

**Company Name**

Street

City

Postcode

Country

Dear [Recipient name]

Re: JPS Reliability: Infrared Thermography Report

I would firstly like to thank you for the courtesy and co-operation shown to JPS Reliability Limited during my recent site visit. Following the survey at your facility I have pleasure in presenting for your attention a comprehensive Infrared Thermography report.

Please contact JPS Reliability Limited for any machinery reliability issues or required health verification, we offer full technical/diagnostic back up which includes:

- Conventional vibration analysis
- Phase analysis
- Resonance testing
- Bearing / gear analysis
- Oil analysis
- On-Site fan dynamic balancing
- Laser alignment
- Thermal imaging
- Ultrasonic air leak energy saving surveys
- Shaft Voltage Bearing discharge surveys

Date of survey:

- X

Next Survey due:

- X

### **Introduction:**

- This report details the infrared thermographic survey conducted at [xxxxxxxxxxxxxxxxxxxxxxxx]
- This survey was conducted using a Flir Systems Thermal Imaging Camera and the report compiled using ThermaCAM Reporter 2000 Professional Software package.
- The survey includes all mechanical and process equipment as detailed in the report check list together with any additional equipment as specified by the customer.
- Where abnormalities are detected, thermograms and digital images are presented indicating specific problem areas. The report incorporates fault diagnosis with likely causes and recommendations.
- Plant and equipment found to be free of anomalies will not feature in the thermographic report pages; however, they will be identified in the checklists located in this report.

### **Recommendations and Disclaimer:**

- The recommendations given in this report are intended as a guide only; therefore, JPS Reliability LTD cannot accept responsibility for inappropriate actions taken because of the issue of this report.
- For electrical surveys where current values are not able to be recorded, the recommendations provided are based on the thermographer's experience and judgment.
- All recommendations are based on the conditions that prevailed at the time of the survey.

### **Customer Comments / Feedback:**

- Please feedback all corrective actions and findings as this will enable the IRT technician to evaluate the effectiveness of repair work when conducting subsequent thermographic surveys.



# Reliability Services

*Customer name - Site*  
**Thermographic Survey Check List**



**JPS Reliability**  
A Reliable Plant is a Profitable Plant

Area (if needed)		
Equipment	Item	Comment
Extruder Line A	Main Drive Motor	Ok
Extruder Line A	Main Drive Motor	Ok
Boiler Room	External Lagging Top Left Area	Replace Insulation
	External Lagging Inlet Left Side	Replace Insulation
	External Lagging Inlet Right Side	Replace Insulation
Vessel	Front Elevation	Trend
	Inlet Ducting	Replace Refractory
Paper Line A	Steam Box	Adjust Steam Valve
Paper Line B	Steam Box	Adjust Steam Valve
Main Dryer	Right Dryer Door Energy Loss	Trend
Main Dryer	Left Dryer Door Energy Loss	Trend
Paper Line A	Steam Line Left	Replace Steam Trap

Fault Category	Action
4	Record and continue to monitor
3	Investigate at next schedule maint activity
2	Repair at the earliest opportunity
1	Must be repaired immediately



# JPS Reliability

A Reliable Plant is a Profitable Plant

## JPS Reliability Services Thermographic Survey For

**Company Name**

Street

City

Postcode

Contry

**Site Contact: Name of Contact**

Date of Survey:      Date of survey

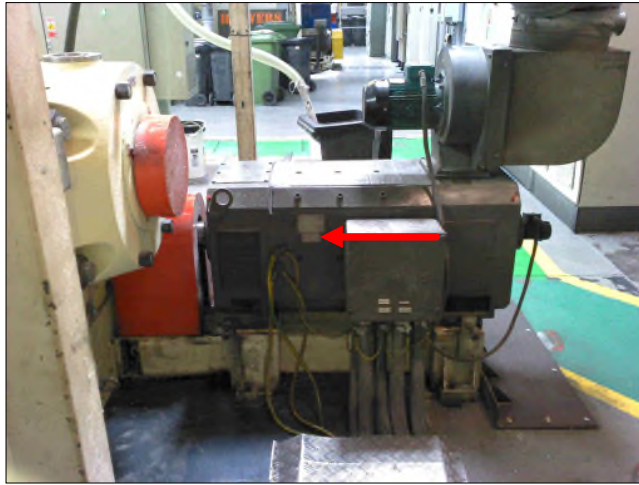
### Report Information

This survey was conducted using a Flir Systems Thermal Imaging Camera and the report compiled using ThermaCAM Reporter 2000 Professional Software package.

The purpose of this survey was to locate and identify anomalies with the equipment listed and recommend actions necessary to rectify.

Thermographer      **Thermographer Name**

**Identification**



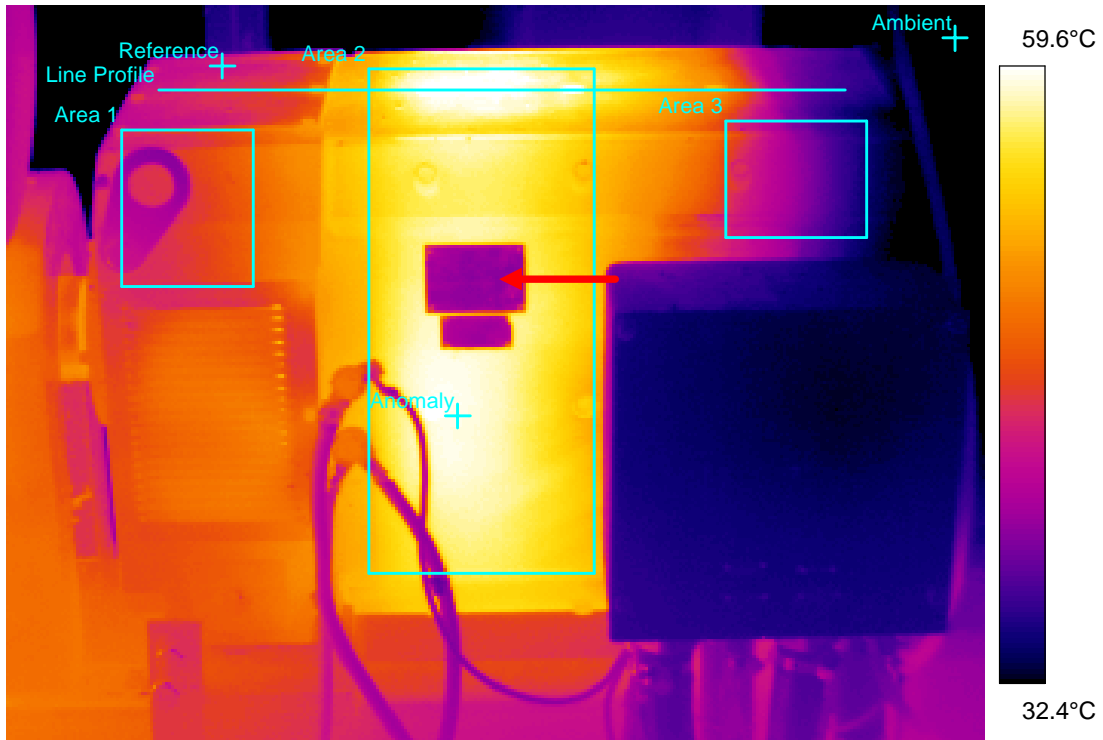
<b>Area</b>	Extruder Line A
<b>Equipment</b>	Main Drive
<b>Item</b>	DC Motor

<b>Running Time</b>	6 Hours
<b>Time</b>	11:35:21
<b>Date</b>	11/07/2019

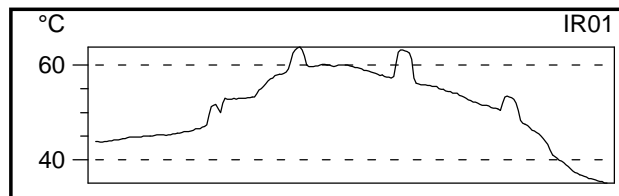


Additional Information:  
150mm production run.

**Thermogram**



Label	Value
Anomaly	58.9°C
Reference	43.4°C
Ambient	30.7°C

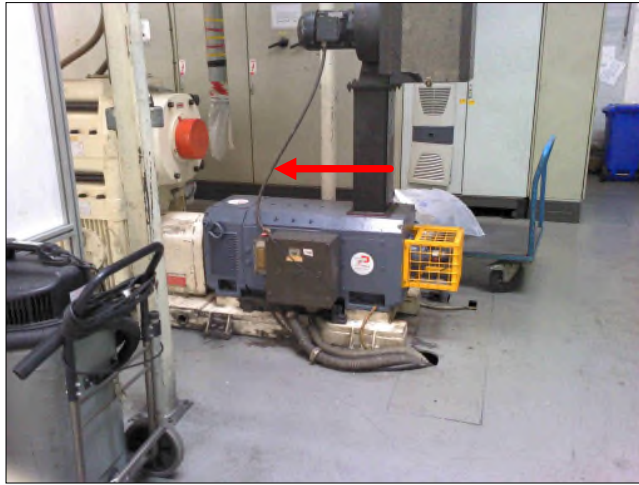


Label	Max Value
Area 1	63.8°C
Area 2	64.9°C
Area 3	47.4°C

**Notes**

For Trending.

**Identification**



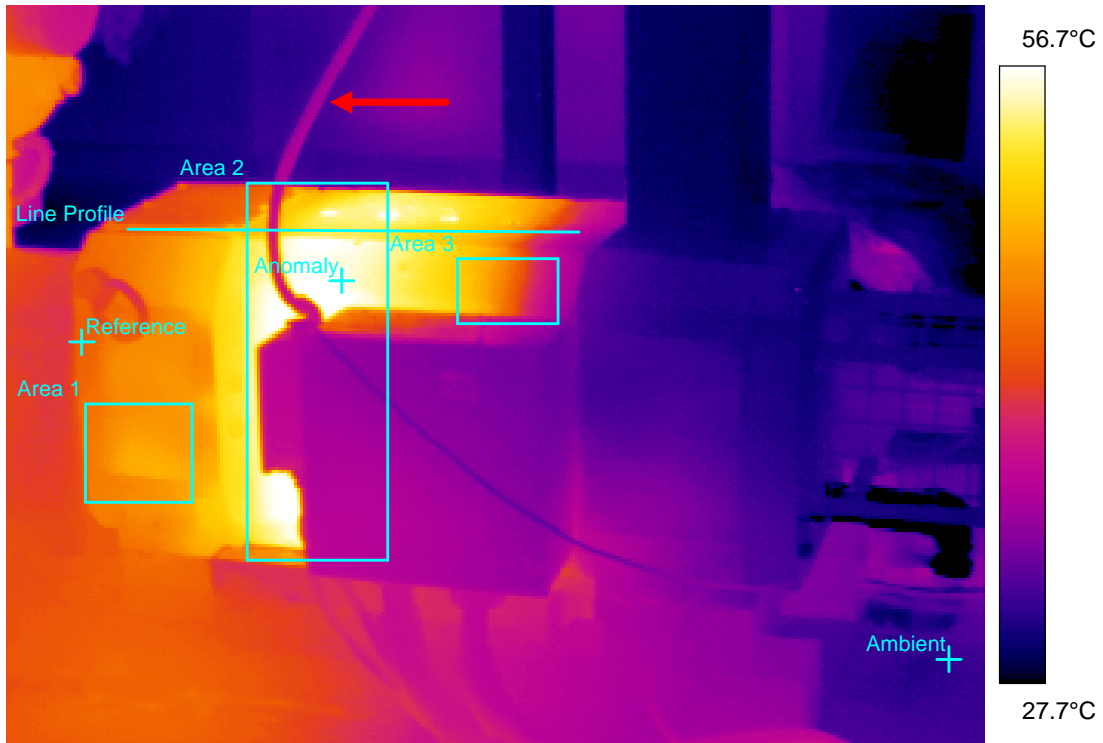
<b>Area</b>	Extruder Line B
<b>Equipment</b>	Main Drive
<b>Item</b>	DC Motor

<b>Running Time</b>	5 hours
<b>Time</b>	11:36:46
<b>Date</b>	11/07/2019

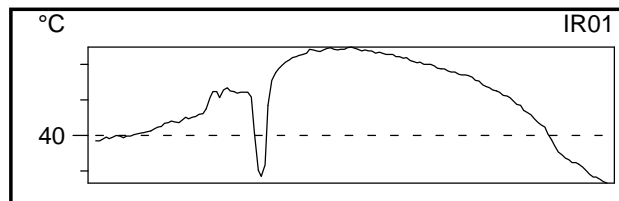


Additional Information:  
120mm production run.

**Thermogram**



Label	Value
Anomaly	55.8°C
Reference	38.6°C
Ambient	29.4°C

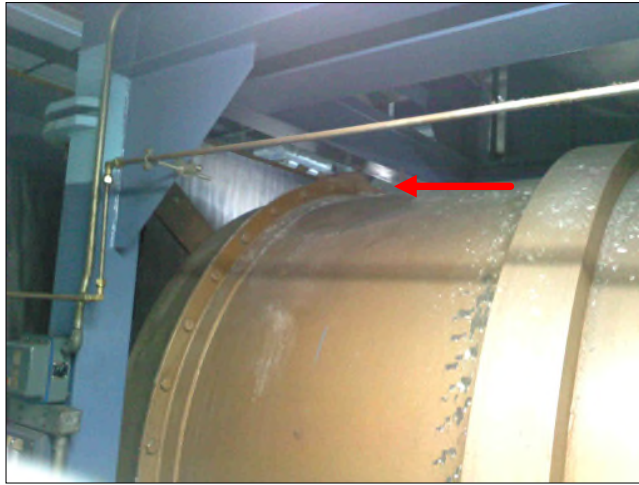


Label	Max Value
Area 1	52.4°C
Area 2	59.2°C
Area 3	48.9°C

**Notes**

For trending.

**Identification**



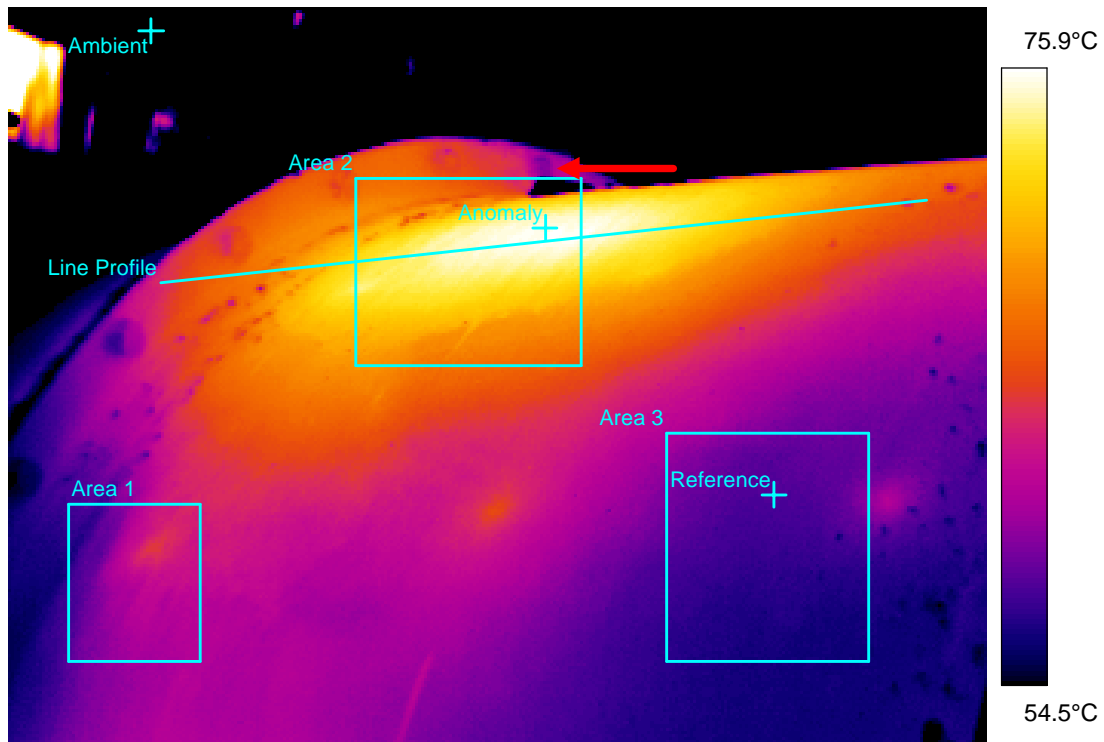
<b>Area</b>	Boiler Room
<b>Equipment</b>	External Lagging
<b>Item</b>	Top Left Area

<b>Running</b>	2 days
<b>Time</b>	09:43:51
<b>Date</b>	19/12/2019

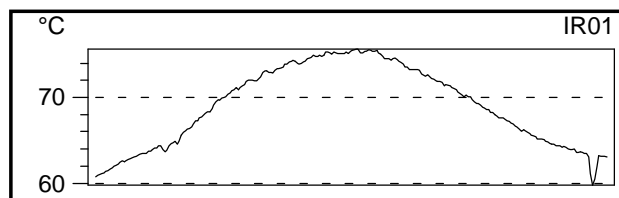


Additional Information:  
Loss of energy.

**Thermogram**



Label	Value
Anomaly	74.7°C
Reference	57.6°C
Ambient	29.0°C

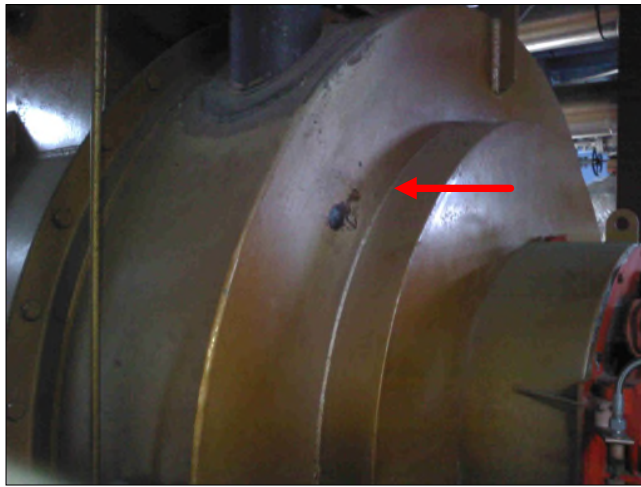


Label	Max Value
Area 1	75.6°C
Area 2	76.0°C
Area 3	59.4°C

**Notes**

At next shut replace section of insulation.

**Identification**

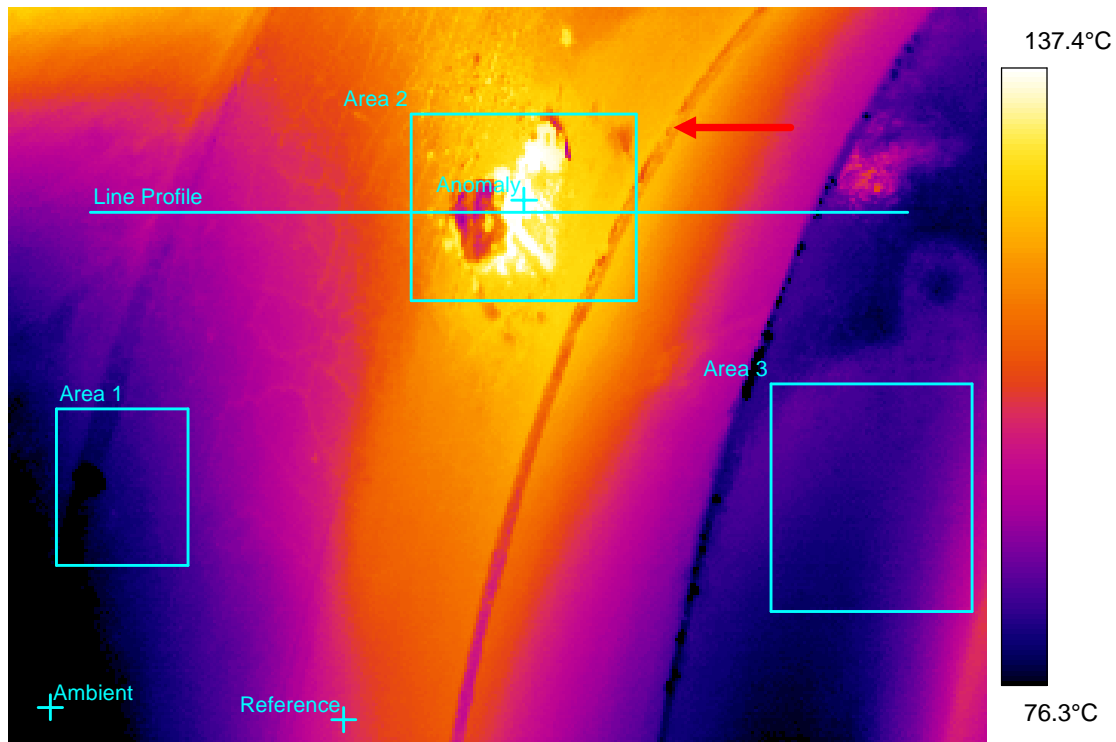


<b>Area</b>	Boiler Room
<b>Equipment</b>	Eternal Lagging
<b>Item</b>	Inlet Left Side

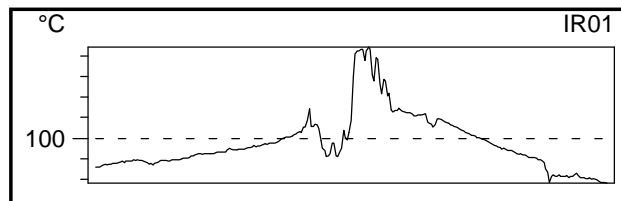
<b>Running Time</b>	2 days	
<b>Time</b>	09:44:39	
<b>Date</b>	19/12/2019	

Additional Information:  
Loss of energy.

**Thermogram**



Label	Value
Anomaly	143.3°C
Reference	93.4°C
Ambient	73.4°C



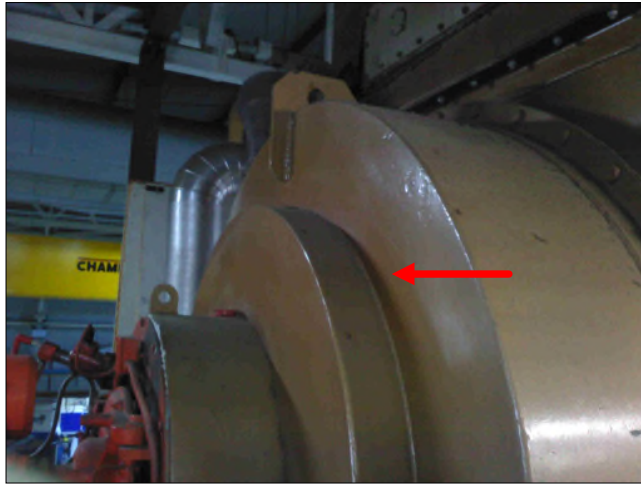
Label	Max Value
Area 1	144.3°C
Area 2	144.7°C
Area 3	92.4°C

**Notes**

At next shut replace section of insulation.

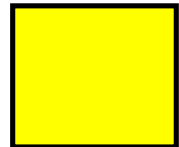


**Identification**



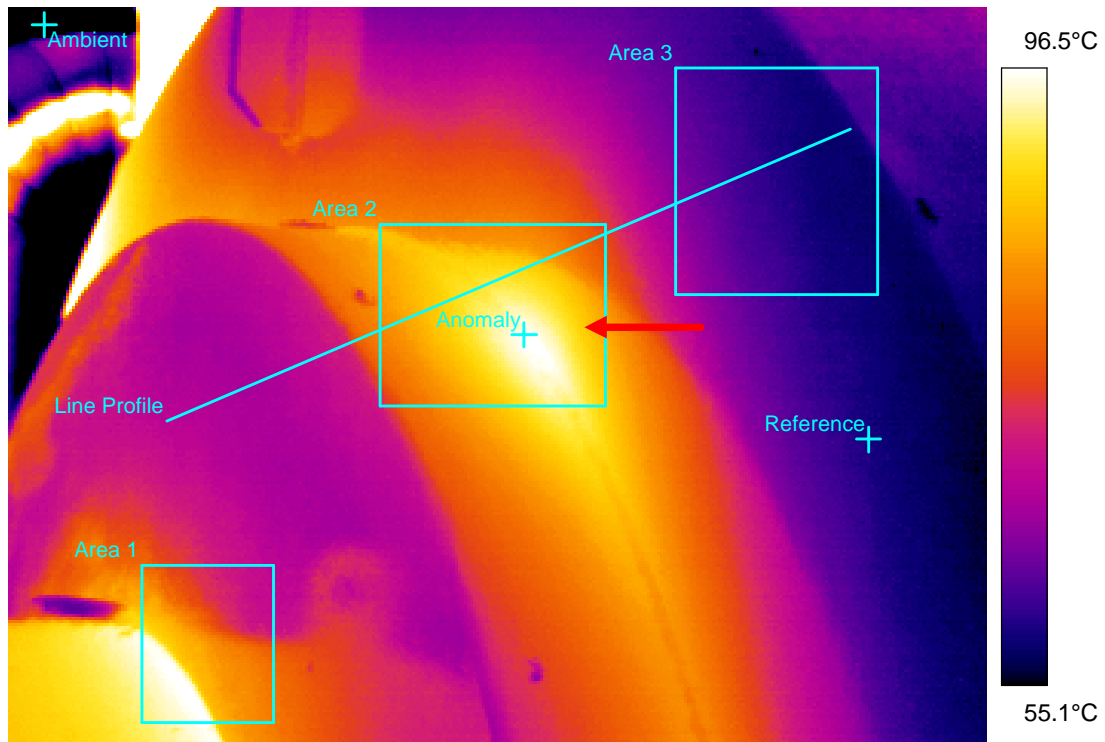
<b>Area</b>	Boiler Room
<b>Equipment</b>	Eternal Lagging
<b>Item</b>	Inlet Right Side

<b>Running</b>	2 days
<b>Time</b>	09:46:28
<b>Date</b>	19/12/2019

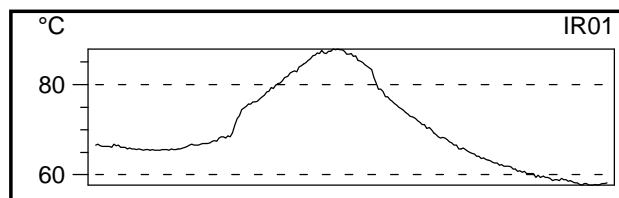


Additional Information:  
Loss of energy.

**Thermogram**



Label	Value
Anomaly	95.2°C
Reference	58.6°C
Ambient	34.0°C

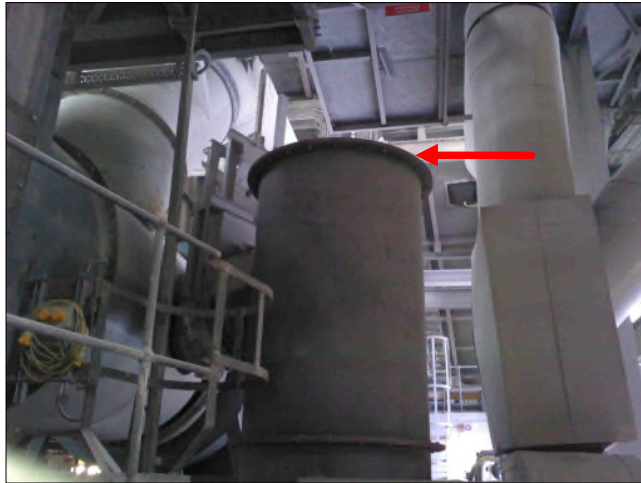


Label	Max Value
Area 1	87.9°C
Area 2	96.4°C
Area 3	66.8°C

**Notes**

At next shut replace section of insulation.

**Identification**



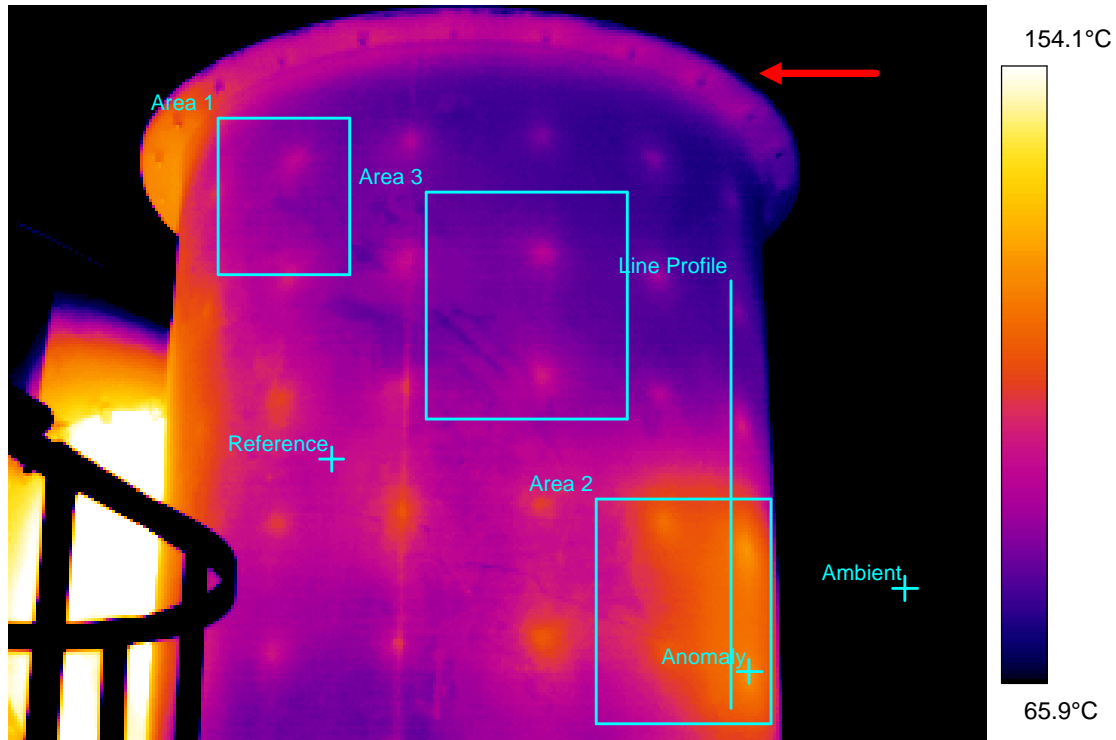
Area	Vessel
Equipment	Vessel
Item	Refractory Condition

Running Time	3 days
Time	11:54:51
Date	17/08/2016

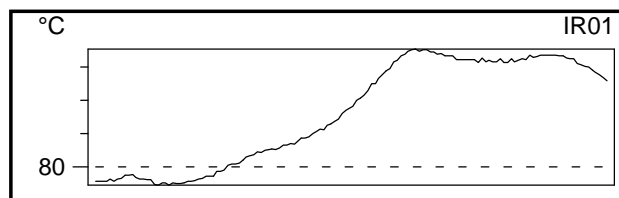


Additional Information:

**Thermogram**



Label	Value
Anomaly	103.0°C
Reference	84.0°C
Ambient	28.5°C

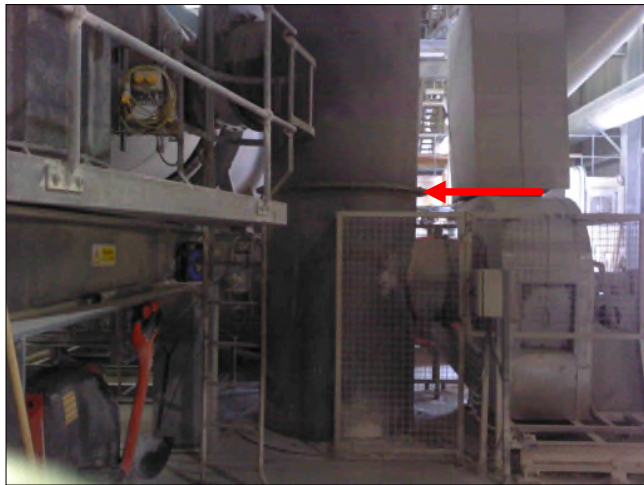


Label	Max Value
Area 1	97.7°C
Area 2	106.6°C
Area 3	85.6°C

**Notes**

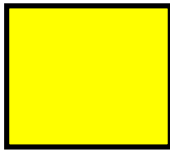
Loss of energy and safety potential hazard, closely trend the deterioration of the internal refractory.

## Identification



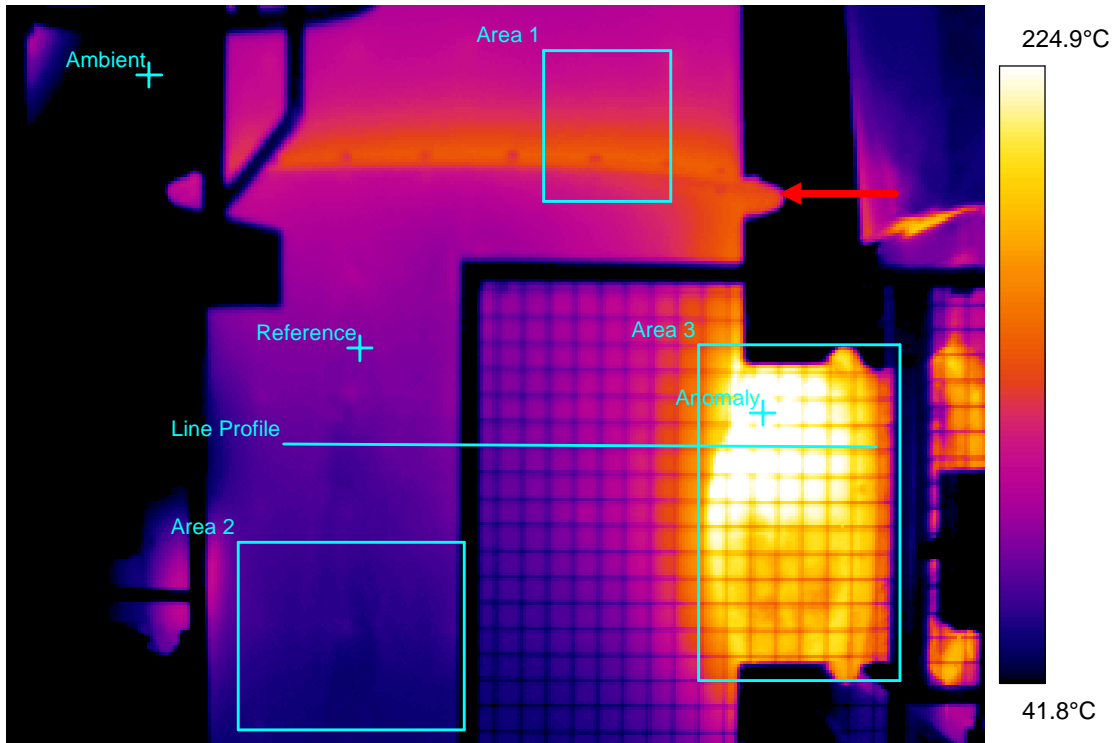
<b>Area</b>	Vessel
<b>Equipment</b>	Inlet Fan
<b>Item</b>	Inlet Ducting Insulation

<b>Running Time</b>	3 days
<b>Time</b>	11:55:29
<b>Date</b>	17/08/2016

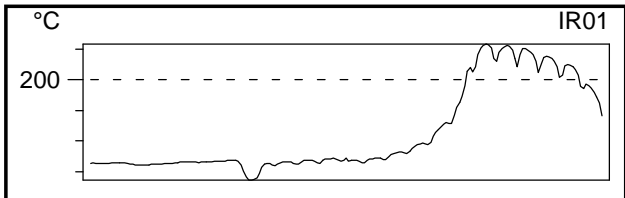


**Additional Information:**  
Safety risk.

## Thermogram



Label	Value
Anomaly	264.5°C
Reference	69.8°C
Ambient	29.4°C



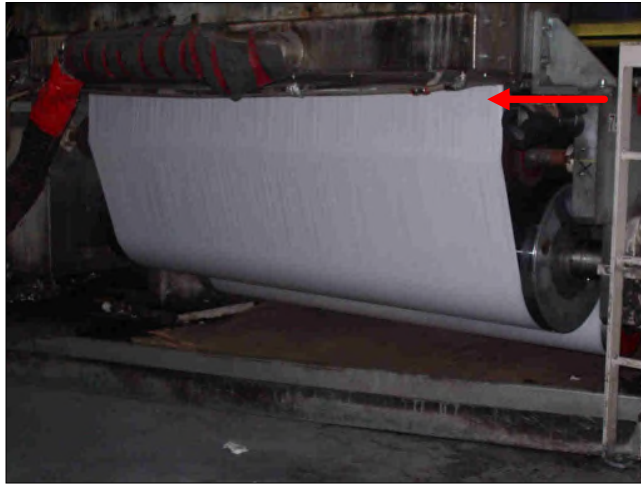
Label	Max Value
Area 1	258.4°C
Area 2	62.9°C
Area 3	269.4°C

## Notes

There are two areas of concern, the first is the inlet fan ducting to the vessel (Area 3) and the other is the ring of refractory just above the flanged section (Area 1).

Make a safe area around the vessel and repair refractory at the soonest opportunity.

**Identification**



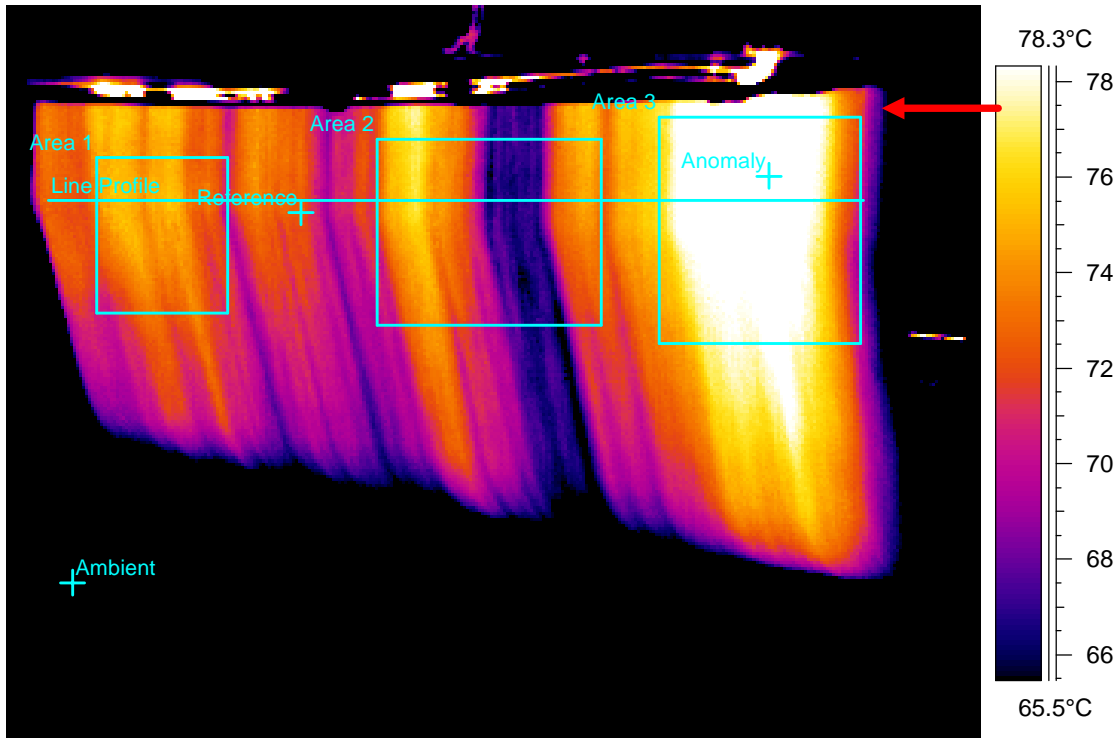
<b>Area</b>	Paper Line A
<b>Equipment</b>	Steam Box
<b>Item</b>	Outlet Steam Profile

<b>Running Time</b>	6 hours
<b>Time</b>	11:12:57
<b>Date</b>	03/10/2008

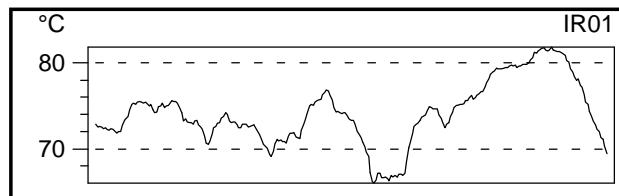


Additional Information:  
Adjust Steam box.

**Thermogram**



Label	Value
Anomaly	81.9°C
Reference	72.3°C
Ambient	24.3°C



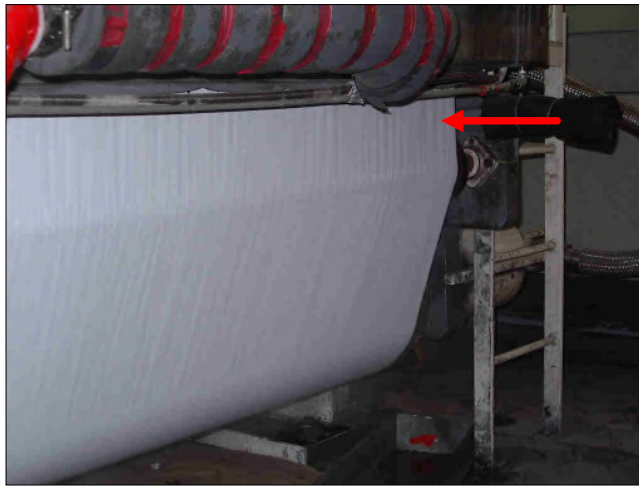
Label	Max Value
Area 1	81.8°C
Area 2	77.1°C
Area 3	82.4°C

**Notes**

The above thermogram shows and unbalanced steam box where there is too much steam on the right side of the outlet.

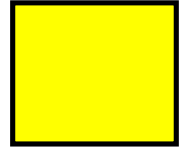
Adjust steam valves to reduce and re-test.

**Identification**



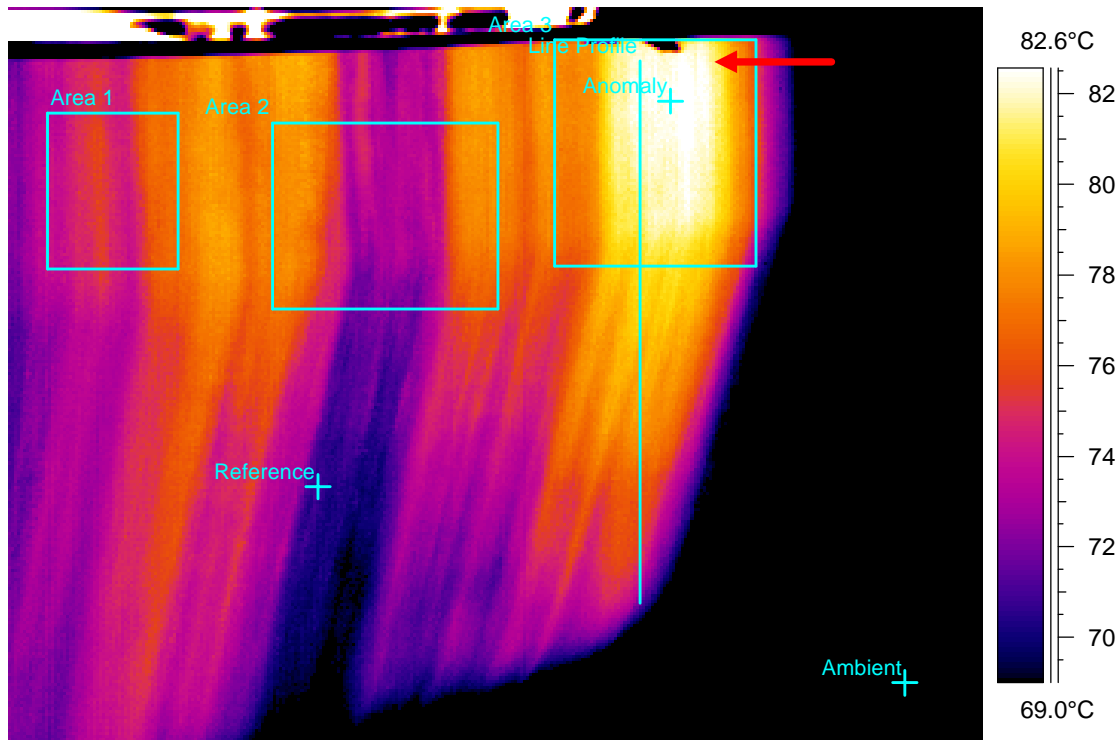
<b>Area</b>	Paper Line B
<b>Equipment</b>	Steam Box
<b>Item</b>	Outlet Steam Profile

<b>Running Time</b>	5 hours
<b>Time</b>	11:19:16
<b>Date</b>	03/10/2008

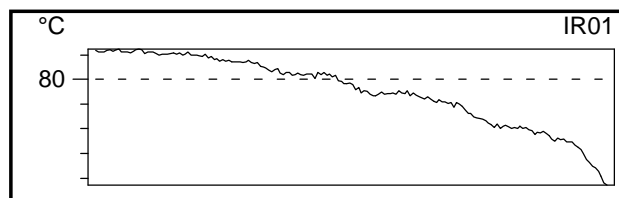


Additional Information:  
Adjust steam box.

**Thermogram**



Label	Value
Anomaly	82.6°C
Reference	70.9°C
Ambient	26.8°C



Label	Max Value
Area 1	82.5°C
Area 2	79.0°C
Area 3	83.2°C

**Notes**

The above thermogram shows an unbalanced steam box where there is too much steam on the right side of the outlet.

Adjust steam valves to reduce and re-test.

## Identification



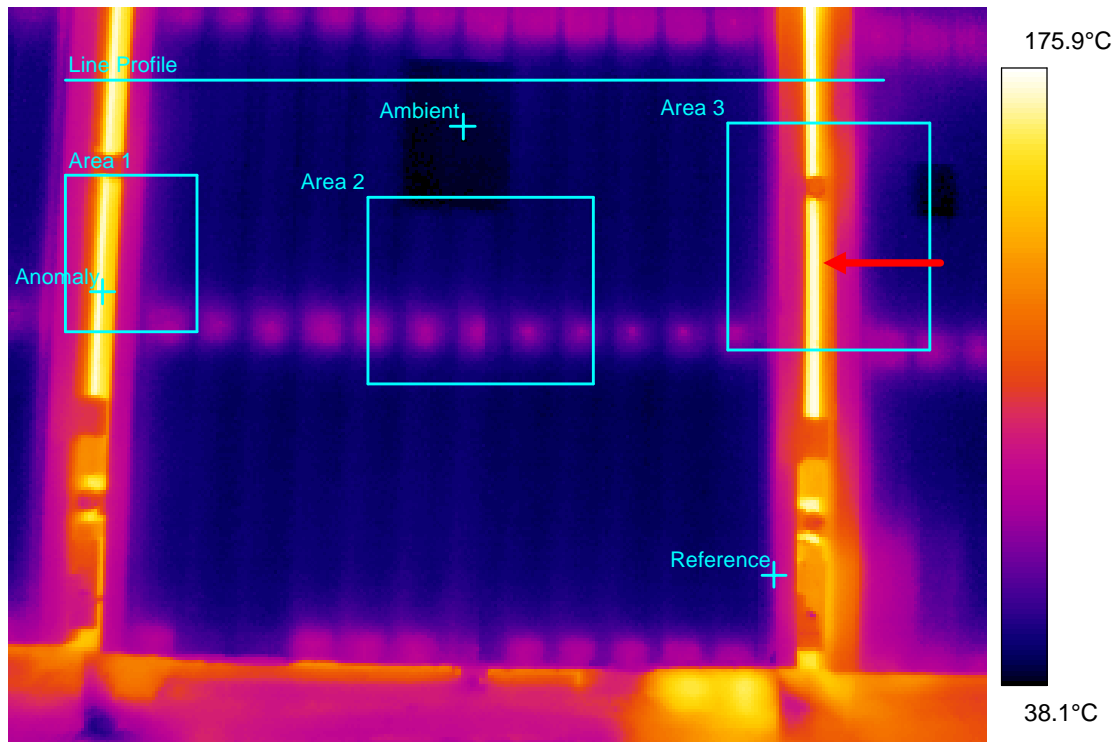
Area	Main Dryer
Equipment	Right Dryer Door Energy Loss
Item	Door Sealing

Running	
Time	12:10:03
Date	02/12/2019

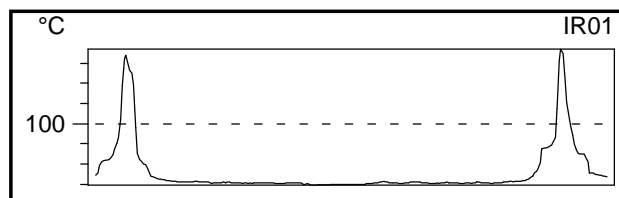


Additional Information:  
Heat Loss Survey

## Thermogram



Label	Value
Anomaly	163.3°C
Reference	51.3°C
Ambient	39.2°C



Label	Max Value
Area 1	173.9°C
Area 2	53.8°C
Area 3	172.3°C

## Notes

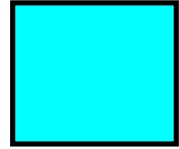
This is an example of a heat loss survey using thermal imaging. The total energy loss is calculated from the thermal profile and used as a cost payback / justification on replacing the door seals.

**Identification**



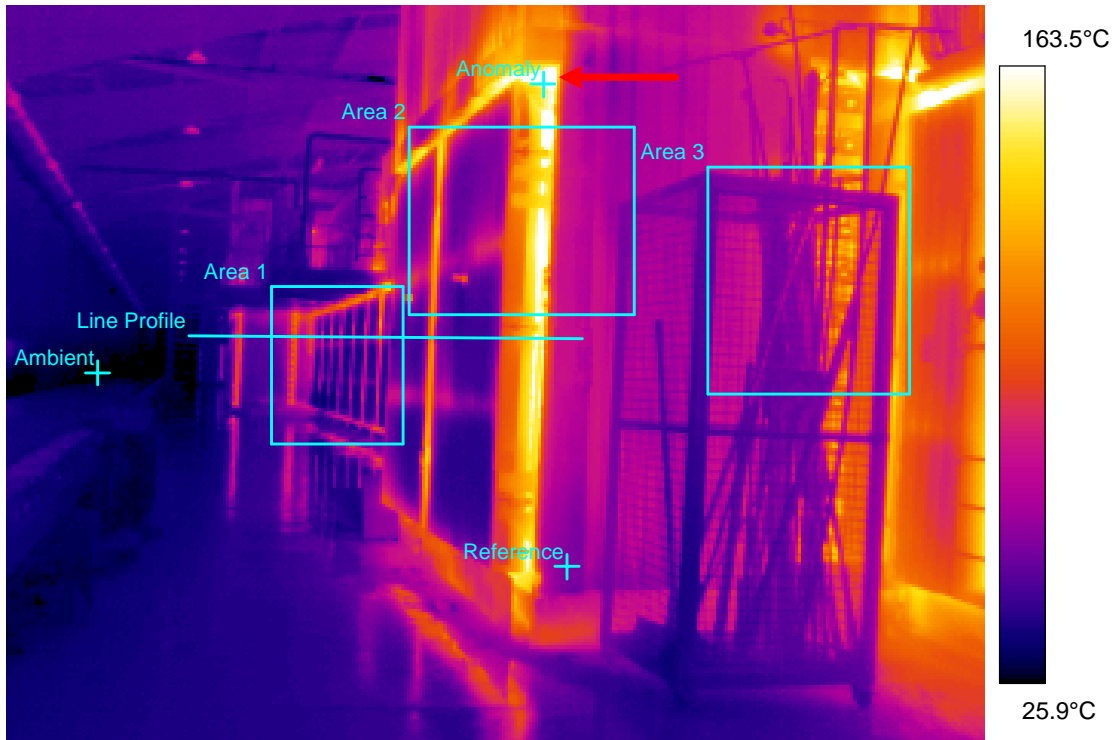
Area	Main Dryer
Equipment	Left Dryer Door Energy Loss
Item	Door Sealing

Running	
Time	12:11:23
Date	02/12/2019

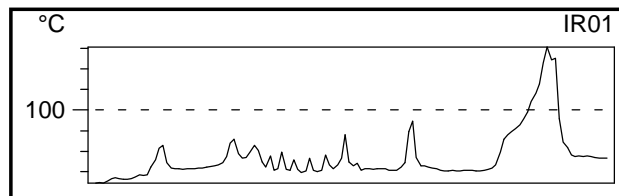


Additional Information:  
Heat Loss Survey

**Thermogram**



Label	Value
Anomaly	190.7°C
Reference	46.4°C
Ambient	25.6°C

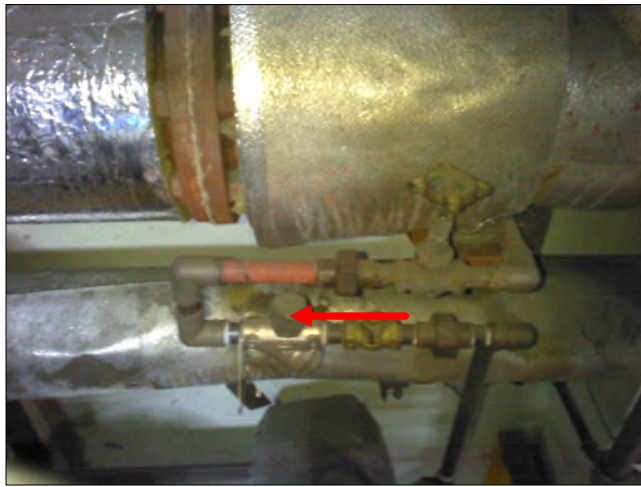


Label	Max Value
Area 1	161.2°C
Area 2	197.0°C
Area 3	128.0°C

**Notes**

This is an example of a heat loss survey using thermal imaging. The total energy loss is calculated from the thermal profile and used as a cost payback / justification on replacing the door seals.

**Identification**



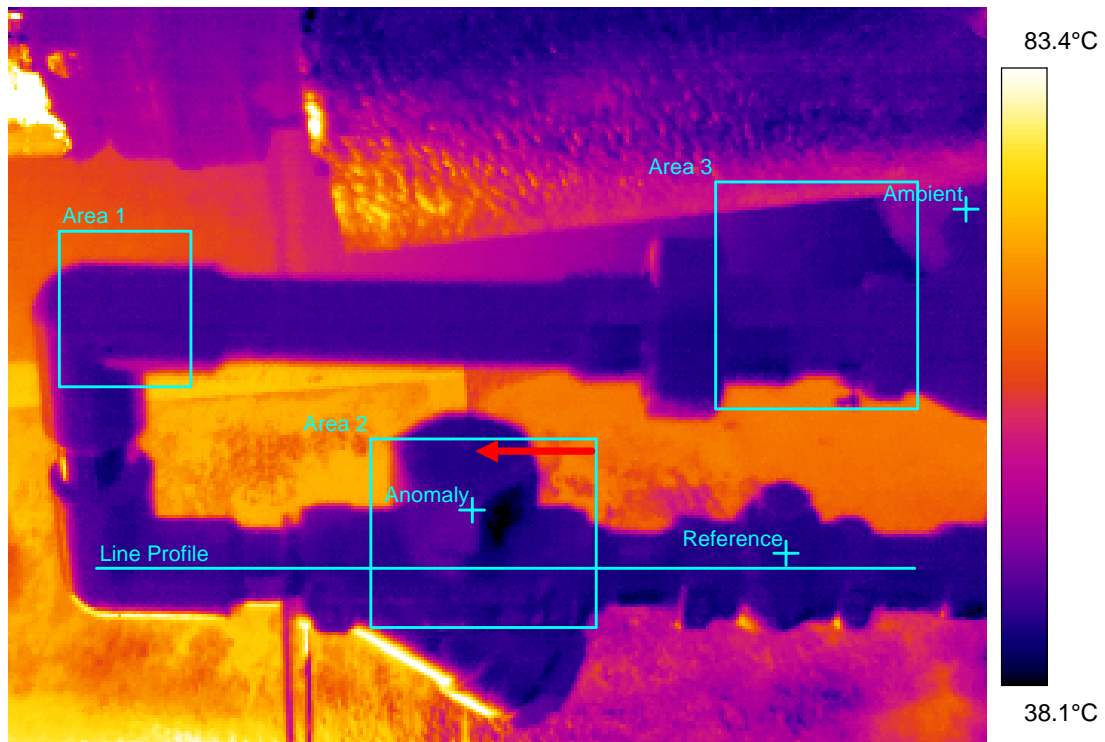
<b>Area</b>	Paper Line A
<b>Equipment</b>	Steam Line Left
<b>Item</b>	Steam Trap

<b>Running</b>	
<b>Time</b>	07:01:14
<b>Date</b>	04/05/2018

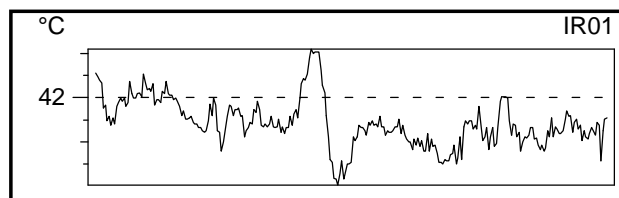


Additional Information:  
Steam Trap Failed Clsoe - Replace

**Thermogram**



Label	Value
Anomaly	43.0°C
Reference	40.3°C
Ambient	41.9°C



Label	Max Value
Area 1	43.1°C
Area 2	62.2°C
Area 3	57.6°C

**Notes**

This shows the steam trap has failed closed and the line is backed up with condensate, hence the low steam line temperature.





# Summary of Inspection at Company Name

## List of Highlighted Items

Area	Equipment	Item	Anomaly Temp.
Extruder Line A	Main Drive	DC Motor	58.9°C
Extruder Line B	Main Drive	DC Motor	55.8°C
Boiler Room	External Lagging	Top Left Area	74.7°C
Boiler Room	Eternal Lagging	Inlet Left Side	143.3°C
Boiler Room	Eternal Lagging	Inlet Right Side	95.2°C
Vessel	Vessel	Refractory Condition	103.0°C
Vessel	Inlet Fan	Inlet Ducting Insulation	264.5°C
Paper Line A	Steam Box	Outlet Steam Profile	81.9°C
Paper Line B	Steam Box	Outlet Steam Profile	82.6°C
Main Dryer	Right Dryer Door Energy Loss	Door Sealing	163.3°C
Main Dryer	Left Dryer Door Energy Loss	Door Sealing	190.7°C
Paper Line A	Steam Line Left	Steam Trap	43.0°C

**Additional:**

In the interests of reliability and case history, we would appreciate feedback on work undertaken and the details of components used.

Any observations or recommendations we have made are supported with accompanying thermal data.

We trust that this will be acceptable to your requirements, however, should you require any additional information please contact the undersigned.

Kind Regards

*Technician*

**Technician**

Reliability Services



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