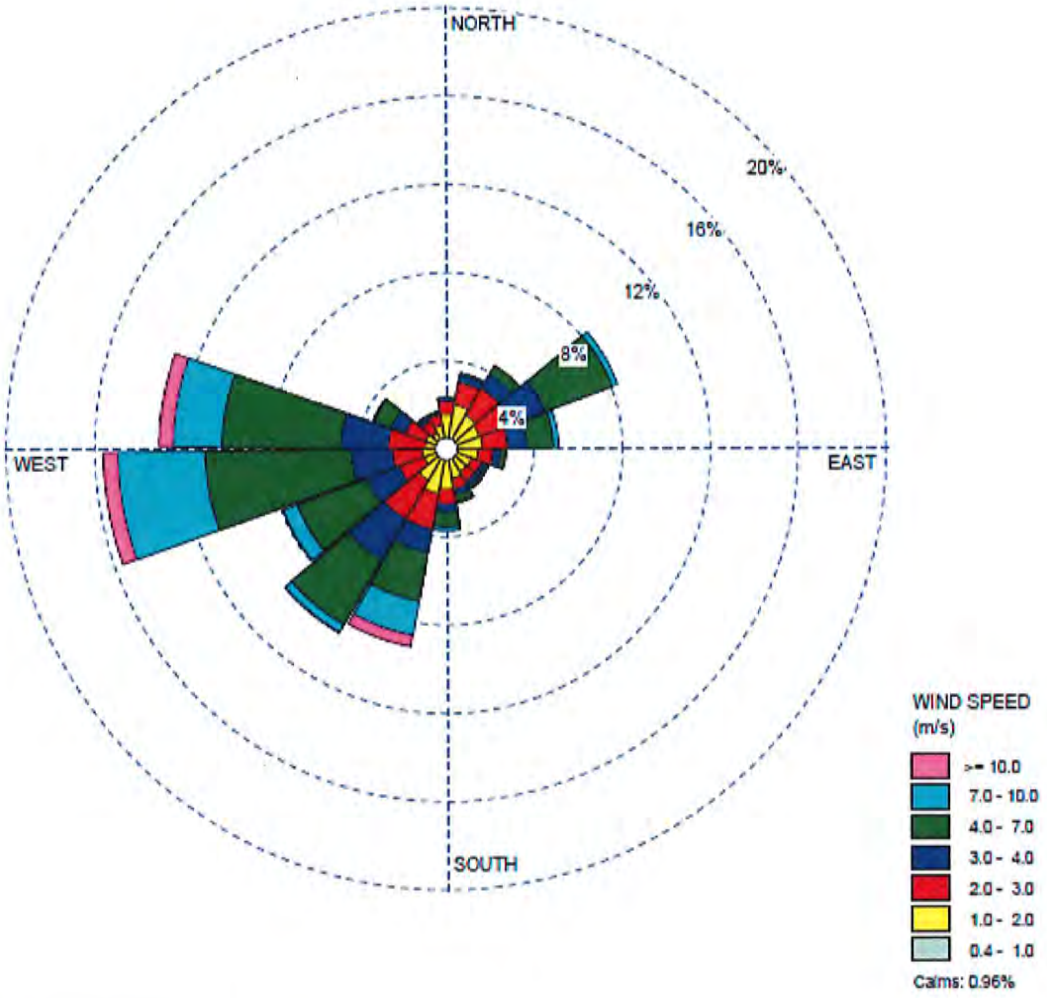

4712.600
4712.400
4712.200
4712.000
4711.800
4711.600
UTM North (km)
268.500
268.700
268.900
269.100
269.300
269.500
UTM East (km)
Zone 17, NAD83
Note: 25-m receptor spacing along ambient air boundary, and 50-m receptor spacing out to 500 meters from facility center.
NORTHWIND
Receptor
Building
500-m Radius Circle
Ambient Air Boundary
Property Line
Figure 5
50-m Receptors


4714.100
4713.100
4712.100
4711.100
4710.100
UTM North (km)
267.000
268.000
269.000
270.000
271.000
UTM East (km)
Zone 17, NAD83
Note: 100-m receptor spacing between 500 and 2000 meters from facility center.
NORTHWIND
Receptor
Building
500-m Radius Circle
Ambient Air Boundary
Property Line
2-km Radius Circle
Figure 6
100-m Receptors


4717.100
4716.100
4715.100
4714.100
4713.100
4712.100
4711.100
4710.100
4709.100
4708.100
4707.100
UTM North (km)
264.000
265.000
266.000
267.000
268.000
269.000
270.000
271.000
272.000
273.000
274.000
UTM East (km)
Zone 17, NAD83
Note: 250-m receptor spacing between 2000 and 5000 meters from facility center.
NORTHWIND
Receptor
Building
2-km Radius Circle
Ambient Air Boundary
Property Line
5-km Radius Circle
Figure 7
250-m Receptors

WIND ROSE PLOT:
BURLEY MUNICIPAL AIRPORT 2008-2012t
NWS Surface Data, ASOS, 1-Min Wind Threshold = 0.5 m/s

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
BURLEY AIRPORT (KBYI) 725867-24133 42.5452, -113.7686, 1264m ASOS Winds at 10.05 m BOISE UPPER AIR BOI, 24131 43.568, -116.211, 871m WIND DIRECTIONS = 18	**Start Date: 1/1/2008 - 00:00** **End Date: 12/31/2012 - 17:00**	**IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY**	
		MODELER: **Cheryl Robinson, P.E.**	
	CALM WINDS: **0.96%**	TOTAL COUNT: **43692 hrs.**	
	AVG. WIND SPEED: **3.85 m/s**	DATE: **11/8/2013**	PROJECT NO.: **DEQ 2013**

Figure 8 – Windrose for Burley Airport (2008-2012)

2.4 Applicable Regulatory Limits

The following methodologies will be used to evaluate compliance with the applicable air quality standards and maximum allowable concentrations for the identified pollutants of concern. AERMOD will be run with the meteorology and output settings listed in **Table 8** in order to provide the requisite design concentrations as listed in the Idaho DEQ guidance Section 6.11.1 (Evaluation of Compliance with Standards – Approval Criteria).

- **Significant Impact Analysis**
    - Comparison to Significant Impact Levels (SILs) – The SILs are applicable only to the NAAQS pollutants and are used to determine whether a proposed project would have a significant impact on air quality in the area. Although this is listed in IDEQ guidance as a component of an air quality impact analysis, ***a comparison to the SILs will not be performed for the Fabri-Kal facility for the following reasons***:
        (1) Modeling of the NAAQS pollutants CO, SO2, and Lead is not required based on emission threshold levels (**see Table 3**).
        (2) Modeling of the NAAQS pollutants NO2, PM10, and PM2.5 is required based on emission threshold levels, but this modeling will be through a NAAQS cumulative impact analysis which would need to be performed anyway should the facility impact exceed an applicable SIL.
    - TAP Increment Analysis – Only four carcinogenic TAPs need to be modeled based on Screening Levels (see **Table 4** and **Table 5**): arsenic, cadmium, formaldehyde, and nickel. The following design concentrations will be used to demonstrate compliance with the Maximum Allowable Ambient Concentration for these TAPs as listed in Idaho Air Rules Section 586 and based on five years of NWS meteorological data:
        (1) Carcinogens – Annual Averaging Period – Maximum from the five 1-year average impacts.
- **Cumulative NAAQS Impact Analysis**

  The following design concentrations will be used in the NAAQS compliance demonstrate for the pollutants of concern based on five years of NWS meteorological data:
    - NO2 – 1-Hour Averaging Period – Maximum of the 5-year average impacts (at each modeled receptor) of the 98th percentile of the annual distribution (equal to the 8th high) of maximum daily 1-hour impact.
    - NO2 – Annual Averaging Period – Maximum impact.
    - PM10 – 24-Hour Averaging Period – Maximum of the sixth highest 24-hour impacts over the five-year period.

- PM2.5 – 24-Hour Averaging Period – Maximum of the multi-year average of annual maximum 24-hour impacts.
- PM2.5 – Annual Averaging Period – Maximum of multi-year average of annual impact.

- **Presentation of Results**

  For the NAAQS cumulative impact analysis, the design concentration results from the AERMOD dispersion modeling will be presented in a tabular format. For each NAAQS pollutant considered in the modeling (i.e., the pollutants of concern), the maximum design concentration from the five year modeled period will be listed along with the applicable ambient background concentration. These two values (i.e. design concentration and background) will be summed to obtain a total impact which will then be compared to the applicable NAAQs.

  For the TAP Increment analysis, the results will be presented in a tabular format. Since background concentrations are not applicable to the TAPs, the modeled results will represent the total impact which will then be compared to the applicable Maximum Allowable Ambient Concentration.

  In addition, the location of maximum impacts will be presented graphically. This will provide verification that the receptor grid was sufficient to identify the maximum impacts.

Table B-1. Emission Sources

Dispersion Modeling Source ID	Source Type	Building Location	Source Description	Facility Equipment ID	Manufacturer	Model	Control Equipment	Throughput Material	Maximum (A) Usage Rate	Anticipated Operation hr/dy	Anticipated Operation mo/yr	Anticipated Operation hr/yr	PTE Operation hr/yr
GRINDER	Volume	Adjacent to Bldg 1	Grinding System (Grinder, Bale Feed Conveyor, Conveyor)	-	n/a	n/a	n/a	Straw	43,000 lb/day	24	12	8,760	8,760
-	-	Adjacent to Bldg 1	Storge Silos	-	-	-	None	Polypropylene Pellets	10,000 lb/hr	24	12	8,760	8,760
-	-	Bldg 1	Cooking Tank	-	-	-	None	NaOH and Straw	- lb/hr	24	12	8,760	8,760
-	-	Bldg 1	Extruders	-	Synopex	Green Techs	None	Polypropylene Pellets	10,000 lb/hr	24	12	8,760	8,760
B.1	Point	Bldg 1	Boiler 1	B-1	Hurst	S-4-G-150-15ST	None	Natural Gas	6,300,000 Btu/hr	22	12	8,030	8,760
B.2	Point	Bldg 2	Boiler 2	B-2 Future	Hurst	S-4-G-150-15ST	None	Natural Gas	6,300,000 Btu/hr	22	12	8,030	8,760
B.3	Point	Bldg 1	Boiler 3	B-3	Columbia	MPH-80	None	Natural Gas	3,360,000 Btu/hr	12	12	4,380	8,760
F.A1	Point	Bldg 1	Furnace 1	F-A1	Trane	23 62 13	None	Natural Gas	60,000 Btu/hr	12	6	2,190	8,760
F.A2	Point		Furnace 2	F-A2	Trane	23 62 13	None	Natural Gas	60,000 Btu/hr	12	6	2,190	8,760
F.A3	Point		Furnace 3	F-A3	Trane	23 54 00	None	Natural Gas	40,000 Btu/hr	12	6	2,190	8,760
F.A4	Point		Furnace 4	F-A4	Trane	23 62 13	None	Natural Gas	60,000 Btu/hr	12	6	2,190	8,760
IRH.B1	Point	Bldg 1	Infrared Heater 1	IRH-B1	Re-Verber-Ray	DET3-60-200	None	Natural Gas	200,000 Btu/hr	12	6	2,190	8,760
IRH.B2	Point		Infrared Heater 2	IRH-B2	Re-Verber-Ray	DET3-60-200	None	Natural Gas	200,000 Btu/hr	12	6	2,190	8,760
MAU.A1	Point	Bldg 1	MAU Unit 1	MAU-A1	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
MAU.D1	Point		MAU Unit 3	MAU-D1	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
MAU.F1	Point	Bldg 2	MAU Unit 4	MAU-Future	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
MAU.F2	Point		MAU Unit 5	MAU-Future	Rapid Engineering	4060	None	Natural Gas	4,300,452 Btu/hr	12	4	1,460	8,760
UH.B1	Point	Bldg 1	Emergency Shutdown Heater 1	UH-B1	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr	For Emergency - as needed			500
UH.C1	Point		Emergency Shutdown Heater 2	UH-C1	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.C2	Point		Emergency Shutdown Heater 3	UH-C2	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.C3	Point		Emergency Shutdown Heater 4	UH-C3	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.D1	Point		Emergency Shutdown Heater 5	UH-D1	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.D2	Point		Emergency Shutdown Heater 6	UH-D2	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.F1	Point	Bldg 2	Emergency Shutdown Heater 7	UH-Future	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr	For Emergency - as needed			500
UH.F2	Point		Emergency Shutdown Heater 8	UH-Future	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
UH.F3	Point		Emergency Shutdown Heater 9	UH-Future	Modine	PDP-150	None	Natural Gas	150,000 Btu/hr				500
EMGEN	Point	Adjacent to Bldg 1	Emergency Generator	Generator	Olympian	G80LG4 80 kW	None	Natural Gas	1,055 cu ft/hr	15 minute/week for maintenance & testing			100

(A) - Fuel Usage for heat-generating units is based on vendor specifications for the listed equipment model numbers.

(B) - Natural Gas heat content = 1,020 *Btu/cu ft based on AP-42 reference in emission factor tables for average natural gas higher heating value.*

This volue is supported by the U.S Energy Informotion Administrotion notural gas heat content delivered to consumers in Idaho

(Reference: https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm)

	2010	2011	2012	2013	2014	2015	Average
Idaho	1,021	1,017	1,015	1,015	1,025	1,029	1,020.3

Table B-2. PTE Emissions Summary (ton/yr)

Regulated (A) Pollutant	CAS No.	EPA HAP	Grinding System	Silos	Cooking Tank	Extruders	Boilers			Furnaces				Infared Heaters		Makeup Air Units				Emergency Shutdown Heaters									Emergency Generator	Facility Total
			GRINDER	-	-	-	B.1	B.2	B.3	F.A1	F.A2	F.A3	F.A4	IRH.B1	IRH.B2	MAU.A1	MAU.D1	MAU.F1	MAU.F2	UH.B1	UH.C1	UH.C2	UH.C3	UH.D1	UH.D2	UH.F1	UH.F2	UH.F3	EMGEN	
Criteria Pollutants																														
CO	-	-	-	-	-	-	2.272	2.272	1.212	0.022	0.022	0.014	0.022	0.072	0.072	1.551	1.551	1.551	1.551	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.200	12.41
NOx	-	-	-	-	-	-	2.428	2.428	1.443	0.026	0.026	0.017	0.026	0.086	0.086	0.923	0.923	0.923	0.923	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.122	10.41
PM10	-	-	0.118	-	-	-	0.206	0.206	0.110	0.002	0.002	0.001	0.002	0.007	0.007	0.140	0.140	0.140	0.140	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0005	1.22
PM2.5	-	-	0.118	-	-	-	0.206	0.206	0.110	0.002	0.002	0.001	0.002	0.007	0.007	0.140	0.140	0.140	0.140	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0005	1.22
SO2	-	-	-	-	-	-	0.016	0.016	0.009	0.0002	0.0002	0.0001	0.0002	0.001	0.001	0.011	0.011	0.011	0.011	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00003	0.09
VOC	-	-	-	0.219	-	1.445	0.149	0.149	0.079	0.001	0.001	0.001	0.001	0.005	0.005	0.102	0.102	0.102	0.102	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.002	2.47
Lead	-	-	-	-	-	-	1.35E-05	1.35E-05	7.21E-06	1.29E-07	1.29E-07	8.59E-08	1.29E-07	4.29E-07	4.29E-07	9.23E-06	9.23E-06	9.23E-06	9.23E-06	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	-	7.27E-05
Idaho TAPs - Noncarcinogenic																														
Acrolein	107-02-8	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.42E-04	1.42E-04
Barium	7440-39-3	-	-	-	-	-	1.19E-04	1.19E-04	6.35E-05	1.13E-06	1.13E-06	7.56E-07	1.13E-06	3.78E-06	3.78E-06	8.13E-05	8.13E-05	8.13E-05	8.13E-05	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	-	6.40E-04
Chlorobenzene	108-90-7	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.94E-07	6.94E-07
Chromium	7440-47-3	HAP	-	-	-	-	3.79E-05	3.79E-05	2.02E-05	3.61E-07	3.61E-07	2.40E-07	3.61E-07	1.20E-06	1.20E-06	2.59E-05	2.59E-05	2.59E-05	2.59E-05	5.15E-08	5.15E-08	5.15E-08	5.15E-08	5.15E-08	5.15E-08	5.15E-08	5.15E-08	5.15E-08	-	2.04E-04
Cobalt	7440-48-4	HAP	-	-	-	-	2.27E-06	2.27E-06	1.21E-06	2.16E-08	2.16E-08	1.44E-08	2.16E-08	7.21E-08	7.21E-08	1.55E-06	1.55E-06	1.55E-06	1.55E-06	3.09E-09	3.09E-09	3.09E-09	3.09E-09	3.09E-09	3.09E-09	3.09E-09	3.09E-09	3.09E-09	-	1.22E-05
Copper	7440-50-8	-	-	-	-	-	2.30E-05	2.30E-05	1.23E-05	2.19E-07	2.19E-07	1.46E-07	2.19E-07	7.30E-07	7.30E-07	1.57E-05	1.57E-05	1.57E-05	1.57E-05	3.13E-08	3.13E-08	3.13E-08	3.13E-08	3.13E-08	3.13E-08	3.13E-08	3.13E-08	3.13E-08	-	1.24E-04
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	-	-	-	-	3.25E-05	3.25E-05	1.73E-05	3.09E-07	3.09E-07	2.06E-07	3.09E-07	1.03E-06	1.03E-06	2.22E-05	2.22E-05	2.22E-05	2.22E-05	4.41E-08	4.41E-08	4.41E-08	4.41E-08	4.41E-08	4.41E-08	4.41E-08	4.41E-08	4.41E-08	-	1.74E-04
1,2-Dichloropropane	78-87-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.99E-07	6.99E-07
Ethyl Benzene	100-41-4	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.33E-06	1.33E-06
Hexane	110-54-3	HAP	-	-	-	-	4.87E-02	4.87E-02	2.60E-02	4.64E-04	4.64E-04	3.09E-04	4.64E-04	1.55E-03	1.55E-03	3.32E-02	3.32E-02	3.32E-02	3.32E-02	6.62E-05	6.62E-05	6.62E-05	6.62E-05	6.62E-05	6.62E-05	6.62E-05	6.62E-05	6.62E-05	-	2.62E-01
Manganese	7439-96-5	HAP	-	-	-	-	1.03E-05	1.03E-05	5.48E-06	9.79E-08	9.79E-08	6.53E-08	9.79E-08	3.26E-07	3.26E-07	7.02E-06	7.02E-06	7.02E-06	7.02E-06	1.40E-08	1.40E-08	1.40E-08	1.40E-08	1.40E-08	1.40E-08	1.40E-08	1.40E-08	1.40E-08	-	5.52E-05
Methanol	67-56-1	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.65E-04	1.65E-04
Molybdenum	7439-98-7	-	-	-	-	-	2.98E-05	2.98E-05	1.59E-05	2.83E-07	2.83E-07	1.89E-07	2.83E-07	9.45E-07	9.45E-07	2.03E-05	2.03E-05	2.03E-05	2.03E-05	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	-	1.60E-04
Naphthalene	91-20-3	HAP	-	-	-	-	1.65E-05	1.65E-05	8.80E-06	1.57E-07	1.57E-07	1.05E-07	1.57E-07	5.24E-07	5.24E-07	1.13E-05	1.13E-05	1.13E-05	1.13E-05	2.24E-08	2.24E-08	2.24E-08	2.24E-08	2.24E-08	2.24E-08	2.24E-08	2.24E-08	2.24E-08	5.22E-06	9.39E-05
Pentane	109-66-0	-	-	-	-	-	7.03E-02	7.03E-02	3.75E-02	6.70E-04	6.70E-04	4.47E-04	6.70E-04	2.23E-03	2.23E-03	4.80E-02	4.80E-02	4.80E-02	4.80E-02	9.56E-05	9.56E-05	9.56E-05	9.56E-05	9.56E-05	9.56E-05	9.56E-05	9.56E-05	9.56E-05	-	3.78E-01
Selenium	7782-49-2	HAP	-	-	-	-	6.49E-07	6.49E-07	3.46E-07	6.18E-09	6.18E-09	4.12E-09	6.18E-09	2.06E-08	2.06E-08	4.43E-07	4.43E-07	4.43E-07	4.43E-07	8.82E-10	8.82E-10	8.82E-10	8.82E-10	8.82E-10	8.82E-10	8.82E-10	8.82E-10	8.82E-10	-	3.49E-06
Styrene	100-42-5	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.40E-07	6.40E-07
Toluene	108-88-3	HAP	-	-	-	-	9.20E-05	9.20E-05	4.91E-05	8.76E-07	8.76E-07	5.84E-07	8.76E-07	2.92E-06	2.92E-06	6.28E-05	6.28E-05	6.28E-05	6.28E-05	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	3.00E-05	5.24E-04
Vanadium	7440-62-2	-	-	-	-	-	6.22E-05	6.22E-05	3.32E-05	5.93E-07	5.93E-07	3.95E-07	5.93E-07	1.98E-06	1.98E-06	4.25E-05	4.25E-05	4.25E-05	4.25E-05	8.46E-08	8.46E-08	8.46E-08	8.46E-08	8.46E-08	8.46E-08	8.46E-08	8.46E-08	8.46E-08	-	3.34E-04
Xylene	1330-20-7	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05E-05	1.05E-05
Zinc	7440-66-6	-	-	-	-	-	7.85E-04	7.85E-04	4.18E-04	7.47E-06	7.47E-06	4.98E-06	7.47E-06	2.49E-05	2.49E-05	5.36E-04	5.36E-04	5.36E-04	5.36E-04	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.07E-06	1.07E-06	-	4.22E-03
Idaho TAPs - Carcinogenic																														
Acetaldehyde	75-07-0	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.50E-04	1.50E-04
Arsenic	7440-38-2	HAP	-	-	-	-	5.41E-06	5.41E-06	2.89E-06	5.15E-08	5.15E-08	3.44E-08	5.15E-08	1.72E-07	1.72E-07	3.69E-06	3.69E-06	3.69E-06	3.69E-06	7.35E-09	7.35E-09	7.35E-09	7.35E-09	7.35E-09	7.35E-09	7.35E-09	7.35E-09	7.3SE-09	-	2.91E-05
Benzene	71-43-2	HAP	-	-	-	-	5.68E-05	5.68E-05	3.03E-05	5.41E-07	5.41E-07	3.61E-07	5.41E-07	1.80E-06	1.80E-06	3.88E-05	3.88E-05	3.88E-05	3.88E-05	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	8.50E-05	3.90E-04
Benzo(a)pyrene	50-32-8	-	-	-	-	-	3.25E-08	3.25E-08	1.73E-08	3.09E-10	3.09E-10	2.06E-10	3.09E-10	1.03E-09	1.03E-09	2.22E-08	2.22E-08	2.22E-08	2.22E-08	4.41E-11	4.41E-11	4.41E-11	4.41E-11	4.41E-11	4.41E-11	4.41E-11	4.41E-11	4.41E-11	-	1.74E-07
[illegible]ium	7440-41-7	HAP	-	-	-	-	3.25E-07	3.25E-07	1.73E-07	3.09E-09	3.09E-09	2.06E-09	3.09E-09	1.03E-08	1.03E-08	2.22E-07	2.22E-07	2.22E-07	2.22E-07	4.41E-10	4.41E-10	4.41E-10	4.41E-10	4.41E-10	4.41E-10	4.41E-10	4.41E-10	4.41E-10	-	1.74E-06
[illegible]utadiene	106-99-0	HAP	-	-	-	-	-	-	-																				3.57E-05	3.57E-05
Cadmium	7440-43-9	HAP	-	-	-	-	2.98E-05	2.98E-05	1.59E-05	2.83E-07	2.83E-07	1.89E-07	2.83E-07	9.45E-07	9.45E-07	2.03E-05	2.03E-05	2.03E-05	2.03E-05	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	-	1.60E-04
Carbon Tetrachloride	56-23-5	HAP	-	-	-	-	-	-	-																				9.52E-07	9.52E-07
Chloroform	67-66-3	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.37E-07	7.37E-07
1,1-Dichloroethane	75-34-3	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.08E-07	6.08E-07
1,2-Dichloroethane	107-06-2	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.08E-07	6.08E-07
1,3-Dichloropropene	542-75-6	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.83E-07	6.83E-07
Ethylene Dibromide	106-93-4	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.15E-06	1.15E-06
Formaldehyde	50-00-0	HAP	-	-	-	-	2.03E-03	2.03E-03	1.08E-03	1.93E-05	1.93E-05	1.29E-05	1.93E-05	6.44E-05	6.44E-05	1.38E-03	1.38E-03	1.38E-03	1.38E-03	2.76E-06	2.76E-06	2.76E-06	2.76E-06	2.76E-06	2.76E-06	2.76E-06	2.76E-06	2.76E-06	1.10E-03	1.20E-02
3-Methylchloranthrene	56-49-5	-	-	-	-	-	4.87E-08	4.87E-08	2.60E-08	4.64E-10	4.64E-10	3.09E-10	4.64E-10	1.55E-09	1.55E-09	3.32E-08	3.32E-08	3.32E-08	3.32E-08	6.62E-11	6.62E-11	6.62E-11	6.62E-11	6.62E-11	6.62E-11	6.62E-11	6.62E-11	6.62E-11	-	2.62E-07
Methylene Chloride	74-87-3	HAP	-	-	-	-	-	-	-																				2.22E-06	2.22E-06
Nickel	7440-02-0	HAP	-	-	-	-	5.68E-05	5.68E-05	3.03E-05	5.41E-07	5.41E-07	3.61E-07	5.41E-07	1.80E-06	1.80E-06	3.88E-05	3.88E-05	3.88E-05	3.88E-05	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	7.72E-08	-	3.05E-04
PAH (except 7-PAH group):	-	HAP	-	-	-	-	2.08E-06	2.08E-06	1.11E-06	1.98E-08	1.98E-08	1.32E-08	1.98E-08	6.60E-08	6.60E-08	1.42E-06	1.42E-06	1.42E-06	1.42E-06	2.82E-09	2.82E-09	2.82E-09	2.82E-09	2.82E-09	2.82E-09	2.82E-09	2.82E-09	2.82E-09	7.59E-06	1.88E-05
POM (7-PAH group) per IDE(	-	HAP	-	-	-	-	3.08E-07	3.08E-07	1.64E-07	2.94E-09	2.94E-09	1.96E-09	2.94E-09	9.79E-09	9.79E-09	2.11E-07	2.11E-07	2.11E-07	2.11E-07	4.19E-10	4.19E-10	4.19E-10	4.19E-10	4.19E-10	4.19E-10	4.19E-10	4.19E-10	4.19E-10	7.59E-06	9.24E-06
1,1,2,2-Tetrachloroethane	79-34-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.36E-06	1.36E-06
1,1,2-Trichloroethane	79-00-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.23E-07	8.23E-07
Vinyl Chloride	75-01-4	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.86E-07	3.86E-07
Other EPA Pollutants of Concern																														
Carbon Dioxide (CO2)	-	-	-	-	-	-	3,246.4	3,246.4	1,731.4	30.9	30.9	20.6	30.9	103.1	103.1	2,216.0	2,216.0	2,216.0	2,216.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	5.9	17,453
Mercury	7439-97-6	HAP	-	-	-	-	7.03E-06	7.03E-06	3.75E-06	6.70E-08	6.70E-08	4.47E-08	6.70E-08	2.23E-07	2.23E-07	4.80E-06	4.80E-06	4.80E-06	4.80E-06	9.56E-09	9.56E-09	9.56E-09	9.56E-09	9.56E-09	9.56E-09	9.56E-09	9.56E-09	9.56E-09	-	3.78E-05
Total HAPs	-	HAP	-	-	-	-	5.11E-02	5.11E-02	2.72E-02	4.86E-04	4.86E-04	3.24E-04	4.86E-04	1.62E-03	1.62E-03	3.49E-02	3.49E-02	3.49E-02	3.49E-02	6.94E-05	6.94E-05	6.94E-05	6.94E-05	6.94E-05	6.94E-05	6.94E-05	6.94E-05	6.94E-05	1.75E-03	0.276

(A) - Annual PTE emissions are based on hourly design capacity for this process equipment and permitted annual hours of operation. Details of the emission calculations are presented in subsequent tables.

Table B-3. Dispersion Modeling - Maximum Hourly Emission Rates (lb/hr)

(For comparison to Short-Term Air Quality Standards)

Regulated [A] nt	CAS No.	EPA HAP	Grinding System	Silos	Cooking Tank	Extruders	Boilers			Furnaces				Infared Heaters		Makeup Air Units				Emergency Shutdown Heaters									Emergency Generator [B], [C]	Facility Total (lb/hr)	ID DEQ Threshold Screening Level	Air Dispersion Modeling Required
			GRINDER	-	-	-	B.1	B.2	B.3	F.A1	F.A2	F.A3	F.A4	IRH.B1	IRH.B2	MAU.A1	MAU.D1	MAU.F1	MAU.F2	UH.B1	UH.C1	UH.C2	UH.C3	UH.D1	UH.D2	UH.F1	UH.F2	UH.F3	EMGEN			
Criteria Pollutants																															
CO	-	-	-	-	-	-	0.519	0.519	0.277	0.005	0.005	0.003	0.005	0.016	0.016	0.354	0.354	0.354	0.354	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	4.003	**6.896**	**15**	-
NOx	-	-	-	-	-	-	0.554	0.554	0.329	0.006	0.006	0.004	0.006	0.020	0.020	0.211	0.211	0.211	0.211	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	(exempt)	**2.475**	**0.20**	**YES**
PM10	-	-	0.027	-	-	-	0.047	0.047	0.025	0.0004	0.0004	0.0003	0.0004	0.0015	0.0015	0.032	0.032	0.032	0.032	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.010	**0.299**	**0.22**	**YES**
PM2.5	-	-	0.027	-	-	-	0.047	0.047	0.025	0.0004	0.0004	0.0003	0.0004	0.0015	0.0015	0.032	0.032	0.032	0.032	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.010	**0.299**	**0.054**	**YES**
SO2	-	-	-	-	-	-	0.004	0.004	0.002	0.00004	0.00004	0.00002	0.00004	0.00012	0.00012	0.003	0.003	0.003	0.003	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.0006	**0.021**	**0.21**	-
VOC																														**No Standards**	
Lead	-	-	-	-	-	-	3.09E-06	3.09E-06	1.65E-06	2.94E-08	2.94E-08	1.96E-08	2.94E-08	9.80E-08	9.80E-08	2.11E-06	2.11E-06	2.11E-06	2.11E-06	7.35E-08	7.35E-08	7.35E-08	7.35E-08	7.35E-08	7.35E-08	7.35E-08	7.35E-08	7.35E-08	-	**1.72E-05**	**0.019**	-
Idaho TAPs - Noncarcinogenic																															
Acrolein	107-02-8	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	**0.017**	-
Barium	7440-39-3	-	-	-	-	-	2.72E-05	2.72E-05	1.45E-05	2.59E-07	2.59E-07	1.73E-07	2.59E-07	8.63E-07	8.63E-07	1.86E-05	1.86E-05	1.86E-05	1.86E-05	6.47E-07	6.47E-07	6.47E-07	6.47E-07	6.47E-07	6.47E-07	6.47E-07	6.47E-07	6.47E-07	-	**1.52E-04**	**0.033**	-
Chlorobenzene	108-90-7	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	**23.3**	-
Chromium	7440-47-3	HAP	-	-	-	-	8.65E-06	8.65E-06	4.61E-06	8.24E-08	8.24E-08	5.49E-08	8.24E-08	2.75E-07	2.75E-07	5.90E-06	5.90E-06	5.90E-06	5.90E-06	2.06E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	-	**4.82E-05**	**0.033**	-
Cobalt	7440-48-4	HAP	-	-	-	-	5.19E-07	5.19E-07	2.77E-07	4.94E-09	4.94E-09	3.29E-09	4.94E-09	1.65E-08	1.65E-08	3.54E-07	3.54E-07	3.54E-07	3.54E-07	1.24E-08	1.24E-08	1.24E-08	1.24E-08	1.24E-08	1.24E-08	1.24E-08	1.24E-08	1.24E-08	-	**2.89E-06**	**0.0033**	-
Copper	7440-50-8	-	-	-	-	-	5.25E-06	5.25E-06	2.80E-06	5.00E-08	5.00E-08	3.33E-08	5.00E-08	1.67E-07	1.67E-07	3.58E-06	3.58E-06	3.58E-06	3.58E-06	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	1.25E-07	-	**2.93E-05**	**0.013**	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	-	-	-	-	7.41E-06	7.41E-06	3.95E-06	7.06E-08	7.06E-08	4.71E-08	7.06E-08	2.35E-07	2.35E-07	5.06E-06	5.06E-06	5.06E-06	5.06E-06	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	-	**4.13E-05**	**30**	-
1,2-Dichloropropane	78-87-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	**23.133**	-
Ethyl Benzene	100-41-4	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	**29**	-
Hexane	110-54-3	HAP	-	-	-	-	1.11E-02	1.11E-02	5.93E-03	1.06E-04	1.06E-04	7.06E-05	1.06E-04	3.53E-04	3.53E-04	7.59E-03	7.59E-03	7.59E-03	7.59E-03	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	2.65E-04	-	**6.20E-02**	**12**	-
Manganese	7439-96-5	HAP	-	-	-	-	2.35E-06	2.35E-06	1.25E-06	2.24E-08	2.24E-08	1.49E-08	2.24E-08	7.45E-08	7.45E-08	1.60E-06	1.60E-06	1.60E-06	1.60E-06	5.59E-08	5.59E-08	5.59E-08	5.59E-08	5.59E-08	5.59E-08	5.59E-08	5.59E-08	5.59E-08	-	**1.31E-05**	**0.067**	-
Methanol	67-56-1	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	**17.3**	-
Molybdenum	7439-98-7	-	-	-	-	-	6.79E-06	6.79E-06	3.62E-06	6.47E-08	6.47E-08	4.31E-08	6.47E-08	2.16E-07	2.16E-07	4.64E-06	4.64E-06	4.64E-06	4.64E-06	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	1.62E-07	-	**3.79E-05**	**0.333**	-
Naphthalene	91-20-3	HAP	-	-	-	-	3.77E-06	3.77E-06	2.01E-06	3.59E-08	3.59E-08	2.39E-08	3.59E-08	1.20E-07	1.20E-07	2.57E-06	2.57E-06	2.57E-06	2.57E-06	8.97E-08	8.97E-08	8.97E-08	8.97E-08	8.97E-08	8.97E-08	8.97E-08	8.97E-08	8.97E-08	-	**2.10E-05**	**3.33**	-
Pentane	109-66-0	-	-	-	-	-	1.61E-02	1.61E-02	8.56E-03	1.53E-04	1.53E-04	1.02E-04	1.53E-04	5.10E-04	5.10E-04	1.10E-02	1.10E-02	1.10E-02	1.10E-02	3.82E-04	3.82E-04	3.82E-04	3.82E-04	3.82E-04	3.82E-04	3.82E-04	3.82E-04	3.82E-04	-	**8.96E-02**	**118**	-
Selenium	7782-49-2	HAP	-	-	-	-	1.48E-07	1.48E-07	7.91E-08	1.41E-09	1.41E-09	9.41E-10	1.41E-09	4.71E-09	4.71E-09	1.01E-07	1.01E-07	1.01E-07	1.01E-07	3.53E-09	3.53E-09	3.53E-09	3.53E-09	3.53E-09	3.53E-09	3.53E-09	3.53E-09	3.53E-09	-	**8.27E-07**	**0.013**	-
Styrene	100-42-5	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	**6.67**	-
Toluene	108-88-3	HAP	-	-	-	-	2.10E-05	2.10E-05	1.12E-05	2.00E-07	2.00E-07	1.33E-07	2.00E-07	6.67E-07	6.67E-07	1.43E-05	1.43E-05	1.43E-05	1.43E-05	5.00E-07	5.00E-07	5.00E-07	5.00E-07	5.00E-07	5.00E-07	5.00E-07	5.00E-07	5.00E-07	-	**1.17E-04**	**25**	-
Vanadium	7440-62-2	-	-	-	-	-	1.42E-05	1.42E-05	7.58E-06	1.35E-07	1.35E-07	9.02E-08	1.35E-07	4.51E-07	4.51E-07	9.70E-06	9.70E-06	9.70E-06	9.70E-06	3.38E-07	3.38E-07	3.38E-07	3.38E-07	3.38E-07	3.38E-07	3.38E-07	3.38E-07	3.38E-07	-	**7.92E-05**	**0.003**	-
Xylene	1330-20-7	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	**29**	-
Zinc	7440-66-6	-	-	-	-	-	1.79E-04	1.79E-04	9.55E-05	1.71E-06	1.71E-06	1.14E-06	1.71E-06	5.69E-06	5.69E-06	1.22E-04	1.22E-04	1.22E-04	1.22E-04	4.26E-06	4.26E-06	4.26E-06	4.26E-06	4.26E-06	4.26E-06	4.26E-06	4.26E-06	4.26E-06	-	**9.99E-04**	**0.667**	-
Idaho TAPs - Carcinogenic																															
Acetaldehyde	75-07-0	HAP																												**For Carcinogenic TAPs**	
Arsenic	7440-38-2	HAP																												---	
[illegible]ne	71-43-2	HAP																												**Screening Emission Levels**	
[illegible](a)pyrene	50-32-8	-																												**are applicable only to**	
Beryllium	7440-41-7	HAP																												**Annual Average**	
1,3-Butadiene	106-99-0	HAP																												**Hourly Emission Rates**	
Cadmium	7440-43-9	HAP																												---	
Carbon Tetrachloride	56-23-5	HAP																												**(see Table 4)**	
Chloroform	67-66-3	HAP																													
1,1-Dichloroethane	75-34-3	HAP																													
1,2-Dichloroethane	107-06-2	HAP																													
1,3-Dichloropropene	542-75-6	HAP																													
Ethylene Dibromide	106-93-4	HAP																													
Formaldehyde	50-00-0	HAP																													
3-Methylchloranthrene	56-49-5	-																													
Methylene Chloride	74-87-3	HAP																													
Nickel	7440-02-0	HAP																													
PAH (except 7-PAH group):	-	HAP																													
POM (7-PAH group) per IDEQ	-	HAP																													
1,1,2,2-Tetrachloroethane	79-34-5	-																													
1,1,2-Trichloroethane	79-00-5	-																													
Vinyl Chloride	75-01-4	HAP																													
Other EPA Pollutants of Concern																															
Carbon Dioxide (CO2)	-	-																												**No Short-Term Standards**	
Mercury	7439-97-6	HAP																													
Total HAPs	-	HAP																													

(A) - Maximum hourly emission rates are based on design capacity for this process equipment. Details of the emission calculations are presented in subsequent tables.
(B) - Per Idaho DEQ guidance, since this source is used for emergency power generation and is limited to 100 hr/yr operation, NOx is exempt from the 1-hour NO2 NAAQS modeling.
(C) - Per Idaho DEQ guidance, since this source is subject to an EPA NESHAP, the Hazardous/Toxic Air Pollutants emitted from this source are exempt from modeling.

Table B-4. Dispersion Modeling - Average Hourly Emission Rates (lb/hr)

(For comparison to Annual Air Quality Standards)

Pollutant [A]	CAS No.	EPA HAP	Grinding System	Silos	Cooking Tank	Extruders	Boilers			Furnaces				Infared Heaters		Makeup Air Units				Emergency Shutdown Heaters									Emergency Generator [B]	Facility Total (lb/hr)	ID DEQ Screening Level (lb/hr)	Air Dispersion Modeling Required
			GRINDER	-	-	-	B.1	B.2	B.3	F.A1	F.A2	F.A3	F.A4	IRH.B1	IRH.B2	MAU.A1	MAU.D1	MAU.F1	MAU.F2	UH.B1	UH.C1	UH.C2	UH.C3	UH.D1	UH.D2	UH.F1	UH.F2	UH.F3	EMGEN			
Criteria Pollutants																															
CO	-	-																												No Annual Standards	
NOx	-	-	-	-	-	-	0.554	0.554	0.329	0.006	0.006	0.004	0.006	0.020	0.020	0.211	0.211	0.211	0.211	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.028	2.378	0.20	YES
PM10	-	-																												No Annual Standards	
PM2.5	-	-	0.027	-	-	-	0.047	0.047	0.025	0.0004	0.0004	0.0003	0.0004	0.0015	0.0015	0.032	0.032	0.032	0.032	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00012	0.279	0.054	YES
SO2	-	-																												No Annual Standards	
VOC	-	-																													
Lead	-	-																													
Idaho TAPs - Noncarcinogenic																															
Acrolein	107-02-8	HAP																												For Noncarcinogenic TAPs --- Screening Emission Levels are applicable only to Maximum Hourly Emission Rates --- (see Table 3)	
Barium	7440-39-3	-																													
Chlorobenzene	108-90-7	HAP																													
Chromium	7440-47-3	HAP																													
Cobalt	7440-48-4	HAP																													
Copper	7440-50-8	-																													
Dichlorobenzene (as 1,4-)	25321-22-6	HAP																													
1,2-Dichloropropane	78-87-5	-																													
Ethyl Benzene	100-41-4	HAP																													
Hexane	110-54-3	HAP																													
Manganese	7439-96-5	HAP																													
Methanol	67-56-1	HAP																													
Molybdenum	7439-98-7	-																													
Naphthalene	91-20-3	HAP																													
Pentane	109-66-0	-																													
Selenium	7782-49-2	HAP																													
Styrene	100-42-5	HAP																													
Toluene	108-88-3	HAP																													
Vanadium	7440-62-2	-																													
Xylene	1330-20-7	HAP																													
Zinc	7440-66-6	-																													
Idaho TAPs - Carcinogenic																															
Acetaldehyde	75-07-0	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	3.00E-03	-
Arsenic	7440-38-2	HAP	-	-	-	-	1.24E-06	1.24E-06	6.59E-07	1.18E-08	1.18E-08	7.84E-09	1.18E-08	3.92E-08	3.92E-08	8.43E-07	8.43E-07	8.43E-07	8.43E-07	1.68E-09	1.68E-09	1.68E-09	1.68E-09	1.68E-09	1.68E-09	1.68E-09	1.68E-09	1.68E-09	-	6.64E-06	1.50E-06	YES
Benzene	71-43-2	HAP	-	-	-	-	1.30E-05	1.30E-05	6.92E-06	1.24E-07	1.24E-07	8.24E-08	1.24E-07	4.12E-07	4.12E-07	8.85E-06	8.85E-06	8.85E-06	8.85E-06	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	(exempt)	6.97E-05	8.00E-04	-
Benzo(a)pyrene	50-32-8	-	-	-	-	-	7.41E-09	7.41E-09	3.95E-09	7.06E-11	7.06E-11	4.71E-11	7.06E-11	2.35E-10	2.35E-10	5.06E-09	5.06E-09	5.06E-09	5.06E-09	1.01E-11	1.01E-11	1.01E-11	1.01E-11	1.01E-11	1.01E-11	1.01E-11	1.01E-11	1.01E-11	-	3.98E-08	2.00E-06	-
Beryllium	7440-41-7	HAP	-	-	-	-	7.41E-08	7.41E-08	3.95E-08	7.06E-10	7.06E-10	4.71E-10	7.06E-10	2.35E-09	2.35E-09	5.06E-08	5.06E-08	5.06E-08	5.06E-08	1.01E-10	1.01E-10	1.01E-10	1.01E-10	1.01E-10	1.01E-10	1.01E-10	1.01E-10	1.01E-10	-	3.98E-07	2.80E-05	-
1,3-Butadiene	106-99-0	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	2.40E-05	-
Cadmium	7440-43-9	HAP	-	-	-	-	6.79E-06	6.79E-06	3.62E-06	6.47E-08	6.47E-08	4.31E-08	6.47E-08	2.16E-07	2.16E-07	4.64E-06	4.64E-06	4.64E-06	4.64E-06	9.23E-09	9.23E-09	9.23E-09	9.23E-09	9.23E-09	9.23E-09	9.23E-09	9.23E-09	9.23E-09	-	3.65E-05	3.70E-06	YES
Carbon Tetrachloride	56-23-5	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	4.40E-04	-
Chloroform	67-66-3	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	2.80E-04	-
1,1-Dichloroethane	75-34-3	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	2.50E-04	-
1,2-Dichloroethane	107-06-2	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	2.50E-04	-
1,3-Dichloropropene	542-75-6	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	1.90E-07	-
Ethylene Dibromide	106-93-4	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	3.00E-05	-
Formaldehyde	50-00-0	HAP	-	-	-	-	4.63E-04	4.63E-04	2.47E-04	4.41E-06	4.41E-06	2.94E-06	4.41E-06	1.47E-05	1.47E-05	3.16E-04	3.16E-04	3.16E-04	3.16E-04	6.30E-07	6.30E-07	6.30E-07	6.30E-07	6.30E-07	6.30E-07	6.30E-07	6.30E-07	6.30E-07	(exempt)	2.49E-03	5.10E-04	YES
3-Methylchloranthrene	56-49-5	-	-	-	-	-	1.11E-08	1.11E-08	5.93E-09	1.06E-10	1.06E-10	7.06E-11	1.06E-10	3.53E-10	3.53E-10	7.59E-09	7.59E-09	7.59E-09	7.59E-09	1.51E-11	1.51E-11	1.51E-11	1.51E-11	1.51E-11	1.51E-11	1.51E-11	1.51E-11	1.51E-11	-	5.98E-08	2.50E-06	-
Methylene Chloride	74-87-3	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	1.60E-03	-
Nickel	7440-02-0	HAP	-	-	-	-	1.30E-05	1.30E-05	6.92E-06	1.24E-07	1.24E-07	8.24E-08	1.24E-07	4.12E-07	4.12E-07	8.85E-06	8.85E-06	8.85E-06	8.85E-06	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	1.76E-08	-	6.97E-05	2.70E-05	YES
PAH (except 7-PAH group):	-	HAP	-	-	-	-	4.74E-07	4.74E-07	2.53E-07	4.52E-09	4.52E-09	3.01E-09	4.52E-09	1.51E-08	1.51E-08	3.24E-07	3.24E-07	3.24E-07	3.24E-07	6.45E-10	6.45E-10	6.45E-10	6.45E-10	6.45E-10	6.45E-10	6.45E-10	6.45E-10	6.45E-10	(exempt)	2.55E-06	9.10E-05	-
POM (7-PAH group) per ID:	-	HAP	-	-	-	-	7.04E-08	7.04E-08	3.76E-08	6.71E-10	6.71E-10	4.47E-10	6.71E-10	2.24E-09	2.24E-09	4.81E-08	4.81E-08	4.81E-08	4.81E-08	9.57E-11	9.57E-11	9.57E-11	9.57E-11	9.57E-11	9.57E-11	9.57E-11	9.57E-11	9.57E-11	(exempt)	3.78E-07	2.00E-06	-
1,1,2,2-Tetrachloroethane	79-34-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	1.10E-05	-
1,1,2-Trichloroethane	79-00-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	4.20E-04	-
Vinyl Chloride	75-01-4	HAP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(exempt)	-	9.40E-04	-
Other EPA HAPs																															
Carbon Dioxide (CO2)	-	-																												No Annual Standards	
Mercury	7439-97-6	HAP																													
Total HAPs	-	HAP																													

(A) - Average hourly emission rotes are based on calculated annual PTE emissions (including any requested permit limits on annual operating hours) divided by 8,760 hours per year. Details of the emission calculations are presented in subsequent tables.

(B) - Per Idaho DEQ guidance, since this source is subject to on EPA NESHAP, the Hazardous/Toxic Air Pollutants emitted from this source are exempt from modeling.

Table B-7. PTE Emissions - Cooking Tank

Emision Unit Information	Cooking Tank, Steam Vented
Dispersion Modeling ID	**(not applicable)**
Material Processed	Mixture of NaOH and straw, heated to approximately 200°F.
Boiling Point of NaOH	2,530 °F

Potential Emissions (at final facility buildout)	NaOH	Based on Boiling Point, NaOH will not be emitted

Table B-8. PTE Emissions - Extruders

Emision Unit Information	Extruders
Dispersion Modeling ID	**(not applicable)**
Material Processed	Polypropylene Pellets
Emission Concern	VOCs
Maximum Annual Operation	8,760 hr/yr

Maximum Hourly Throughput (at final facility buildout)	10,000 lb/hr 5.00 ton/hr
Maximum Annual Throughput (at final facility buildout)	87,600,000 lb/yr 43,800 ton/yr

Regulated Pollutant	Maximum Hourly Throughput lb/hr	Maximum Annual Operation hr/yr	Volatile Component as VOC	Weight Percent wt %	POTENTIAL EMISSIONS TOTAL lb/hr	ton/yr
VOC	10,000	8,760	Copolymer	0.07%		
			Reactor Homopolymer	0.26%		
			VOC TOTAL	0.33%	0.330	1.445

(A) - PTE Emission Rate (lb/hr) = Maximum Hourly Throughput (lb/hr) × Pollutant Weight Percent / 100%
PTE Emission Rate (ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operation (hr/yr) / 2000 lb/ton

Table B-9. PTE Emissions - Boiler #1

Emission Unit Information						Dispersion Modeling ID --->		B.1	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		6,300,000 Btu/hr 1,020 Btu/cu ft 6,176 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.006176	8,760	0.519	2.272	0.519	-
NO_x (Vendor Specs)	-	-	89.76 (C)			0.554	2.428	0.554	0.554
PM10	-	-	7.6			0.047	0.206	0.047	-
PM2.5	-	-	7.6			0.047	0.206	0.047	0.047
SO_2	-	-	0.6			0.004	0.016	0.004	-
VOC	-	-	5.5			0.034	0.149	-	-
Lead	-	-	0.0005			3.09E-06	1.35E-05	3.09E-06	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			2.72E-05	1.19E-04	2.72E-05	-
Chromium	7440-47-3	HAP	1.40E-03			8.65E-06	3.79E-05	8.65E-06	-
Cobalt	7440-48-4	HAP	8.40E-05			5.19E-07	2.27E-06	5.19E-07	-
Copper	7440-50-8	-	8.50E-04			5.25E-06	2.30E-05	5.25E-06	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			7.41E-06	3.25E-05	7.41E-06	-
Hexane	110-54-3	HAP	1.8			1.11E-02	4.87E-02	1.11E-02	-
Manganese	7439-96-5	HAP	3.80E-04			2.35E-06	1.03E-05	2.35E-06	-
Molybdenum	7439-98-7	-	1.10E-03			6.79E-06	2.98E-05	6.79E-06	-
Naphthalene	91-20-3	HAP	6.10E-04			3.77E-06	1.65E-05	3.77E-06	-
Pentane	109-66-0	-	2.6			1.61E-02	7.03E-02	1.61E-02	-
Selenium	7782-49-2	HAP	2.40E-05			1.48E-07	6.49E-07	1.48E-07	-
Toluene	108-88-3	HAP	3.40E-03			2.10E-05	9.20E-05	2.10E-05	-
Vanadium	7440-62-2	-	2.30E-03			1.42E-05	6.22E-05	1.42E-05	-
Zinc	7440-66-6	-	2.90E-02			1.79E-04	7.85E-04	1.79E-04	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			1.24E-06	5.41E-06	-	1.24E-06
Benzene	71-43-2	HAP	2.10E-03			1.30E-05	5.68E-05	-	1.30E-05
Benzo(a)pyrene	50-32-8	-	1.20E-06			7.41E-09	3.25E-08	-	7.41E-09
Beryllium	7440-41-7	HAP	1.20E-05			7.41E-08	3.25E-07	-	7.41E-08
Cadmium	7440-43-9	HAP	1.10E-03			6.79E-06	2.98E-05	-	6.79E-06
Formaldehyde	50-00-0	HAP	7.50E-02			4.63E-04	2.03E-03	-	4.63E-04
3-Methylchloranthrene	56-49-5	-	1.80E-06			1.11E-08	4.87E-08	-	1.11E-08
Nickel	7440-02-0	HAP	2.10E-03			1.30E-05	5.68E-05	-	1.30E-05
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		4.74E-07	2.08E-06	-	4.74E-07
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		7.04E-08	3.08E-07	-	7.04E-08
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			741.18	3,246.35	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.61E-06	7.03E-06	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

(C) - NOx Emission Factor from vendor (Power Flame Incorporated) specification sheet for Standard C, J Burners - 0.88 lb NOx per MMBtu input. Based on 1020 Btu/cu ft heat content of natural gas, this equates to an emission factor of 89.76 lb/MM cu ft.

Table B-10. PTE Emissions - Boiler #2

Emission Unit Information						Dispersion Modeling ID --->		B.2	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		6,300,000 Btu/hr 1,020 But/cu ft 6,176 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor **AP-42 Section 1.4** lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		**(Units < 100 MMBtu/hr)**							
CO	-	-	84	0.006176	8,760	0.519	2.272	0.519	-
NO_x (Vendor Specs)	-	-	89.76 (C)			0.554	2.428	0.554	0.554
PM10	-	-	7.6			0.047	0.206	0.047	-
PM2.5	-	-	7.6			0.047	0.206	0.047	0.047
SO_2	-	-	0.6			0.004	0.016	0.004	-
VOC	-	-	5.5			0.034	0.149	-	-
Lead	-	-	0.0005			3.09E-06	1.35E-05	3.09E-06	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			2.72E-05	1.19E-04	2.72E-05	-
Chromium	7440-47-3	HAP	1.40E-03			8.65E-06	3.79E-05	8.65E-06	-
Cobalt	7440-48-4	HAP	8.40E-05			5.19E-07	2.27E-06	5.19E-07	-
Copper	7440-50-8	-	8.50E-04			5.25E-06	2.30E-05	5.25E-06	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			7.41E-06	3.25E-05	7.41E-06	-
Hexane	110-54-3	HAP	1.8			1.11E-02	4.87E-02	1.11E-02	-
Manganese	7439-96-5	HAP	3.80E-04			2.35E-06	1.03E-05	2.35E-06	-
Molybdenum	7439-98-7	-	1.10E-03			6.79E-06	2.98E-05	6.79E-06	-
Naphthalene	91-20-3	HAP	6.10E-04			3.77E-06	1.65E-05	3.77E-06	-
Pentane	109-66-0	-	2.6			1.61E-02	7.03E-02	1.61E-02	-
Selenium	7782-49-2	HAP	2.40E-05			1.48E-07	6.49E-07	1.48E-07	-
Toluene	108-88-3	HAP	3.40E-03			2.10E-05	9.20E-05	2.10E-05	-
Vanadium	7440-62-2	-	2.30E-03			1.42E-05	6.22E-05	1.42E-05	-
Zinc	7440-66-6	-	2.90E-02			1.79E-04	7.85E-04	1.79E-04	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			1.24E-06	5.41E-06	-	1.24E-06
Benzene	71-43-2	HAP	2.10E-03			1.30E-05	5.68E-05	-	1.30E-05
Benzo(a)pyrene	50-32-8	-	1.20E-06			7.41E-09	3.25E-08	-	7.41E-09
Beryllium	7440-41-7	HAP	1.20E-05			7.41E-08	3.25E-07	-	7.41E-08
Cadmium	7440-43-9	HAP	1.10E-03			6.79E-06	2.98E-05	-	6.79E-06
Formaldehyde	50-00-0	HAP	7.50E-02			4.63E-04	2.03E-03	-	4.63E-04
3-Methylchloranthrene	56-49-5	-	1.80E-06			1.11E-08	4.87E-08	-	1.11E-08
Nickel	7440-02-0	HAP	2.10E-03			1.30E-05	5.68E-05	-	1.30E-05
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		4.74E-07	2.08E-06	-	4.74E-07
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		7.04E-08	3.08E-07	-	7.04E-08
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			741.18	3,246.35	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.61E-06	7.03E-06	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annuol Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

(C) - NOx Emission Factor from vendor (Power Flame Incorporated) specification sheet for Standard C, J Burners - 0.88 lb NOx per MMBth input. Based on 1020 Btu/cu ft heat content of natural gas, this equates to an emission factor of 89.76 lb/MM cu ft.

Table B-11. PTE Emissions - Boiler #3

Emission Unit Information						Dispersion Modeling ID --->		B.3	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		3,360,000 Btu/hr 1,020 But/cu ft 3,294 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.003294	8,760	0.277	1.212	0.277	-
NO_x	-	-	100			0.329	1.443	0.329	0.329
PM10	-	-	7.6			0.025	0.110	0.025	-
PM2.5	-	-	7.6			0.025	0.110	0.025	0.025
SO_2	-	-	0.6			0.002	0.009	0.002	-
VOC	-	-	5.5			0.018	0.079	-	-
Lead	-	-	0.0005			1.65E-06	7.21E-06	1.65E-06	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			1.45E-05	6.35E-05	1.45E-05	-
Chromium	7440-47-3	HAP	1.40E-03			4.61E-06	2.02E-05	4.61E-06	-
Cobalt	7440-48-4	HAP	8.40E-05			2.77E-07	1.21E-06	2.77E-07	-
Copper	7440-50-8	-	8.50E-04			2.80E-06	1.23E-05	2.80E-06	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			3.95E-06	1.73E-05	3.95E-06	-
Hexane	110-54-3	HAP	1.8			5.93E-03	2.60E-02	5.93E-03	-
Manganese	7439-96-5	HAP	3.80E-04			1.25E-06	5.48E-06	1.25E-06	-
Molybdenum	7439-98-7	-	1.10E-03			3.62E-06	1.59E-05	3.62E-06	-
Naphthalene	91-20-3	HAP	6.10E-04			2.01E-06	8.80E-06	2.01E-06	-
Pentane	109-66-0	-	2.6			8.56E-03	3.75E-02	8.56E-03	-
Selenium	7782-49-2	HAP	2.40E-05			7.91E-08	3.46E-07	7.91E-08	-
Toluene	108-88-3	HAP	3.40E-03			1.12E-05	4.91E-05	1.12E-05	-
Vanadium	7440-62-2	-	2.30E-03			7.58E-06	3.32E-05	7.58E-06	-
Zinc	7440-66-6	-	2.90E-02			9.55E-05	4.18E-04	9.55E-05	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			6.59E-07	2.89E-06	-	6.59E-07
Benzene	71-43-2	HAP	2.10E-03			6.92E-06	3.03E-05	-	6.92E-06
Benzo(a)pyrene	50-32-8	-	1.20E-06			3.95E-09	1.73E-08	-	3.95E-09
Beryllium	7440-41-7	HAP	1.20E-05			3.95E-08	1.73E-07	-	3.95E-08
Cadmium	7440-43-9	HAP	1.10E-03			3.62E-06	1.59E-05	-	3.62E-06
Formaldehyde	50-00-0	HAP	7.50E-02			2.47E-04	1.08E-03	-	2.47E-04
3-Methylchloranthrene	56-49-5	-	1.80E-06			5.93E-09	2.60E-08	-	5.93E-09
Nickel	7440-02-0	HAP	2.10E-03			6.92E-06	3.03E-05	-	6.92E-06
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		2.53E-07	1.11E-06	-	2.53E-07
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		3.76E-08	1.64E-07	-	3.76E-08
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			395.29	1,731.39	-	-
Mercury	7439-97-6	HAP	2.60E-04			8.56E-07	3.75E-06	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-12. PTE Emissions - Furnace A-1

Emission Unit Information						Dispersion Modeling ID --->		F.A1	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		60,000 Btu/hr 1,020 But/cu ft 59 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor **AP-42 Section 1.4** lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		**(Units < 100 MMBtu/hr)**							
CO	-	-	84	0.000059	8,760	0.005	0.022	0.005	-
NO_x	-	-	100			0.006	0.026	0.006	0.006
PM10	-	-	7.6			0.0004	0.002	0.0004	-
PM2.5	-	-	7.6			0.0004	0.002	0.0004	0.0004
SO_2	-	-	0.6			0.00004	0.0002	0.00004	-
VOC	-	-	5.5			0.0003	0.0014	-	-
Lead	-	-	0.0005			2.94E-08	1.29E-07	2.94E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			2.59E-07	1.13E-06	2.59E-07	-
Chromium	7440-47-3	HAP	1.40E-03			8.24E-08	3.61E-07	8.24E-08	-
Cobalt	7440-48-4	HAP	8.40E-05			4.94E-09	2.16E-08	4.94E-09	-
Copper	7440-50-8	-	8.50E-04			5.00E-08	2.19E-07	5.00E-08	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			7.06E-08	3.09E-07	7.06E-08	-
Hexane	110-54-3	HAP	1.8			1.06E-04	4.64E-04	1.06E-04	-
Manganese	7439-96-5	HAP	3.80E-04			2.24E-08	9.79E-08	2.24E-08	-
Molybdenum	7439-98-7	-	1.10E-03			6.47E-08	2.83E-07	6.47E-08	-
Naphthalene	91-20-3	HAP	6.10E-04			3.59E-08	1.57E-07	3.59E-08	-
Pentane	109-66-0	-	2.6			1.53E-04	6.70E-04	1.53E-04	-
Selenium	7782-49-2	HAP	2.40E-05			1.41E-09	6.18E-09	1.41E-09	-
Toluene	108-88-3	HAP	3.40E-03			2.00E-07	8.76E-07	2.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			1.35E-07	5.93E-07	1.35E-07	-
Zinc	7440-66-6	-	2.90E-02			1.71E-06	7.47E-06	1.71E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			1.18E-08	5.15E-08	-	1.18E-08
Benzene	71-43-2	HAP	2.10E-03			1.24E-07	5.41E-07	-	1.24E-07
Benzo(a)pyrene	50-32-8	-	1.20E-06			7.06E-11	3.09E-10	-	7.06E-11
Beryllium	7440-41-7	HAP	1.20E-05			7.06E-10	3.09E-09	-	7.06E-10
Cadmium	7440-43-9	HAP	1.10E-03			6.47E-08	2.83E-07	-	6.47E-08
Formaldehyde	50-00-0	HAP	7.50E-02			4.41E-06	1.93E-05	-	4.41E-06
3-Methylchloranthrene	56-49-5	-	1.80E-06			1.06E-10	4.64E-10	-	1.06E-10
Nickel	7440-02-0	HAP	2.10E-03			1.24E-07	5.41E-07	-	1.24E-07
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		4.52E-09	1.98E-08	-	4.52E-09
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		6.71E-10	2.94E-09	-	6.71E-10
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			7.06	30.92	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.53E-08	6.70E-08	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-13. PTE Emissions - Furnace A-2

Emission Unit Information						Dispersion Modeling ID --->		F.A2	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		60,000 Btu/hr 1,020 But/cu ft 59 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000059	8,760	0.005	0.022	0.005	-
NO_x	-	-	100			0.006	0.026	0.006	0.006
PM10	-	-	7.6			0.0004	0.0020	0.0004	-
PM2.5	-	-	7.6			0.0004	0.0020	0.0004	0.0004
SO_2	-	-	0.6			0.00004	0.00015	0.00004	-
VOC	-	-	5.5			0.0003	0.0014	-	-
Lead	-	-	0.0005			2.94E-08	1.29E-07	2.94E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			2.59E-07	1.13E-06	2.59E-07	-
Chromium	7440-47-3	HAP	1.40E-03			8.24E-08	3.61E-07	8.24E-08	-
Cobalt	7440-48-4	HAP	8.40E-05			4.94E-09	2.16E-08	4.94E-09	-
Copper	7440-50-8	-	8.50E-04			5.00E-08	2.19E-07	5.00E-08	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			7.06E-08	3.09E-07	7.06E-08	-
Hexane	110-54-3	HAP	1.8			1.06E-04	4.64E-04	1.06E-04	-
Manganese	7439-96-5	HAP	3.80E-04			2.24E-08	9.79E-08	2.24E-08	-
Molybdenum	7439-98-7	-	1.10E-03			6.47E-08	2.83E-07	6.47E-08	-
Naphthalene	91-20-3	HAP	6.10E-04			3.59E-08	1.57E-07	3.59E-08	-
Pentane	109-66-0	-	2.6			1.53E-04	6.70E-04	1.53E-04	-
Selenium	7782-49-2	HAP	2.40E-05			1.41E-09	6.18E-09	1.41E-09	-
Toluene	108-88-3	HAP	3.40E-03			2.00E-07	8.76E-07	2.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			1.35E-07	5.93E-07	1.35E-07	-
Zinc	7440-66-6	-	2.90E-02			1.71E-06	7.47E-06	1.71E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			1.18E-08	5.15E-08	-	1.18E-08
Benzene	71-43-2	HAP	2.10E-03			1.24E-07	5.41E-07	-	1.24E-07
Benzo(a)pyrene	50-32-8	-	1.20E-06			7.06E-11	3.09E-10	-	7.06E-11
Beryllium	7440-41-7	HAP	1.20E-05			7.06E-10	3.09E-09	-	7.06E-10
Cadmium	7440-43-9	HAP	1.10E-03			6.47E-08	2.83E-07	-	6.47E-08
Formaldehyde	50-00-0	HAP	7.50E-02			4.41E-06	1.93E-05	-	4.41E-06
3-Methylchloranthrene	56-49-5	-	1.80E-06			1.06E-10	4.64E-10	-	1.06E-10
Nickel	7440-02-0	HAP	2.10E-03			1.24E-07	5.41E-07	-	1.24E-07
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		4.52E-09	1.98E-08	-	4.52E-09
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		6.71E-10	2.94E-09	-	6.71E-10
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			7.06	30.92	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.53E-08	6.70E-08	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-14. PTE Emissions - Furnace A-3

Emission Unit Information						Dispersion Modeling ID --->		F.A3	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		40,000 Btu/hr 1,020 But/cu ft 39 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor **AP-42 Section 1.4** lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		**(Units < 100 MMBtu/hr)**							
CO	-	-	84	0.000039	8,760	0.003	0.014	0.003	-
NO_x	-	-	100			0.004	0.017	0.004	0.004
PM10	-	-	7.6			0.0003	0.0013	0.0003	-
PM2.5	-	-	7.6			0.0003	0.0013	0.0003	0.0003
SO_2	-	-	0.6			0.00002	0.00010	0.00002	-
VOC	-	-	5.5			0.0002	0.0009	-	-
Lead	-	-	0.0005			1.96E-08	8.59E-08	1.96E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			1.73E-07	7.56E-07	1.73E-07	-
Chromium	7440-47-3	HAP	1.40E-03			5.49E-08	2.40E-07	5.49E-08	-
Cobalt	7440-48-4	HAP	8.40E-05			3.29E-09	1.44E-08	3.29E-09	-
Copper	7440-50-8	-	8.50E-04			3.33E-08	1.46E-07	3.33E-08	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			4.71E-08	2.06E-07	4.71E-08	-
Hexane	110-54-3	HAP	1.8			7.06E-05	3.09E-04	7.06E-05	-
Manganese	7439-96-5	HAP	3.80E-04			1.49E-08	6.53E-08	1.49E-08	-
Molybdenum	7439-98-7	-	1.10E-03			4.31E-08	1.89E-07	4.31E-08	-
Naphthalene	91-20-3	HAP	6.10E-04			2.39E-08	1.05E-07	2.39E-08	-
Pentane	109-66-0	-	2.6			1.02E-04	4.47E-04	1.02E-04	-
Selenium	7782-49-2	HAP	2.40E-05			9.41E-10	4.12E-09	9.41E-10	-
Toluene	108-88-3	HAP	3.40E-03			1.33E-07	5.84E-07	1.33E-07	-
Vanadium	7440-62-2	-	2.30E-03			9.02E-08	3.95E-07	9.02E-08	-
Zinc	7440-66-6	-	2.90E-02			1.14E-06	4.98E-06	1.14E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			7.84E-09	3.44E-08	-	7.84E-09
Benzene	71-43-2	HAP	2.10E-03			8.24E-08	3.61E-07	-	8.24E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			4.71E-11	2.06E-10	-	4.71E-11
Beryllium	7440-41-7	HAP	1.20E-05			4.71E-10	2.06E-09	-	4.71E-10
Cadmium	7440-43-9	HAP	1.10E-03			4.31E-08	1.89E-07	-	4.31E-08
Formaldehyde	50-00-0	HAP	7.50E-02			2.94E-06	1.29E-05	-	2.94E-06
3-Methylchloranthrene	56-49-5	-	1.80E-06			7.06E-11	3.09E-10	-	7.06E-11
Nickel	7440-02-0	HAP	2.10E-03			8.24E-08	3.61E-07	-	8.24E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		3.01E-09	1.32E-08	-	3.01E-09
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		4.47E-10	1.96E-09	-	4.47E-10
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			4.71	20.61	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.02E-08	4.47E-08	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-15. PTE Emissions - Furnace A-4

Emission Unit Information						Dispersion Modeling ID --->		F.A4	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		60,000 Btu/hr 1,020 But/cu ft 59 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor **AP-42 Section 1.4** lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		**(Units < 100 MMBtu/hr)**							
CO	-	-	84	0.000059	8,760	0.005	0.022	0.005	-
NO_x	-	-	100			0.006	0.026	0.006	0.006
PM10	-	-	7.6			0.0004	0.0020	0.0004	-
PM2.5	-	-	7.6			0.0004	0.0020	0.0004	0.0004
SO_2	-	-	0.6			0.00004	0.00015	0.00004	-
VOC	-	-	5.5			0.0003	0.0014	-	-
Lead	-	-	0.0005			2.94E-08	1.29E-07	2.94E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			2.59E-07	1.13E-06	2.59E-07	-
Chromium	7440-47-3	HAP	1.40E-03			8.24E-08	3.61E-07	8.24E-08	-
Cobalt	7440-48-4	HAP	8.40E-05			4.94E-09	2.16E-08	4.94E-09	-
Copper	7440-50-8	-	8.50E-04			5.00E-08	2.19E-07	5.00E-08	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			7.06E-08	3.09E-07	7.06E-08	-
Hexane	110-54-3	HAP	1.8			1.06E-04	4.64E-04	1.06E-04	-
Manganese	7439-96-5	HAP	3.80E-04			2.24E-08	9.79E-08	2.24E-08	-
Molybdenum	7439-98-7	-	1.10E-03			6.47E-08	2.83E-07	6.47E-08	-
Naphthalene	91-20-3	HAP	6.10E-04			3.59E-08	1.57E-07	3.59E-08	-
Pentane	109-66-0	-	2.6			1.53E-04	6.70E-04	1.53E-04	-
Selenium	7782-49-2	HAP	2.40E-05			1.41E-09	6.18E-09	1.41E-09	-
Toluene	108-88-3	HAP	3.40E-03			2.00E-07	8.76E-07	2.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			1.35E-07	5.93E-07	1.35E-07	-
Zinc	7440-66-6	-	2.90E-02			1.71E-06	7.47E-06	1.71E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			1.18E-08	5.15E-08	-	1.18E-08
Benzene	71-43-2	HAP	2.10E-03			1.24E-07	5.41E-07	-	1.24E-07
Benzo(a)pyrene	50-32-8	-	1.20E-06			7.06E-11	3.09E-10	-	7.06E-11
Beryllium	7440-41-7	HAP	1.20E-05			7.06E-10	3.09E-09	-	7.06E-10
Cadmium	7440-43-9	HAP	1.10E-03			6.47E-08	2.83E-07	-	6.47E-08
Formaldehyde	50-00-0	HAP	7.50E-02			4.41E-06	1.93E-05	-	4.41E-06
3-Methylchloranthrene	56-49-5	-	1.80E-06			1.06E-10	4.64E-10	-	1.06E-10
Nickel	7440-02-0	HAP	2.10E-03			1.24E-07	5.41E-07	-	1.24E-07
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		4.52E-09	1.98E-08	-	4.52E-09
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		6.71E-10	2.94E-09	-	6.71E-10
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			7.06	30.92	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.53E-08	6.70E-08	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-16. PTE Emissions - Infrared Heater B1

Emission Unit Information						Dispersion Modeling ID --->		IRH.B1	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		200,000 Btu/hr 1,020 But/cu ft 196 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor **AP-42 Section 1.4** lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		**(Units < 100 MMBtu/hr)**							
CO	-	-	84	0.000196	8,760	0.016	0.072	0.016	-
NO_x	-	-	100			0.020	0.086	0.020	0.020
PM10	-	-	7.6			0.0015	0.007	0.0015	-
PM2.5	-	-	7.6			0.0015	0.007	0.0015	0.0015
SO_2	-	-	0.6			0.00012	0.0005	0.00012	-
VOC	-	-	5.5			0.0011	0.005	-	-
Lead	-	-	0.0005			9.80E-08	4.29E-07	9.80E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			8.63E-07	3.78E-06	8.63E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.75E-07	1.20E-06	2.75E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.65E-08	7.21E-08	1.65E-08	-
Copper	7440-50-8	-	8.50E-04			1.67E-07	7.30E-07	1.67E-07	-
Dichlorobenzene	25321-22-6	HAP	1.20E-03			2.35E-07	1.03E-06	2.35E-07	-
Hexane	110-54-3	HAP	1.8			3.53E-04	1.55E-03	3.53E-04	-
Manganese	7439-96-5	HAP	3.80E-04			7.45E-08	3.26E-07	7.45E-08	-
Molybdenum	7439-98-7	-	1.10E-03			2.16E-07	9.45E-07	2.16E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			1.20E-07	5.24E-07	1.20E-07	-
Pentane	109-66-0	-	2.6			5.10E-04	2.23E-03	5.10E-04	-
Selenium	7782-49-2	HAP	2.40E-05			4.71E-09	2.06E-08	4.71E-09	-
Toluene	108-88-3	HAP	3.40E-03			6.67E-07	2.92E-06	6.67E-07	-
Vanadium	7440-62-2	-	2.30E-03			4.51E-07	1.98E-06	4.51E-07	-
Zinc	7440-66-6	-	2.90E-02			5.69E-06	2.49E-05	5.69E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			3.92E-08	1.72E-07	-	3.92E-08
Benzene	71-43-2	HAP	2.10E-03			4.12E-07	1.80E-06	-	4.12E-07
Benzo(a)pyrene	50-32-8	-	1.20E-06			2.35E-10	1.03E-09	-	2.35E-10
Beryllium	7440-41-7	HAP	1.20E-05			2.35E-09	1.03E-08	-	2.35E-09
Cadmium	7440-43-9	HAP	1.10E-03			2.16E-07	9.45E-07	-	2.16E-07
Formaldehyde	50-00-0	HAP	7.50E-02			1.47E-05	6.44E-05	-	1.47E-05
3-Methylchloranthrene	56-49-5	-	1.80E-06			3.53E-10	1.55E-09	-	3.53E-10
Nickel	7440-02-0	HAP	2.10E-03			4.12E-07	1.80E-06	-	4.12E-07
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.51E-08	6.60E-08	-	1.51E-08
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		2.24E-09	9.79E-09	-	2.24E-09
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			23.53	103.06	-	-
Mercury	7439-97-6	HAP	2.60E-04			5.10E-08	2.23E-07	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-17. PTE Emissions - Infrared Heater B2

Emission Unit Information						Dispersion Modeling ID --->		IRH.B2	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		200,000 Btu/hr 1,020 But/cu ft 196 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000196	8,760	0.016	0.072	0.016	-
NO_x	-	-	100			0.020	0.086	0.020	0.020
PM10	-	-	7.6			0.0015	0.007	0.0015	-
PM2.5	-	-	7.6			0.0015	0.007	0.0015	0.0015
SO_2	-	-	0.6			0.00012	0.0005	0.00012	-
VOC	-	-	5.5			0.0011	0.005	-	-
Lead	-	-	0.0005			9.80E-08	4.29E-07	9.80E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			8.63E-07	3.78E-06	8.63E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.75E-07	1.20E-06	2.75E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.65E-08	7.21E-08	1.65E-08	-
Copper	7440-50-8	-	8.50E-04			1.67E-07	7.30E-07	1.67E-07	-
Dichlorobenzene	25321-22-6	HAP	1.20E-03			2.35E-07	1.03E-06	2.35E-07	-
Hexane	110-54-3	HAP	1.8			3.53E-04	1.55E-03	3.53E-04	-
Manganese	7439-96-5	HAP	3.80E-04			7.45E-08	3.26E-07	7.45E-08	-
Molybdenum	7439-98-7	-	1.10E-03			2.16E-07	9.45E-07	2.16E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			1.20E-07	5.24E-07	1.20E-07	-
Pentane	109-66-0	-	2.6			5.10E-04	2.23E-03	5.10E-04	-
Selenium	7782-49-2	HAP	2.40E-05			4.71E-09	2.06E-08	4.71E-09	-
Toluene	108-88-3	HAP	3.40E-03			6.67E-07	2.92E-06	6.67E-07	-
Vanadium	7440-62-2	-	2.30E-03			4.51E-07	1.98E-06	4.51E-07	-
Zinc	7440-66-6	-	2.90E-02			5.69E-06	2.49E-05	5.69E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			3.92E-08	1.72E-07	-	3.92E-08
Benzene	71-43-2	HAP	2.10E-03			4.12E-07	1.80E-06	-	4.12E-07
Benzo(a)pyrene	50-32-8	-	1.20E-06			2.35E-10	1.03E-09	-	2.35E-10
Beryllium	7440-41-7	HAP	1.20E-05			2.35E-09	1.03E-08	-	2.35E-09
Cadmium	7440-43-9	HAP	1.10E-03			2.16E-07	9.45E-07	-	2.16E-07
Formaldehyde	50-00-0	HAP	7.50E-02			1.47E-05	6.44E-05	-	1.47E-05
3-Methylchloranthrene	56-49-5	-	1.80E-06			3.53E-10	1.55E-09	-	3.53E-10
Nickel	7440-02-0	HAP	2.10E-03			4.12E-07	1.80E-06	-	4.12E-07
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.51E-08	6.60E-08	-	1.51E-08
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		2.24E-09	9.79E-09	-	2.24E-09
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			23.53	103.06	-	-
Mercury	7439-97-6	HAP	2.60E-04			5.10E-08	2.23E-07	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-18. PTE Emissions - Makeup Air Unit A-1

Emission Unit Information						Dispersion Modeling ID --->		MAU.A1	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		4,300,452 Btu/hr 1,020 But/cu ft 4,216 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.004216	8,760	0.354	1.551	0.354	-
NO_x (Staged low-NOx burners)	-	-	50 (C)			0.211	0.923	0.211	0.211
PM10	-	-	7.6			0.032	0.140	0.032	-
PM2.5	-	-	7.6			0.032	0.140	0.032	0.032
SO_2	-	-	0.6			0.003	0.011	0.003	-
VOC	-	-	5.5			0.023	0.102	-	-
Lead	-	-	0.0005			2.11E-06	9.23E-06	2.11E-06	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			1.86E-05	8.13E-05	1.86E-05	-
Chromium	7440-47-3	HAP	1.40E-03			5.90E-06	2.59E-05	5.90E-06	-
Cobalt	7440-48-4	HAP	8.40E-05			3.54E-07	1.55E-06	3.54E-07	-
Copper	7440-50-8	-	8.50E-04			3.58E-06	1.57E-05	3.58E-06	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			5.06E-06	2.22E-05	5.06E-06	-
Hexane	110-54-3	HAP	1.8			7.59E-03	3.32E-02	7.59E-03	-
Manganese	7439-96-5	HAP	3.80E-04			1.60E-06	7.02E-06	1.60E-06	-
Molybdenum	7439-98-7	-	1.10E-03			4.64E-06	2.03E-05	4.64E-06	-
Naphthalene	91-20-3	HAP	6.10E-04			2.57E-06	1.13E-05	2.57E-06	-
Pentane	109-66-0	-	2.6			1.10E-02	4.80E-02	1.10E-02	-
Selenium	7782-49-2	HAP	2.40E-05			1.01E-07	4.43E-07	1.01E-07	-
Toluene	108-88-3	HAP	3.40E-03			1.43E-05	6.28E-05	1.43E-05	-
Vanadium	7440-62-2	-	2.30E-03			9.70E-06	4.25E-05	9.70E-06	-
Zinc	7440-66-6	-	2.90E-02			1.22E-04	5.36E-04	1.22E-04	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			8.43E-07	3.69E-06	-	8.43E-07
Benzene	71-43-2	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
Benzo(a)pyrene	50-32-8	-	1.20E-06			5.06E-09	2.22E-08	-	5.06E-09
Beryllium	7440-41-7	HAP	1.20E-05			5.06E-08	2.22E-07	-	5.06E-08
Cadmium	7440-43-9	HAP	1.10E-03			4.64E-06	2.03E-05	-	4.64E-06
Formaldehyde	50-00-0	HAP	7.50E-02			3.16E-04	1.38E-03	-	3.16E-04
3-Methylchloranthrene	56-49-5	-	1.80E-06			7.59E-09	3.32E-08	-	7.59E-09
Nickel	7440-02-0	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		3.24E-07	1.42E-06	-	3.24E-07
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		4.81E-08	2.11E-07	-	4.81E-08
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			505.94	2,216.00	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.10E-06	4.80E-06	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(tan/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

(C) - AP-42 Low NOx Emission Factor is used. The MAU are equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.

Table B-19. PTE Emissions - Makeup Air Unit D-1

Emission Unit Information						Dispersion Modeling ID --->		MAU.D1	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		4,300,452 Btu/hr 1,020 But/cu ft 4,216 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.004216	8,760	0.354	1.551	0.354	-
NO_x (Staged low-NOx burners)	-	-	50 (C)			0.211	0.923	0.211	0.211
PM10	-	-	7.6			0.032	0.140	0.032	-
PM2.5	-	-	7.6			0.032	0.140	0.032	0.032
SO_2	-	-	0.6			0.003	0.011	0.003	-
VOC	-	-	5.5			0.023	0.102	-	-
Lead	-	-	0.0005			2.11E-06	9.23E-06	2.11E-06	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			1.86E-05	8.13E-05	1.86E-05	-
Chromium	7440-47-3	HAP	1.40E-03			5.90E-06	2.59E-05	5.90E-06	-
Cobalt	7440-48-4	HAP	8.40E-05			3.54E-07	1.55E-06	3.54E-07	-
Copper	7440-50-8	-	8.50E-04			3.58E-06	1.57E-05	3.58E-06	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			5.06E-06	2.22E-05	5.06E-06	-
Hexane	110-54-3	HAP	1.8			7.59E-03	3.32E-02	7.59E-03	-
Manganese	7439-96-5	HAP	3.80E-04			1.60E-06	7.02E-06	1.60E-06	-
Molybdenum	7439-98-7	-	1.10E-03			4.64E-06	2.03E-05	4.64E-06	-
Naphthalene	91-20-3	HAP	6.10E-04			2.57E-06	1.13E-05	2.57E-06	-
Pentane	109-66-0	-	2.6			1.10E-02	4.80E-02	1.10E-02	-
Selenium	7782-49-2	HAP	2.40E-05			1.01E-07	4.43E-07	1.01E-07	-
Toluene	108-88-3	HAP	3.40E-03			1.43E-05	6.28E-05	1.43E-05	-
Vanadium	7440-62-2	-	2.30E-03			9.70E-06	4.25E-05	9.70E-06	-
Zinc	7440-66-6	-	2.90E-02			1.22E-04	5.36E-04	1.22E-04	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			8.43E-07	3.69E-06	-	8.43E-07
Benzene	71-43-2	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
Benzo(a)pyrene	50-32-8	-	1.20E-06			5.06E-09	2.22E-08	-	5.06E-09
Beryllium	7440-41-7	HAP	1.20E-05			5.06E-08	2.22E-07	-	5.06E-08
Cadmium	7440-43-9	HAP	1.10E-03			4.64E-06	2.03E-05	-	4.64E-06
Formaldehyde	50-00-0	HAP	7.50E-02			3.16E-04	1.38E-03	-	3.16E-04
3-Methylchloranthrene	56-49-5	-	1.80E-06			7.59E-09	3.32E-08	-	7.59E-09
Nickel	7440-02-0	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		3.24E-07	1.42E-06	-	3.24E-07
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		4.81E-08	2.11E-07	-	4.81E-08
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			505.94	2,216.00	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.10E-06	4.80E-06	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

(C) - AP-42 Low NOx Emission Factor is used. The MAU are equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.

Table B-20. PTE Emissions - Makeup Air Unit F-1

Emission Unit Information						Dispersion Modeling ID --->		MAU.F1	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		4,300,452 Btu/hr 1,020 But/cu ft 4,216 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.004216	8,760	0.354	1.551	0.354	-
NO_x (Staged low-NOx burners)	-	-	50 (C)			0.211	0.923	0.211	0.211
PM10	-	-	7.6			0.032	0.140	0.032	-
PM2.5	-	-	7.6			0.032	0.140	0.032	0.032
SO_2	-	-	0.6			0.003	0.011	0.003	-
VOC	-	-	5.5			0.023	0.102	-	-
Lead	-	-	0.0005			2.11E-06	9.23E-06	2.11E-06	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			1.86E-05	8.13E-05	1.86E-05	-
Chromium	7440-47-3	HAP	1.40E-03			5.90E-06	2.59E-05	5.90E-06	-
Cobalt	7440-48-4	HAP	8.40E-05			3.54E-07	1.55E-06	3.54E-07	-
Copper	7440-50-8	-	8.50E-04			3.58E-06	1.57E-05	3.58E-06	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			5.06E-06	2.22E-05	5.06E-06	-
Hexane	110-54-3	HAP	1.8			7.59E-03	3.32E-02	7.59E-03	-
Manganese	7439-96-5	HAP	3.80E-04			1.60E-06	7.02E-06	1.60E-06	-
Molybdenum	7439-98-7	-	1.10E-03			4.64E-06	2.03E-05	4.64E-06	-
Naphthalene	91-20-3	HAP	6.10E-04			2.57E-06	1.13E-05	2.57E-06	-
Pentane	109-66-0	-	2.6			1.10E-02	4.80E-02	1.10E-02	-
Selenium	7782-49-2	HAP	2.40E-05			1.01E-07	4.43E-07	1.01E-07	-
Toluene	108-88-3	HAP	3.40E-03			1.43E-05	6.28E-05	1.43E-05	-
Vanadium	7440-62-2	-	2.30E-03			9.70E-06	4.25E-05	9.70E-06	-
Zinc	7440-66-6	-	2.90E-02			1.22E-04	5.36E-04	1.22E-04	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			8.43E-07	3.69E-06	-	8.43E-07
Benzene	71-43-2	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
Benzo(a)pyrene	50-32-8	-	1.20E-06			5.06E-09	2.22E-08	-	5.06E-09
Beryllium	7440-41-7	HAP	1.20E-05			5.06E-08	2.22E-07	-	5.06E-08
Cadmium	7440-43-9	HAP	1.10E-03			4.64E-06	2.03E-05	-	4.64E-06
Formaldehyde	50-00-0	HAP	7.50E-02			3.16E-04	1.38E-03	-	3.16E-04
3-Methylchloranthrene	56-49-5	-	1.80E-06			7.59E-09	3.32E-08	-	7.59E-09
Nickel	7440-02-0	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		3.24E-07	1.42E-06	-	3.24E-07
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		4.81E-08	2.11E-07	-	4.81E-08
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			505.94	2,216.00	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.10E-06	4.80E-06	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

(C) - AP-42 Low NOx Emission Factor is used. The MAU are equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.

Table B-21. PTE Emissions - Makeup Air Unit F-2

Emission Unit Information						Dispersion Modeling ID --->		MAU.F2	
Fuel Input Capacity	(Natural Gas)					(Natural Gas)		4,300,452 Btu/hr 1,020 But/cu ft 4,216 cu ft/hr	
Maximum Annual Operating Hours						(No Permit Limit)		8,760 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.004216	8,760	0.354	1.551	0.354	-
NO_x (Staged low-NOx burners)	-	-	50 (C)			0.211	0.923	0.211	0.211
PM10	-	-	7.6			0.032	0.140	0.032	-
PM2.5	-	-	7.6			0.032	0.140	0.032	0.032
SO_2	-	-	0.6			0.003	0.011	0.003	-
VOC	-	-	5.5			0.023	0.102	-	-
Lead	-	-	0.0005			2.11E-06	9.23E-06	2.11E-06	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			1.86E-05	8.13E-05	1.86E-05	-
Chromium	7440-47-3	HAP	1.40E-03			5.90E-06	2.59E-05	5.90E-06	-
Cobalt	7440-48-4	HAP	8.40E-05			3.54E-07	1.55E-06	3.54E-07	-
Copper	7440-50-8	-	8.50E-04			3.58E-06	1.57E-05	3.58E-06	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			5.06E-06	2.22E-05	5.06E-06	-
Hexane	110-54-3	HAP	1.8			7.59E-03	3.32E-02	7.59E-03	-
Manganese	7439-96-5	HAP	3.80E-04			1.60E-06	7.02E-06	1.60E-06	-
Molybdenum	7439-98-7	-	1.10E-03			4.64E-06	2.03E-05	4.64E-06	-
Naphthalene	91-20-3	HAP	6.10E-04			2.57E-06	1.13E-05	2.57E-06	-
Pentane	109-66-0	-	2.6			1.10E-02	4.80E-02	1.10E-02	-
Selenium	7782-49-2	HAP	2.40E-05			1.01E-07	4.43E-07	1.01E-07	-
Toluene	108-88-3	HAP	3.40E-03			1.43E-05	6.28E-05	1.43E-05	-
Vanadium	7440-62-2	-	2.30E-03			9.70E-06	4.25E-05	9.70E-06	-
Zinc	7440-66-6	-	2.90E-02			1.22E-04	5.36E-04	1.22E-04	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			8.43E-07	3.69E-06	-	8.43E-07
Benzene	71-43-2	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
Benzo(a)pyrene	50-32-8	-	1.20E-06			5.06E-09	2.22E-08	-	5.06E-09
Beryllium	7440-41-7	HAP	1.20E-05			5.06E-08	2.22E-07	-	5.06E-08
Cadmium	7440-43-9	HAP	1.10E-03			4.64E-06	2.03E-05	-	4.64E-06
Formaldehyde	50-00-0	HAP	7.50E-02			3.16E-04	1.38E-03	-	3.16E-04
3-Methylchloranthrene	56-49-5	-	1.80E-06			7.59E-09	3.32E-08	-	7.59E-09
Nickel	7440-02-0	HAP	2.10E-03			8.85E-06	3.88E-05	-	8.85E-06
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		3.24E-07	1.42E-06	-	3.24E-07
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		4.81E-08	2.11E-07	-	4.81E-08
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			505.94	2,216.00	-	-
Mercury	7439-97-6	HAP	2.60E-04			1.10E-06	4.80E-06	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

(C) - AP-42 Low NOx Emission Factor is used. The MAU ore equipped with stage burners, consistent with the AP-42 definition of a low NOx burner.

Table B-22. PTE Emissions - Emergency Shutdown Heater B-1

Emission Unit Information						Dispersion Modeling ID --->		UH.B1	
Fuel Input Capacity						(Natural Gas)		150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours						(Permit Limit - Annual)		500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor **AP-42 Section 1.4** lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		**(Units < 100 MMBtu/hr)**							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-23. PTE Emissions - Emergency Shutdown Heater C-1

Emission Unit Information					Dispersion Modeling ID --->			UH.C1	
Fuel Input Capacity					(Natural Gas)			150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours					(Permit Limit - Annual)			500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^5scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMI55ION5 lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-24. PTE Emissions - Emergency Shutdown Heater C-2

Emission Unit Information						Dispersion Modeling ID --->		UH.C2	
Fuel Input Capacity						(Natural Gas)		150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours						(Permit Limit - Annual)		500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-25. PTE Emissions - Emergency Shutdown Heater C-3

Emission Unit Information					Dispersion Modeling ID --->			UH.C3	
Fuel Input Capacity					(Natural Gas)			150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours					(Permit Limit - Annual)			500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	POTENITIAL [A] EMISSIONS ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	MODELING EMISSION [B] RATES Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-26. PTE Emissions - Emergency Shutdown Heater D-1

Emission Unit Information						Dispersion Modeling ID --->		UH.D1	
Fuel Input Capacity						(Natural Gas)		150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours						(Permit Limit - Annual)		500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-27. PTE Emissions - Emergency Shutdown Heater D-2

Emission Unit Information					Dispersion Modeling ID --->			UH.D2	
Fuel Input Capacity					(Natural Gas)			150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours					(Permit Limit - Annual)			500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	POTENITIAL [A] EMISSIONS ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	MODELING EMISSION [B] RATES Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-28. PTE Emissions - Emergency Shutdown Heater F-1

Emission Unit Information					Dispersion Modeling ID --->		UH.F1	
Fuel Input Capacity					(Natural Gas)		150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours					(Permit Limit - Annual)		500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^{5}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	POTENITIAL [A] EMISSIONS ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	MODELING EMISSION [B] RATES Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-29. PTE Emissions - Emergency Shutdown Heater F-2

Emission Unit Information						Dispersion Modeling ID --->		UH.F2	
Fuel Input Capacity						(Natural Gas)		150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours						(Permit Limit - Annual)		500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Section 1.4 lb/10^6 scf	TOTAL Fuel Input Capacity 10^{6}scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-30. PTE Emissions - Emergency Shutdown Heater F-3

Emission Unit Information					Dispersion Modeling ID --->			UH.F3	
Fuel Input Capacity					(Natural Gas)			150,000 Btu/hr 1,020 But/cu ft 147 cu ft/hr	
Maximum Annual Operating Hours					(Permit Limit - Annual)			500 hr/yr	
Regulated Pollutant	CAS No	EPA HAP	Emission Factor **AP-42 Section 1.4** lb/10^6 scf	TOTAL Fuel Input Capacity 10^6scf/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	Avg Hour lb/hr
Criteria Pollutants		(Units < 100 MMBtu/hr)							
CO	-	-	84	0.000147	500	0.012	0.003	0.012	-
NO_x	-	-	100			0.015	0.004	0.015	0.0008
PM10	-	-	7.6			0.0011	0.0003	0.0011	-
PM2.5	-	-	7.6			0.0011	0.0003	0.0011	0.00006
SO_2	-	-	0.6			0.00009	0.00002	0.00009	-
VOC	-	-	5.5			0.0008	0.0002	-	-
Lead	-	-	0.0005			7.35E-08	1.84E-08	7.35E-08	-
Idaho TAPs - Noncarcinogenic									
Barium	7440-39-3	-	4.40E-03			6.47E-07	1.62E-07	6.47E-07	-
Chromium	7440-47-3	HAP	1.40E-03			2.06E-07	5.15E-08	2.06E-07	-
Cobalt	7440-48-4	HAP	8.40E-05			1.24E-08	3.09E-09	1.24E-08	-
Copper	7440-50-8	-	8.50E-04			1.25E-07	3.13E-08	1.25E-07	-
Dichlorobenzene (as 1,4-)	25321-22-6	HAP	1.20E-03			1.76E-07	4.41E-08	1.76E-07	-
Hexane	110-54-3	HAP	1.8			2.65E-04	6.62E-05	2.65E-04	-
Manganese	7439-96-5	HAP	3.80E-04			5.59E-08	1.40E-08	5.59E-08	-
Molybdenum	7439-98-7	-	1.10E-03			1.62E-07	4.04E-08	1.62E-07	-
Naphthalene	91-20-3	HAP	6.10E-04			8.97E-08	2.24E-08	8.97E-08	-
Pentane	109-66-0	-	2.6			3.82E-04	9.56E-05	3.82E-04	-
Selenium	7782-49-2	HAP	2.40E-05			3.53E-09	8.82E-10	3.53E-09	-
Toluene	108-88-3	HAP	3.40E-03			5.00E-07	1.25E-07	5.00E-07	-
Vanadium	7440-62-2	-	2.30E-03			3.38E-07	8.46E-08	3.38E-07	-
Zinc	7440-66-6	-	2.90E-02			4.26E-06	1.07E-06	4.26E-06	-
Idaho TAPs - Carcinogenic									
Arsenic	7440-38-2	HAP	2.00E-04			2.94E-08	7.35E-09	-	1.68E-09
Benzene	71-43-2	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
Benzo(a)pyrene	50-32-8	-	1.20E-06			1.76E-10	4.41E-11	-	1.01E-11
Beryllium	7440-41-7	HAP	1.20E-05			1.76E-09	4.41E-10	-	1.01E-10
Cadmium	7440-43-9	HAP	1.10E-03			1.62E-07	4.04E-08	-	9.23E-09
Formaldehyde	50-00-0	HAP	7.50E-02			1.10E-05	2.76E-06	-	6.30E-07
3-Methylchloranthrene	56-49-5	-	1.80E-06			2.65E-10	6.62E-11	-	1.51E-11
Nickel	7440-02-0	HAP	2.10E-03			3.09E-07	7.72E-08	-	1.76E-08
PAH (except 7-PAH Group):	-	HAP	7.68E-05	<---TOTAL		1.13E-08	2.82E-09	-	6.45E-10
• 2-Methylnaphthalene	91-57-6		2.40E-05						
• 3-Methylchloranthrene	56-49-5		1.80E-06						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		1.60E-05						
• Acenaphthene	83-32-9		1.80E-06						
• Acenaphthylene	203-96-8		1.80E-06						
• Anthracene	120-12-7		2.40E-06						
• Benzo(g,h,i)perylene	191-24-2		1.20E-06						
• Fluoranthene	206-44-0		3.00E-06						
• Fluorene	86-73-7		2.80E-06						
• Phenanathrene	85-01-8		1.70E-05						
• Pyrene	129-00-0		5.00E-06						
POM (7-PAH group) per ID:	-	HAP	1.14E-05	<---TOTAL		1.68E-09	4.19E-10	-	9.57E-11
• Benzo(a)anthacene	56-55-3		1.80E-06						
• Benzo(a)pyrene	50-32-8		1.20E-06						
• Benzo(b)fluoranthene	205-99-2		1.80E-06						
• Benzo(k)fluoranthene	53-70-3		1.80E-06						
• Chrysene	218-01-9		1.80E-06						
• Dibenzo(a,h)anthracene	53-70-3		1.20E-06						
• Indenol(1,2,3-cd)pyrene	193-39-5		1.80E-06						
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)			120,000			17.65	4.41	-	-
Mercury	7439-97-6	HAP	2.60E-04			3.82E-08	9.56E-09	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

Table B-31. PTE Emissions - Emergency Generator (Natural Gas)

Emission Unit Information				Dispersion Modeling ID-->	GENERATOR			
Fuel Input Capacity				Fuel Input Capacity	1,055 cu ft/hr	(Natural Gas)		
				Heat Content	1,020 Btu/cu ft			
				Fuel Input Capacity	1.076 MMBtu/hr			
Maximum Annual Operating Hours				PTE Operation	100 hr/yr	(Permt Limit - Annual)		
				Maintenance & Testing	15 min/day			
Regulated Pollutant	CAS No	EPA HAP	Emission Factor AP-42 Table 3.2-3 lb/MMBtu	TOTAL Fuel Input Capacity MMBtu/hr	Maximum Operating Hours hr/yr	POTENITIAL [A] EMISSIONS lb/hr	POTENITIAL [A] EMISSIONS ton/yr	MODELING EMISSION [B] RATES Max Hour lb/hr	MODELING EMISSION [B] RATES Avg Hour lb/hr
Criteria Pollutants		4-Stoke Rich Burn Engine							
CO	-	-	3.72 (C)	1.0761	100	4.003	0.200	4.003	-
NO_x (Four Stoke Rich Burn Engine)	-	-	2.27 (C)			2.443	0.122	2.443	0.028
PM10	-	-	9.50E-03			0.010	0.0005	0.010	-
PM2.5	-	-	9.50E-03			0.010	0.0005	0.010	0.00012
SO_2	-	-	5.88E-04			0.0006	0.00003	0.0006	-
VOC	-	-	2.96E-02			0.032	0.0016	-	-
Lead	-	-	-			-	-	-	-
Idaho TAPs - Noncarcinogenic									
Acrolein	107-02-8	HAP	2.63E-03			2.83E-03	1.42E-04	TAPs are exempt from modeling since this generator is covered under NESHAP Subpart ZZZZ	
Chlorobenzene	108-90-7	HAP	1.29E-05			1.39E-05	6.94E-07		
1,2-Dichloropropane	78-87-5	-	1.30E-05			1.40E-05	6.99E-07		
Ethyl Benzene	100-41-4	HAP	2.48E-05			2.67E-05	1.33E-06		
Methanol	67-56-1	HAP	3.06E-03			3.29E-03	1.65E-04		
Naphthalene	91-20-3	HAP	9.71E-05			1.04E-04	5.22E-06		
Styrene	100-42-5	HAP	1.19E-05			1.28E-05	6.40E-07		
Toluene	108-88-3	HAP	5.58E-04			6.00E-04	3.00E-05		
Xylene	1330-20-7	HAP	1.95E-04			2.10E-04	1.05E-05		
Idaho TAPs - Carcinogenic									
Acetaldehyde	75-07-0	HAP	2.79E-03			3.00E-03	1.50E-04	TAPs are exempt from modeling since this generator is covered under NESHAP Subpart ZZZZ	
Benzene	71-43-2	HAP	1.58E-03			1.70E-03	8.50E-05		
1,3-Butadiene	106-99-0	HAP	6.63E-04			7.13E-04	3.57E-05		
Carbon Tetrachloride	56-23-5	HAP	1.77E-05			1.90E-05	9.52E-07		
Chloroform	67-66-3	HAP	1.37E-05			1.47E-05	7.37E-07		
1,1-Dichloroethane	75-34-3	-	1.13E-05			1.22E-05	6.08E-07		
1,2-Dichloroethane	107-06-2	-	1.13E-05			1.22E-05	6.08E-07		
1,3-Dichloropropene	542-75-6	HAP	1.27E-05			1.37E-05	6.83E-07		
Ethylene Dibromide	106-93-4	HAP	2.13E-05			2.29E-05	1.15E-06		
Formaldehyde	50-00-0	HAP	2.05E-02			2.21E-02	1.10E-03		
Methylene Chloride	74-87-3	HAP	4.12E-05			4.43E-05	2.22E-06		
PAH (except 7-PAH group):	-	HAP	1.41E-04	<---TOTAL		1.52E-04	7.59E-06		
• 2-Methylnaphthalene	91-57-6								
• 3-Methylchloranthrene	56-49-5		Individual						
• 7,12-Dimethylbenz(a)anthracene	54-49-5		components						
• Acenaphthene	83-32-9		not listed in						
• Acenaphthylene	203-96-8		AP-42						
• Anthracene	120-12-7		Section 3.2						
• Benzo(g,h,i)perylene	191-24-2								
• Fluoranthene	206-44-0								
• Fluorene	86-73-7								
• Phenanathrene	85-01-8								
• Pyrene	129-00-0								
POM (7-PAH group) per IDEQ:	-	HAP	1.41E-04	<---TOTAL		1.52E-04	7.59E-06		
• Benzo(a)anthacene	56-55-3								
• Benzo(a)pyrene	50-32-8		Individual						
• Benzo(b)fluoranthene	205-99-2		components						
• Benzo(k)fluoranthene	53-70-3		not listed in						
• Chrysene	218-01-9		AP-42						
• Dibenzo(a,h)anthracene	53-70-3		Section 3.2						
• Indenol(1,2,3-cd)pyrene	193-39-5								
1,1,2,2-Tetrachloroethane	79-34-5	-	2.53E-05			2.72E-05	1.36E-06		
1,1,2-Trichloroethane	79-00-5	-	1.53E-05			1.65E-05	8.23E-07		
Vinyl Chloride	75-01-4	HAP	7.18E-06			7.73E-06	3.86E-07		
Other EPA Pollutants of Concern									
Carbon Dioxide (CO2)	-	-	1.10E+02			118.37	5.92	-	-

(A) - PTE Emission Rate: *(lb/hr) = Emission Factor (lb/MM cu ft) × Total Fuel Input Capacity (MM cu ft/hr)*
(ton/yr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 2000 lb/ton

(B) - Modeling Emission Rate: *Maximum Hourly (lb/hr) = PTE Emission Rate (lb/hr)*
Average Hourly (lb/hr) = PTE Emission Rate (lb/hr) × Maximum Annual Operating Hours (hr/yr) / 8760 hr/yr

(C) - AP-42 emission factor for 4-stroke rich burn engine. The value selected is the higher of the <90% load and 90-105% load emission factors.