



HSB Thermography Services

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INFRARED THERMOGRAPHIC SURVEY

For

ANYTHING PRODUCTS, INC.

1216 Jefferson Road
Anywhere, PA 12345

Survey Performed
April 7, 2009

By

J.R. Smith

Lvl III Thermographer
HSB Thermography Services
Ronald_Smith_Jr@hsb.com
216-588-1381



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April 7, 2009

Anything Products, Inc.
1216 Jefferson Road
Anywhere, PA 12345

Dear Mr. Johnson,

Thank you for allowing HSB Thermography Services to provide this service. We trust that this report proves helpful and is of assistance to you.

The scope of work included the following areas:

Electrical Control and Distribution System, Utility Poles, Transformers, Switchgear,
Motor Control Centers, Bus Ducting, Control Panels, Disconnects, and Breaker Panels.

Equipment not surveyed during this visit includes deenergized, lightly loaded, inaccessible and/or deemed by plant personnel to be non-critical.

As a result of this service the following Findings are presented for your review:

1 CRITICAL
2 SEVERE
3 ALERT

Should you have any questions or comments concerning this report or our services, we are here to assist you. Please feel free to call me at 216-588-1381.

Sincerely,

J. R. Smith

J.R. Smith
Lvl III Thermographer



COMMENTS

The criteria used to categorize findings in this report are based on the potential effect that a failure will have on operations and production.

CRITICAL- *Failure of this component will have a significant impact on production, require costly repairs and/or represents a potential personnel hazard.*

SEVERE- *Failure is not expected to go beyond the component listed and should have minimal impact on operations and production; repair costs could be significant.*

ALERT- *Failure is of a routine nature and repairs can be made easily and at a reasonable cost. Cost is, more often than not, limited to labor and a few minor parts.*

Infrared thermographic surveys are non-contact, non-destructive examinations used to find abnormal or unexpected thermal patterns or temperature differentials. These thermal patterns may indicate such conditions as loose connections, overloaded circuits or phases, deteriorated or damaged insulation or refractory, or excessive or unwanted friction, among others.

To perform the thermographic survey of your facility, HSB Thermography Services used the FLIR Thermacam infrared imaging system. This system utilizes the latest developments in uncooled technology to generate the most accurate data available.

The calibration for this system is certified traceable to The National Institute of Standards and Technology, NIST, USA and the Swedish National Testing and Research Institute, SP. This calibration is based on the International Temperature Scale (ITS-90).

The Findings of this survey are in the following pages. These conditions warrant your attention.



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Inspection Summary

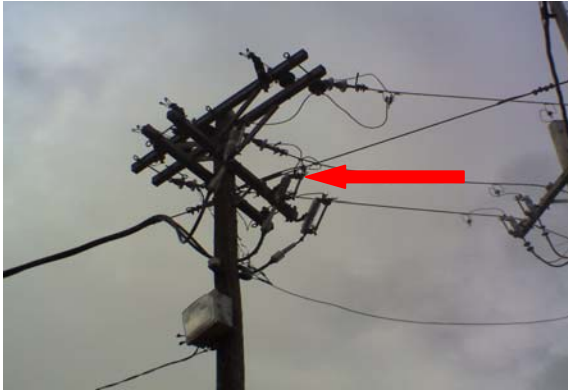
| CATEGORY | Location Area | Equipment Location | Equipment ID | Page Number |
|----------|------------------------|------------------------|----------------------|-------------|
| SEVERE | West Side Utility Pole | Feed for Line No.2 | Center Drop-out Fuse | 5 |
| CRITICAL | Compressor Room | 300 HP Compressor | M3 Starter | 6 |
| ALERT | Line No.2 | Exhaust Fan Panel | Main Breaker | 7 |
| ALERT | Line No.1 | Conveyor Control Panel | Main Disconnect | 8 |
| ALERT | Press No.4 | Control Panel | Screw Starter | 9 |
| SEVERE | MCC-A | PC Fan | By-Pass Starter | 10 |



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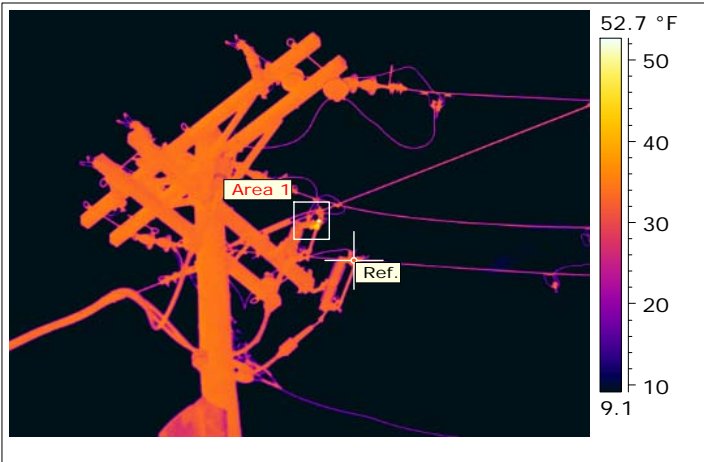
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CATEGORY SEVERE

| | |
|---------------------------------|------------------------|
| Location Area | West Side Utility Pole |
| Equipment Location | Feed for Line No.2 |
| Equipment ID | Center Drop-out Fuse |
| Est. Repair Cost Before Failure | Utility |
| Est. Repair Cost After Failure | Utility |
| Est. % of Production | 50% |
| Est. Down Time | 1 Day |

Date: 04/07/2009



| | |
|--------------------------------|----------------|
| Ref. Temperature | 33.5 °F |
| Area 1 Max. Temperature | 59.7 °F |
| Area 1: Temp. Rise | 26.2 °F |

Recommendation/Comments:

Contact the local utility to investigate and repair the fuse connection. The actual temperature of the connection is higher than what was measured due to the cold and windy conditions during the inspection.

*Failure of this fuse would result in a forced outage for half of the plant's production and could possibly damage some three phase equipment.

Repair notes:

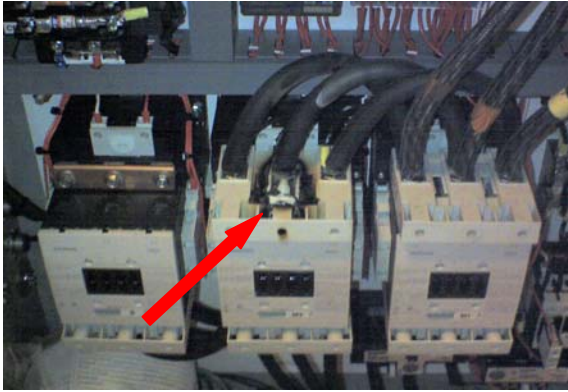
Signature: Date:



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| CATEGORY | CRITICAL |
|---------------------------------|-------------------|
| Location Area | Compressor Room |
| Equipment Location | 300 HP Compressor |
| Equipment ID | M3 Starter |
| Est. Repair Cost Before Failure | \$2,500 |
| Est. Repair Cost After Failure | \$5,000 |
| Est. % of Production | 100% |
| Est. Down Time | 1-2 Days |

Date: 04/07/2009



| | |
|--------------------------------|-----------------|
| Ref. Temperature | 189.7 °F |
| Area 1 Max. Temperature | 915.2 °F |
| Area 1: Temp. Rise | 725.5 °F |

Recommendation/Comments:

The starter is visibly damaged due to the extreme temperature and is no longer repairable. Mr. Johnson (Maintenance Manager) immediately contacted the manufacturer to have a replacement starter delivered the next day.
 *This is rated as "CRITICAL" due to the high temperature and because the location only has a 150 HP compressor as a backup. The 150 HP cannot supply enough air to operate the plant.

Repair notes:

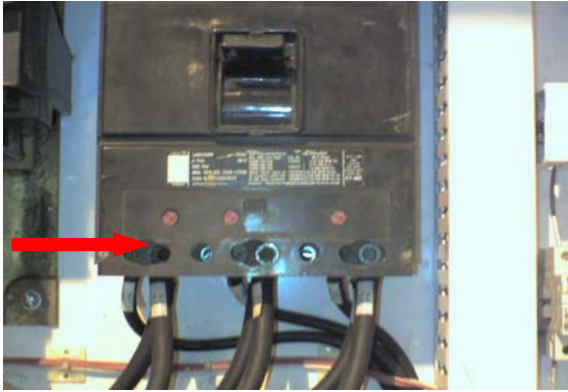
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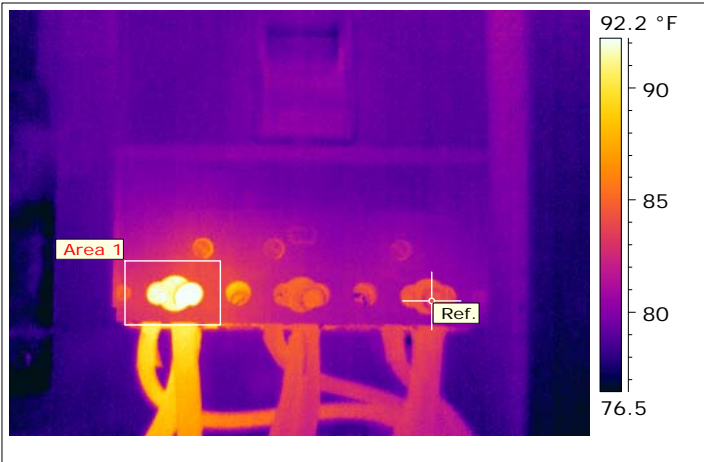
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| CATEGORY | ALERT |
|---------------------------------|-------------------|
| Location Area | Line No.2 |
| Equipment Location | Exhaust Fan Panel |
| Equipment ID | Main Breaker |
| Est. Repair Cost Before Failure | \$40 |
| Est. Repair Cost After Failure | \$2,000 |
| Est. % of Production | 0% |
| Est. Down Time | 0 |

Date: 04/07/2009



| | |
|--------------------------------|----------------|
| Ref. Temperature | 84.4 °F |
| Area 1 Max. Temperature | 93.7 °F |
| Area 1: Temp. Rise | 9.3 °F |

Recommendation/Comments:

Disassemble, clean, and remake the lug connection. Torque the lug to OEM specifications.

Repair notes:

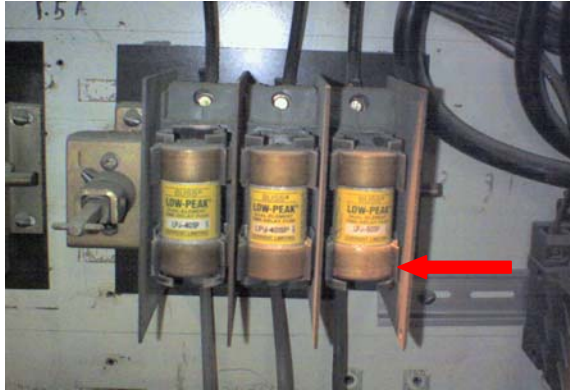
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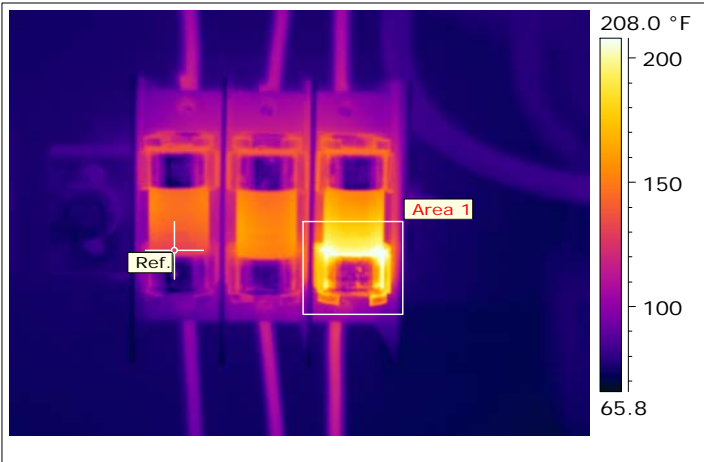
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| CATEGORY | ALERT |
|---------------------------------|------------------------|
| Location Area | Line No.1 |
| Equipment Location | Conveyor Control Panel |
| Equipment ID | Main Disconnect |
| Est. Repair Cost Before Failure | \$75 |
| Est. Repair Cost After Failure | \$250 |
| Est. % of Production | 0% |
| Est. Down Time | 0 |

Date: 04/07/2009



| | |
|--------------------------------|-----------------|
| Ref. Temperature | 129.7 °F |
| Area 1 Max. Temperature | 223.3 °F |
| Area 1: Temp. Rise | 93.6 °F |

Recommendation/Comments:

Replace the fuse and fuse clip. Due to the high temperature the metal hardware has annealed and is no longer repairable.

Repair notes:

Signature:.....Date:



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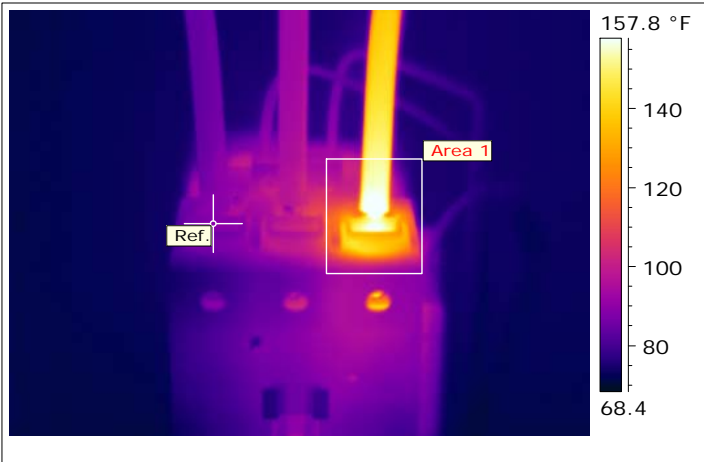
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| CATEGORY | ALERT |
|---------------------------------|---------------|
| Location Area | Press No.4 |
| Equipment Location | Control Panel |
| Equipment ID | Screw Starter |
| Est. Repair Cost Before Failure | \$40 |
| Est. Repair Cost After Failure | \$1,500 |
| Est. % of Production | 10% |
| Est. Down Time | 4-8 Hours |

Date:04/07/2009



| | |
|--------------------------------|-----------------|
| Ref. Temperature | 89.8 °F |
| Area 1 Max. Temperature | 166.3 °F |
| Area 1: Temp. Rise | 76.5 °F |

Recommendation/Comments:

The connection should be disassembled, cleaned, inspected for damage and repaired as necessary. Reassemble and properly torque fasteners according to the manufacturer's specifications, using new hardware as required. The plant has a spare starter on site.

Repair notes:

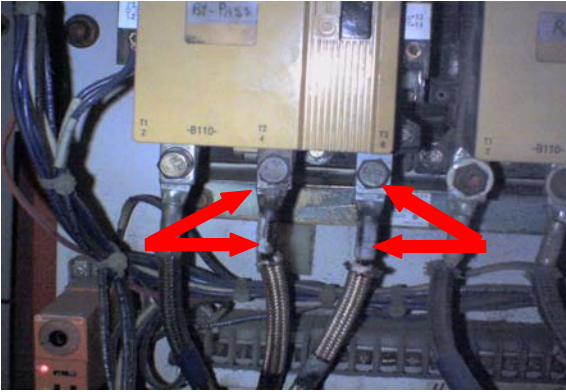
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CATEGORY SEVERE

| | |
|---------------------------------|-----------------|
| Location Area | MCC-A |
| Equipment Location | PC Fan |
| Equipment ID | By-Pass Starter |
| Est. Repair Cost Before Failure | \$100 |
| Est. Repair Cost After Failure | \$3,250 |
| Est. % of Production | 20% |
| Est. Down Time | 1-2 Days |

Date: 04/07/2009



| | |
|---------------------------|-----------------|
| Ref. Temperature | 98.8 °F |
| Area 1 Max. Temperature | 258.1 °F |
| Area 2 Max. Temperature | 426.4 °F |
| Area 1: Temp. Rise | 159.3 °F |
| Area 2: Temp. Rise | 327.6 °F |

Recommendation/Comments:

The problem appears to be at the bolted connections or the crimp connectors. Replace all damaged or discolored hardware and cut back the wires to sound conductor.

Repair notes:

Signature:.....Date:



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