

The following report is prepared and published by:



READING THERMAL

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The Baked Food Company

Leesport, PA. USA

OVEN SAFETY INSPECTION REPORT

September 18, 2012

**SAMPLE
REPORT**

The following report is prepared for:

**Al Gebra, Senior Process Engineer
The Baked Food Company
123 Industrial Boulevard
Leesport, PA 90210
610-867-5309 (o)
610-867-1234 (c)**

TABLE OF CONTENTS

Summary	3
Safety Inspection Unsatisfactory Items	3
General Line Observations	3
Oven Specifications Line #5	4
Benchmark Profiles Line #5	5
Equipment Inspection Checklists Line #5	9
Appendix	21
Oven Safety Inspection Program	21
Sample Control Panel Label	22



SUMMARY

At the request of The Baked Food Company, Reading Thermal conducted an oven safety inspection on Line 5 at the Leesport, PA plant. The inspection was conducted on September 18, 2012.

The inspection team consisted of:

Reading Thermal Josh Dennis, Thermal Process Engineer
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The Baked Food Company Ronald D. Rench, Plant Maintenance
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 Calvin Culus, Project Engineer
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Benchmark profiles were collected on Line 5 to serve as a future point of reference.

Safety Inspection Unsatisfactory Items

Line # 5		
Oven Checklist #	Description	
N/A	See Zone Checklists	
Zone Checklist #	Zone #	Description
1	All Zones	No Normally Open vent between safety valve and blocking valve
8	2,3,5	Gas pressure gauge appears stuck
16	3,4,5	Combustion blower air flow switch did not function properly during test
19	All zones	Exhaust blower air flow switch did not function properly during test

General Line Observations

Line #5

1. Several pressure gauges missing lens covers.
2. Digital readout on High-temp switch blank – zone 1.
3. Vent line connected to regulator pinched shut – zone 4.
4. Ignition transformer loosely installed - hanging – zone 5.

OVEN SPECIFICATIONS LINE #5

Oven Inspected: Line #5			
Plant Name	Baked Food (Leesport, PA)	Oven Line ID	Line 5
Oven Type	Indirect Gas Fired / Convection	Electrical Print #	Not Available for Inspection
Product	Scrapple Pie Shells	Oven Dimensions	100" wide x 92' long
Oven Manufacturer	XYZ Equipment	# of Oven Zones	5
Conveyor Type	Stainless Steel Flat Wire, Open Weave	Zone Lengths	Z1=13.1ft, Z2=13.1ft, Z3=19.7ft, Z4=19.7ft, Z5=26.5ft
Conveyor Width	100"		

Oven Description

The oven is comprised of 5 independent baking zones equipped with Maxon EB-2 style burners with an overall rated nominal capacity of 5 million btus. The burner valve train consists of a single stringed pipe gas supply system factory mutual train. The oven band contains 1"x1" openings in the belt. The band is divided into left and right sides with 45" x 45" trays traveling side by side through the length of the oven. The two pans travel through the oven on top of the band. Each tray contains 49, 5" diameter circular depressions arranged in a 7 x 7 grid. Each recess contains dough that is baked into Scrapple Pie shells. An air-to-air heat exchanger is attached to the top of each zone in a penthouse to capture and reuse some of the exhaust heat. Each zone has an exhaust fan and fire damper.

BENCHMARK PROFILES LINE #5

Oven Production Settings

Oven Line 5 was the first line that data was collected from at the plant. The oven was running at normal production settings and had been running for several hours prior to when the profiles were collected at full product load. A continuous flow of 2 trays, side by side, traveled through the oven. The T/B damper settings were 20% for zone 1, 20% zone 2, 35% zone 3, 40% zone 4, and 45% zone 5. After checking for clearance of the SCORPION® equipment, a total of 2 passes were performed with the first pass collecting data from the R&D sensor and the second pass collecting humidity data. The R&D sensor collected air velocity, lower air temperature through oven band, upper air temperature, and heat flux. The equipment traveled on the right side of the oven in the direction of travel to allow proper feed and removal of the equipment. Profiles were not collected on the left-hand path where the trays traveling down the left side of the oven would pass through.

Bake Time ≈ 3 min: 6 sec

Belt Speed ≈ 30 fpm

SCORPION® Profiles

Date	Time	Plot Type	File Name	Description
9/18/2012	13:16	Air Velocity	Baked Food (Leesport, PA) Line 5 AV	Single point measurement through the process
9/18/2012	13:16	Temperature Upper	Baked Food (Leesport, PA) Line 5 T up	Single point measurement through the process
9/18/2012	13:16	Temperature Lower	Baked Food (Leesport, PA) Line 5 T low	Single point measurement through the process
9/18/2012	13:16	Heat Flux	Baked Food (Leesport, PA) Line 5 HF	Single point measurement through the process
9/18/2012	13:26	Humidity	Baked Food (Leesport, PA) Line 5 HU	Single point measurement through the process

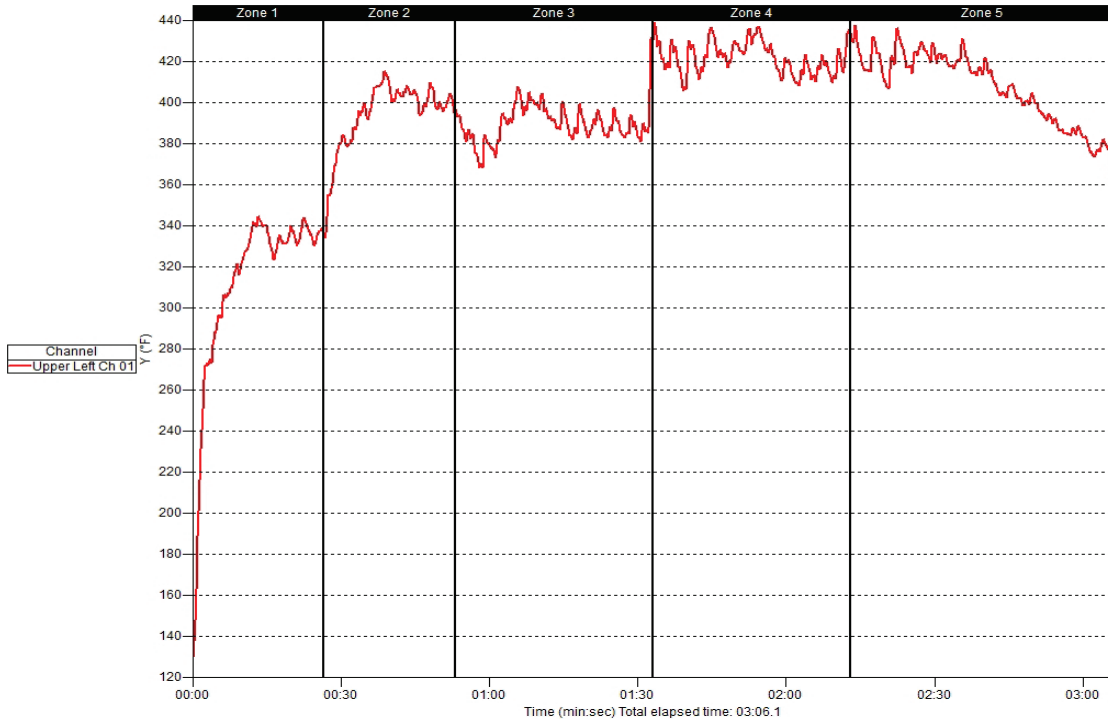
Oven Benchmark Profile Charts Line #5

Chart 7 – Upper Air Temperature – Line 5

Date: September 18, 2012
Time: 13:06
User:

Temp Array - 2D Line - Upper Air

Process: Line 5
Product: Srapple pie shells
File: Baked food Line 5 T up.sv8



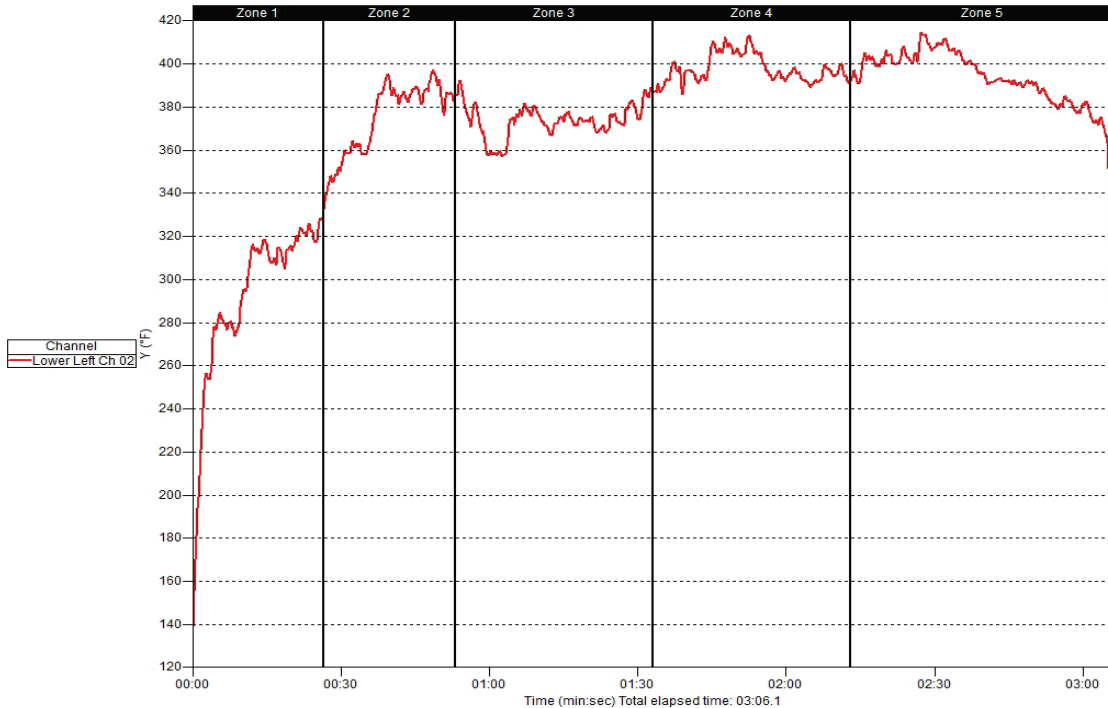
Upper air temperature appears normal for this type of oven.

Chart 8 – Lower Air Temperature – Line 5

Date: September 18, 2012
Time: 13:06
User:

Temp Array - 2D Line - Lower Air Temperature

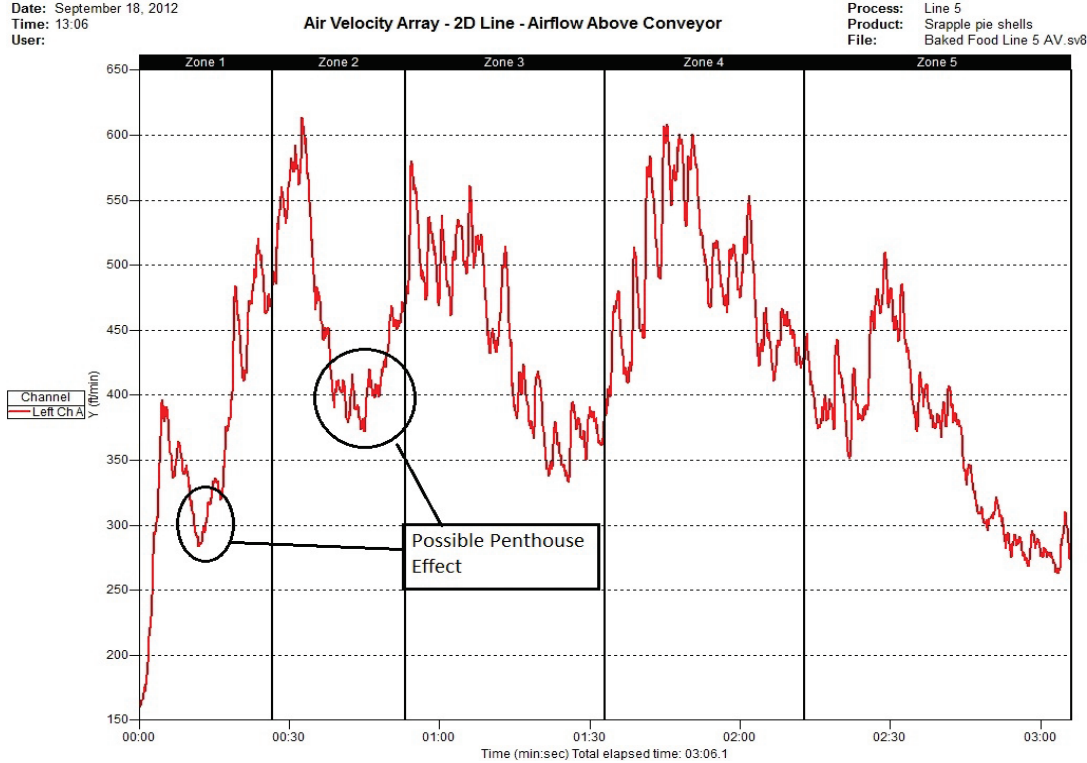
Process: Line 5
Product: Srapple pie shells
File: Baked Food Line 5 T low.sv8



Lower air temperature is normal for this oven type.

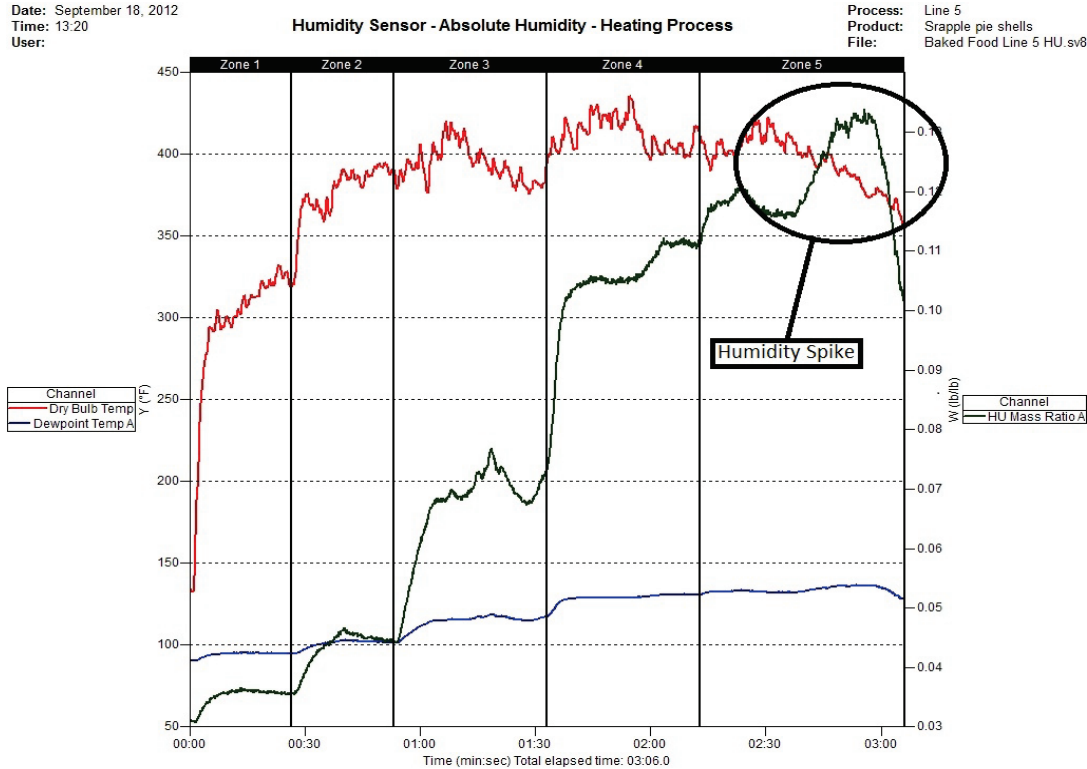
Oven Benchmark Profile Charts Line #5

Chart 9 – Air flow – Line 5



The Air Velocity profile appears OK for this type of oven. Explanations for dips in Air velocity may be attributed to the “Penthouse Effect” which occurs in areas underneath a penthouse where there can be no air distribution.

Chart 10 – Humidity – Line 5



It is abnormal for humidity to rise at the end of the baking process. The oven should be examined and product moisture should be checked to see if too much moisture is present. Exhaust settings also contribute to increased humidity if air is not being exhausted at a proper rate.

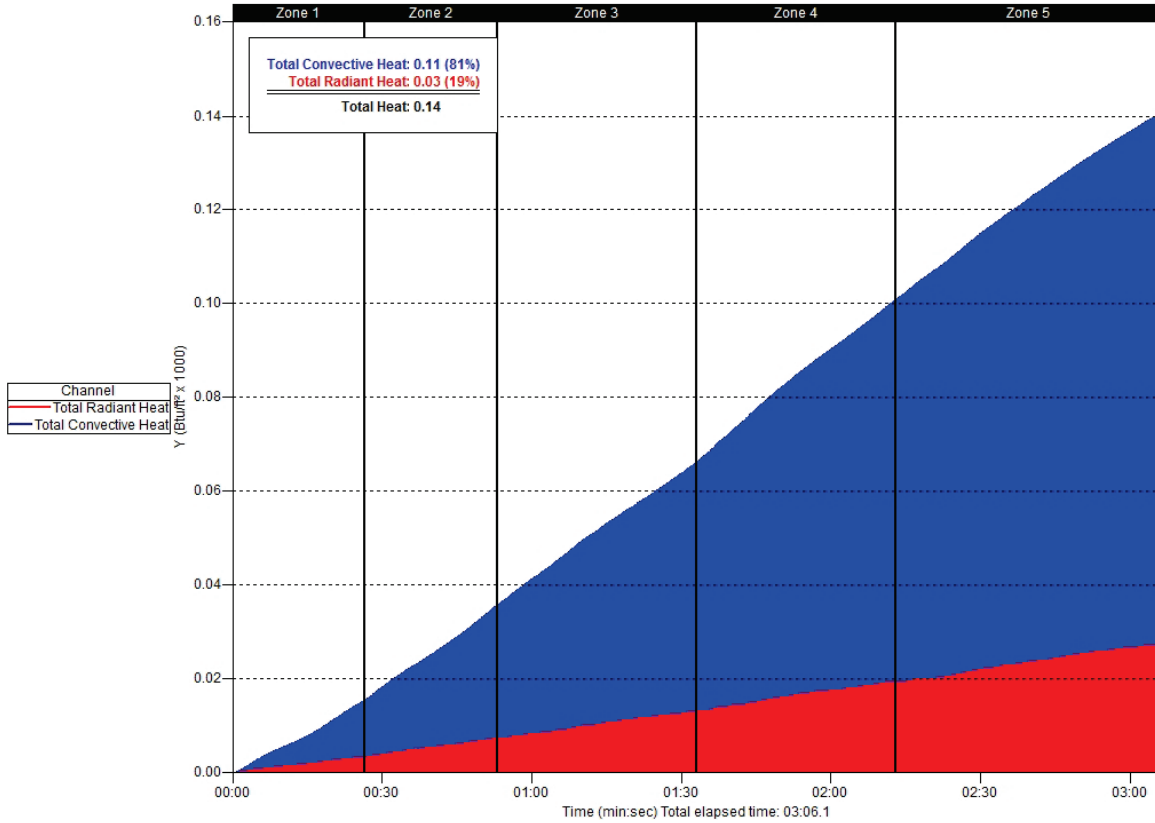
Oven Benchmark Profile Charts Line #5

Chart 12 – Total heat seen by product – Line 5

Date: September 18, 2012
 Time: 13:06
 User:

Heat Flux Sensor - Total Convective and Radiant Heat

Process: Line 5
 Product: Sprapple pie shells
 File: Baked Food Line 5 HF.sv8



This is a typical heat flux profile for a convective oven as most of the heat present is convective. The total heat seen by the product is around 140 Btu/ft² with the type of heat split 81% convective and 19% radiant.

EQUIPMENT INSPECTION CHECKLIST: OVEN

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Oven Overall:

SATISFACTORY

YES NO N/A

1. Are the combustion blowers filters clean?			X
2. Are all moving parts properly guarded?	X		
3. Does the oven have deflagration vents (explosion panels)?	X		
4. Is there a main gas pressure regulator ()?			X
5. Does the oven have safety valve and blocking valve with N.O. vent between?			X
6. Do the lubricated shutoff valves operate and are the handles in place?	X		
7. Does the Maxon valve operate properly?			X
8. Does the safety valve proving switch (VPS) operate properly?			X
9. Is the front of the oven electrical panel at least 4' from any another electrical panel and at least 3' from any other obstructions? Does the door open freely?	X		
10. Are all push buttons, selector switches, and pilot lights properly identified?	X		
11. Are all control fuses and circuit breakers in place?	X		
12. Are all motor starters and contactors in place?	X		
13. Are all motor overload heaters in place?	X		

Oven Pre-Heat Section: N/A – No Preheat

14. Does the ignition transformer operate properly?			X
15. <i>Is the igniter adjustment operable?</i>			X
16. Does the flame monitoring system operate properly?			X
17. Are the warning alarms operating properly (horns, lights, etc.)?			X
18. Does the safety valve proving switch (VPS) operate properly?			X
19. Does the Maxon valve operate properly?			X
20. Is there a Zero pressure regulator [Y/N] or a Zone pressure regulator [Y/N]?			X
21. Does the combustion blower start before <i>purge is complete</i> ?			X
22. Are the combustion blower filters clean?			X
23. Does the combustion blower air flow switch operate?			X
24. Is the condition of combustion air supply tubing satisfactory?			X
25. Does the combustion blower auxiliary contact operate correctly?			X
26. Does the preheat chamber high temp. switch operate properly? Setting (_____ °F)			X
27. Purge Timer: minutes required by manufacturer (_____)			X
28. Purge Timer: minutes set (_____), minutes actual (_____)			X



EQUIPMENT INSPECTION CHECKLIST: OVEN

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Oven Overall Comments:

NOTE - Several pressure gauges missing lens covers.

EQUIPMENT INSPECTION CHECK LIST: ZONE # 1

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific:

SATISFACTORY

YES NO N/A

	YES	NO	N/A
1. Does the zone have a safety valve and blocking valve with N.O. vent between?		X	
2. Do the lubricated shutoff valves operate properly and are handles in place?	X		
3. Is the gas Pressure regulator (" W.C.) present and operating correctly?			X
4. Is the low gas pressure switch (2" W.C.) present and operating correctly?	X		
5. Is the high gas pressure switch (16" W.C.) present and operating correctly?	X		
6. Does the safety valve proving switch (VPS) operate properly?			X
7. Is the condition of gas supply tubing satisfactory.	X		
8. Are all the pressure gauges operating and in good condition?	X		
9. Purge Timer: minutes required by manufacturer (4)	X		
10. Purge Timer: minutes set (), minutes actual ()			X*
11. Does the Maxon valve operate properly?	X		
12. Does the purge damper open before purge is completed?			X
13. Does the purge damper close when purge is complete?			X
14. Does the combustion blower start before purge is completed?	X		
15. Are the combustion blowers filters clean?	X		
16. Does the combustion blower air flow switch operate properly?	X		
17. Is the condition of combustion air supply tubing satisfactory?	X		
18. Does the exhaust blower start before purge is complete?	X		
19. Does the exhaust blower air flow switch operate properly?		X	
20. Does the exhaust damper limit switch operate properly?			X
21. Does the recirculation blower air flow switch operate properly?			X
22. Do the gas solenoid valves operate correctly?	X		
23. Does the exhaust blower auxiliary contact operate properly?	X		
24. Does the combustion blower auxiliary contact operate correctly?	X		
25. Does the recirculation blower auxiliary contact operate properly?	X		
26. Does the ignition transformer operate properly?	X		
27. Is the igniter adjustment operating correctly?			X
28. Does the flame monitoring system operate as designed?	X		
29. Are the warning alarms operating (horn, lights, etc.) correctly?	X		
30. Does the top burner chamber high temperature switch work? Setting (580 °F)	X*		
31. Does the bottom burner chamber high temperature switch work? Setting (°F)			X

EQUIPMENT INSPECTION CHECK LIST: ZONE #1

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific Comments:

#1 – No N.O. vent between safety valve and blocking valve.

#10 – NOTE: Purge timer part of flame monitoring system.

#19 – Exhaust blower air pressure switch not functioning.

#30 – NOTE: Digital readout on High-temp switch inoperative.

EQUIPMENT INSPECTION CHECK LIST: ZONE # 2

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific:

SATISFACTORY

YES NO N/A

	YES	NO	N/A
1. Does the zone have a safety valve and blocking valve with N.O. vent between?		X	
2. Do the lubricated shutoff valves operate properly and are handles in place?	X		
3. Is the gas Pressure regulator (" W.C.) present and operating correctly?			X
4. Is the low gas pressure switch (2" W.C.) present and operating correctly?	X		
5. Is the high gas pressure switch (14" W.C.) present and operating correctly?	X		
6. Does the safety valve proving switch (VPS) operate properly?			X
7. Is the condition of gas supply tubing satisfactory.	X		
8. Are all the pressure gauges operating and in good condition?		X	
9. Purge Timer: minutes required by manufacturer (4)	X		
10. Purge Timer: minutes set (), minutes actual ()			X*
11. Does the Maxon valve operate properly?	X		
12. Does the purge damper open before purge is completed?			X
13. Does the purge damper close when purge is complete?			X
14. Does the combustion blower start before purge is completed?	X		
15. Are the combustion blowers filters clean?	X		
16. Does the combustion blower air flow switch operate properly?	X		
17. Is the condition of combustion air supply tubing satisfactory?	X		
18. Does the exhaust blower start before purge is complete?	X		
19. Does the exhaust blower air flow switch operate properly?		X	
20. Does the exhaust damper limit switch operate properly?			X
21. Does the recirculation blower air flow switch operate properly?			X
22. Do the gas solenoid valves operate correctly?	X		
23. Does the exhaust blower auxiliary contact operate properly?	X		
24. Does the combustion blower auxiliary contact operate correctly?	X		
25. Does the recirculation blower auxiliary contact operate properly?	X		
26. Does the ignition transformer operate properly?	X		
27. Is the igniter adjustment operating correctly?			X
28. Does the flame monitoring system operate as designed?	X		
29. Are the warning alarms operating (horn, lights, etc.) correctly?	X		
30. Does the top burner chamber high temperature switch work? Setting (580 °F)	X		
31. Does the bottom burner chamber high temperature switch work? Setting (°F)			X

EQUIPMENT INSPECTION CHECK LIST: ZONE #2

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific Comments:

#1 – No N.O. vent between safety valve and blocking valve.

#8 – Gas pressure gauge appears stuck.

#10 – NOTE: Purge timer part of flame monitoring system.

#19 – Exhaust blower air pressure switch not functioning.



EQUIPMENT INSPECTION CHECK LIST: ZONE # 3

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific:

SATISFACTORY

YES NO N/A

	YES	NO	N/A
1. Does the zone have a safety valve and blocking valve with N.O. vent between?		X	
2. Do the lubricated shutoff valves operate properly and are handles in place?	X		
3. Is the gas Pressure regulator (" W.C.) present and operating correctly?			X
4. Is the low gas pressure switch (2" W.C.) present and operating correctly?	X		
5. Is the high gas pressure switch (14" W.C.) present and operating correctly?	X		
6. Does the safety valve proving switch (VPS) operate properly?			X
7. Is the condition of gas supply tubing satisfactory.	X		
8. Are all the pressure gauges operating and in good condition?		X	
9. Purge Timer: minutes required by manufacturer (4)	X		
10. Purge Timer: minutes set (), minutes actual ()			X*
11. Does the Maxon valve operate properly?	X		
12. Does the purge damper open before purge is completed?			X
13. Does the purge damper close when purge is complete?			X
14. Does the combustion blower start before purge is completed?	X		
15. Are the combustion blowers filters clean?	X		
16. Does the combustion blower air flow switch operate properly?		X	
17. Is the condition of combustion air supply tubing satisfactory?	X		
18. Does the exhaust blower start before purge is complete?	X		
19. Does the exhaust blower air flow switch operate properly?		X	
20. Does the exhaust damper limit switch operate properly?			X
21. Does the recirculation blower air flow switch operate properly?			X
22. Do the gas solenoid valves operate correctly?	X		
23. Does the exhaust blower auxiliary contact operate properly?	X		
24. Does the combustion blower auxiliary contact operate correctly?	X		
25. Does the recirculation blower auxiliary contact operate properly?	X		
26. Does the ignition transformer operate properly?	X		
27. Is the igniter adjustment operating correctly?			X
28. Does the flame monitoring system operate as designed?	X		
29. Are the warning alarms operating (horn, lights, etc.) correctly?	X		
30. Does the top burner chamber high temperature switch work? Setting (580 °F)	X		
31. Does the bottom burner chamber high temperature switch work? Setting (°F)			X

EQUIPMENT INSPECTION CHECK LIST: ZONE #3

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific Comments:

#1 – No N.O. vent between safety valve and blocking valve.

#8 – Gas pressure gauge appears stuck.

#10 – NOTE: Purge timer part of flame monitoring system.

#16 - Combustion blower air switch did not function correctly during check.

#19 – Exhaust blower air pressure switch not functioning.

NOTE – Combustion switch cover missing.

EQUIPMENT INSPECTION CHECK LIST: ZONE # 4

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific:

SATISFACTORY

YES NO N/A

	YES	NO	N/A
1. Does the zone have a safety valve and blocking valve with N.O. vent between?		X	
2. Do the lubricated shutoff valves operate properly and are handles in place?	X		
3. Is the gas Pressure regulator (" W.C.) present and operating correctly?			X
4. Is the low gas pressure switch (4" W.C.) present and operating correctly?	X		
5. Is the high gas pressure switch (16" W.C.) present and operating correctly?	X		
6. Does the safety valve proving switch (VPS) operate properly?			X
7. Is the condition of gas supply tubing satisfactory.	X		
8. Are all the pressure gauges operating and in good condition?	X		
9. Purge Timer: minutes required by manufacturer (4)	X		
10. Purge Timer: minutes set (), minutes actual ()			X*
11. Does the Maxon valve operate properly?	X		
12. Does the purge damper open before purge is completed?			X
13. Does the purge damper close when purge is complete?			X
14. Does the combustion blower start before purge is completed?	X		
15. Are the combustion blowers filters clean?	X		
16. Does the combustion blower air flow switch operate properly?		X	
17. Is the condition of combustion air supply tubing satisfactory?	X		
18. Does the exhaust blower start before purge is complete?	X		
19. Does the exhaust blower air flow switch operate properly?		X	
20. Does the exhaust damper limit switch operate properly?			X
21. Does the recirculation blower air flow switch operate properly?			X
22. Do the gas solenoid valves operate correctly?	X		
23. Does the exhaust blower auxiliary contact operate properly?	X		
24. Does the combustion blower auxiliary contact operate correctly?	X		
25. Does the recirculation blower auxiliary contact operate properly?	X		
26. Does the ignition transformer operate properly?	X		
27. Is the igniter adjustment operating correctly?			X
28. Does the flame monitoring system operate as designed?	X		
29. Are the warning alarms operating (horn, lights, etc.) correctly?	X		
30. Does the top burner chamber high temperature switch work? Setting (580 °F)	X		
31. Does the bottom burner chamber high temperature switch work? Setting (°F)			X

EQUIPMENT INSPECTION CHECK LIST: ZONE # 4

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific Comments:

#1 – No N.O. vent between safety valve and blocking valve.

#10 – NOTE: Purge timer part of flame monitoring system.

#16 - Combustion blower air switch did not function correctly during check.

#19 – Exhaust blower air pressure switch not functioning.

NOTE – Vent line connected to regulator pinched closed.

EQUIPMENT INSPECTION CHECK LIST: ZONE # 5

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific:

SATISFACTORY

YES NO N/A

	YES	NO	N/A
1. Does the zone have a safety valve and blocking valve with N.O. vent between?		X	
2. Do the lubricated shutoff valves operate properly and are handles in place?	X		
3. Is the gas Pressure regulator (" W.C.) present and operating correctly?			X
4. Is the low gas pressure switch (4" W.C.) present and operating correctly?	X		
5. Is the high gas pressure switch (16" W.C.) present and operating correctly?	X		
6. Does the safety valve proving switch (VPS) operate properly?			X
7. Is the condition of gas supply tubing satisfactory.	X		
8. Are all the pressure gauges operating and in good condition?		X	
9. Purge Timer: minutes required by manufacturer (4)	X		
10. Purge Timer: minutes set (), minutes actual ()			X*
11. Does the Maxon valve operate properly?	X		
12. Does the purge damper open before purge is completed?			X
13. Does the purge damper close when purge is complete?			X
14. Does the combustion blower start before purge is completed?	X		
15. Are the combustion blowers filters clean?	X		
16. Does the combustion blower air flow switch operate properly?		X	
17. Is the condition of combustion air supply tubing satisfactory?	X		
18. Does the exhaust blower start before purge is complete?	X		
19. Does the exhaust blower air flow switch operate properly?		X	
20. Does the exhaust damper limit switch operate properly?			X
21. Does the recirculation blower air flow switch operate properly?			X
22. Do the gas solenoid valves operate correctly?	X		
23. Does the exhaust blower auxiliary contact operate properly?	X		
24. Does the combustion blower auxiliary contact operate correctly?	X		
25. Does the recirculation blower auxiliary contact operate properly?	X		
26. Does the ignition transformer operate properly?	X		
27. Is the igniter adjustment operating correctly?			X
28. Does the flame monitoring system operate as designed?	X		
29. Are the warning alarms operating (horn, lights, etc.) correctly?	X		
30. Does the top burner chamber high temperature switch work? Setting (580 °F)	X		
31. Does the bottom burner chamber high temperature switch work? Setting (°F)			X

EQUIPMENT INSPECTION CHECK LIST: ZONE # 5

Baked Food (Leesport, PA), Line # 5, September 18, 2012

Zone Specific Comments:

#1 – No N.O. vent between safety valve and blocking valve.

#8 – Gas pressure gauge appear stuck.

#10 – NOTE: Purge timer part of flame monitoring system.

#16 - Combustion blower air switch did not function correctly during check.

#19 – Exhaust blower air pressure switch not functioning.

NOTE – Ignition transformer loosely installed.

APPENDIX

OVEN SAFETY INSPECTION PROGRAM

Reading Thermal performs oven safety inspections to help customers comply with regulations adopted by OSHA as set forth in Standard 29 CFR Bakery Equipment 1910.263(L) (9) (ii).

“All safety devices on ovens shall be inspected at intervals of not less than twice a month by an especially appointed, properly instructed bakery employee, and not less than once a year by representatives of the oven manufacturers.”

Reading Thermal is qualified to perform oven safety inspections based on numerous OSHA standard interpretation letters. For example, one letter states, *“OSHA feels that such inspections may be accomplished by qualified representatives of any oven manufacturer who are knowledgeable of the various safety considerations and who by training and experience are capable of verifying the safe operational characteristics of the equipment.”*

All safety devices on the oven are checked against Reading Thermal’s multi-point Equipment Inspection Check List (included in this report).

The customer must provide the electrical control diagrams for the oven and one maintenance person familiar with the equipment and specific functions of the various controls. This person should be from the mechanical or electrical department and skilled in reading the electrical control diagrams. It is beneficial to the customer if this person is the same person who performs the biweekly inspections. **The diagrams and personnel must be available during the entire inspection procedure.**

Reading Thermal will perform optional benchmark profiling of the customers oven using the state-of-the-art SCORPION[®] system. Benchmark profiles of Temperature, Air Velocity, Heat Flux and Humidity are included. Profiles should be collected with oven at typical operating temperature and product load.

Reading Thermal provides a detailed Oven Safety Inspection Report to be filed with customer safety records. A duplicate backup copy will be kept on file at Reading Thermal. The report contains the inspection results and oven benchmark profiles.

Reading Thermal Liability: *RT’s liability for the conduct of this inspection shall be limited to return of the contract price for conducting the inspection. In no event shall RT be liable for damages, whether in contract or tort, for injury to the person or property arising out of any failure or malfunction of the Equipment, unless caused solely by RT’s negligence performing its obligations under the Inspection Agreement.*

CONTROL PANEL LABEL

Upon completion of inspection this label will be applied to the oven control panel:

	READING THERMAL
7 Corporate Blvd, Sinking Spring, PA 19608 USA T: (610) 678-5890 www.readingthermal.com	
Oven Safety Inspection	
Customer:	_____
Oven #:	_____ Oven Type _____
Elect. Print #	_____
Date Inspected	_____ Next Insp. _____
This Oven Was Inspected By:	
Reading Thermal Name / Title	_____
Customer Name / Title	_____