Infrared Survey

Qualitative Infrared Thermographic Survey of Electrical Switchgear

Sample Report

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6/28/2013

InfraredPlus

Infrared Survey Info

Client: Sample
Survey Date: 6/28/2013
Client Representative: Sample
Facility Location: Sample
Thermographer: Scott Cotton
Infrared Imager Used: FLIR T420

RECAP OF FINDINGS

(NR) Not Rated =	0
(M) Minor =	5
(A) Alert =	0
(S) Serious =	1
(C) Critical =	0
TOTAL =	6

Understanding Infrared Imagery

Infrared imagery is often a picture or "thermograph" whose scales (or shades of color) represent the differences in emitted energy from the surface of an object. As a general rule, patterns in the image that are lighter in shade are warmer and darker patterns cooler. Unlike visible light imagery (0.4-0.7 micrometer wavelengths), objects observed using infrared imagers capture infrared wavelengths in the 3-5 and/or 8-14 micrometer range.

When an image is taken with an infrared camera, it is often recorded onto videotape and/or digitally saved to an on-board storage device. The image may be then modified in a number of ways to enhance its value to the end user. Image files are digitized, saved, then adjusted for color, contrast and brightness before being scaled and placed into a report file. The report is then delivered via email to the customer.

Delta-T Temperature Rating Criteria was used, shown below:

Rating	Temperature Rise F°	Recommendation
Minor	**1-18°F**	**Routine, Repair during regular maintenance, little chance of physical damage.**
Alert	**19-36 °F**	**Repair within 30 days, watch load and inspect for physical damage.**
Serious	**37-54 °F**	**Repair/Replace ASAP. Inspect surrounding components for physical damage.**
Critical	**>55 °F**	**Immediate repair/replace. Danger exists!**

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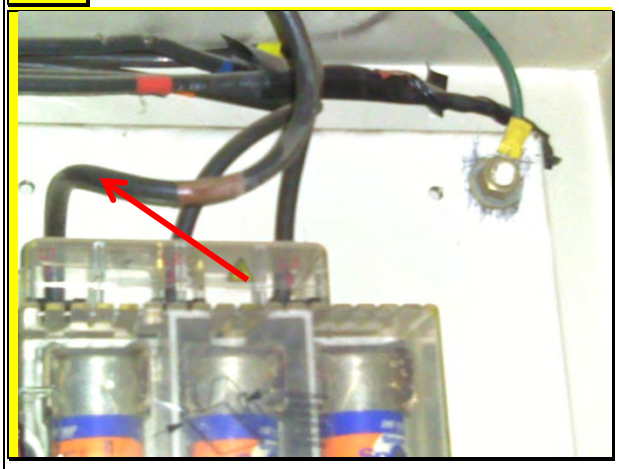
Summary

Item #	Location	Equipment	Rating
1	Kiln 7	Upper cabinet	1-Minor
2	Kiln 9	Control Panel	1-Minor
3	Dust Collector	Bagger Bearings	3-Serious
4	Kiln 1	Control Panel	1-Minor
5	Kiln 3	Control Panel	1-Minor
6	Kiln 6	Control Panel	1-Minor

Item 1



Item Number	1
Location	Kiln 7
Equipment	Upper Cabinet
Reference Temp.	135 °F
High Temp.	157 °F
Temperature Rise	22 °F
Fault Rating	Minor
Description: The left phase connection was 22 degrees higher than the other phases.	
Recommendation: Have control panel evaluated by electrician to determine if the load is too high or the connection is loose.	

Item 1

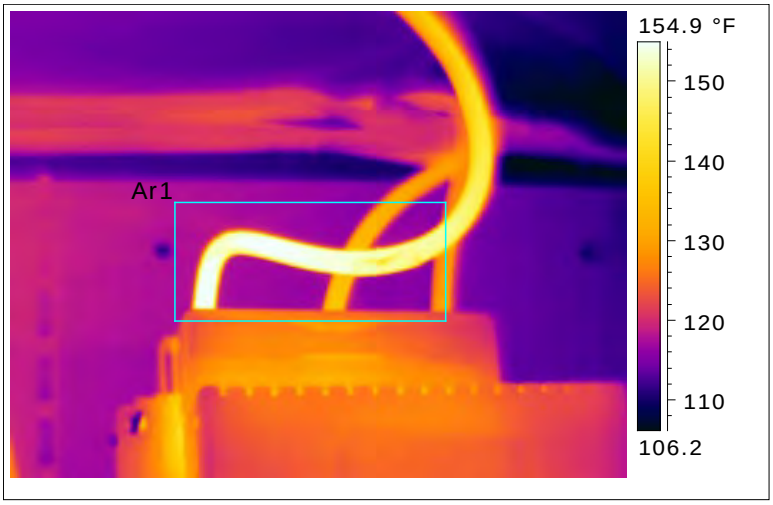
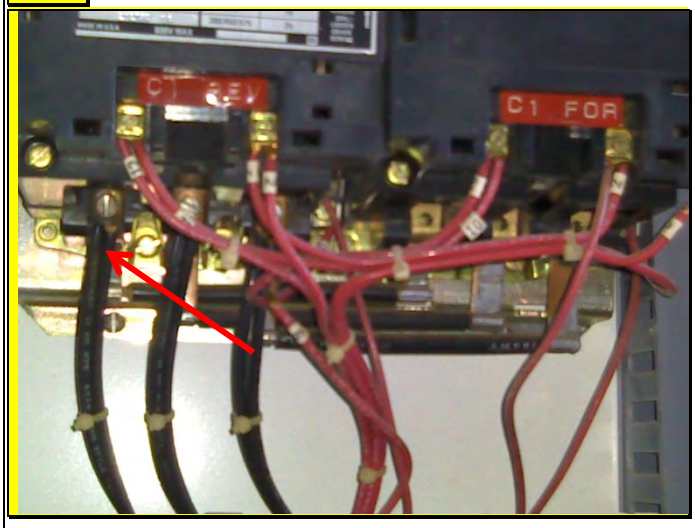


Image Time	8:55:26 AM
Ar1 Max. Temperature	158.0 °F
Ar1 Min. Temperature	115.1 °F
Ar1 Max - Min Temperature	42.9 °F

Item 2



Item Number	2
Location	Kiln 9
Equipment	Control Panel
Reference Temp.	120°F
High Temp.	140 °F
Temperature Rise	20 °F
Fault Rating	Minor
Description: The left connection was 20 degrees higher than the other connections.	
Recommendation: Have control panel evaluated by electrician to determine if there is a load issue or the connection is loose.	

Item 2

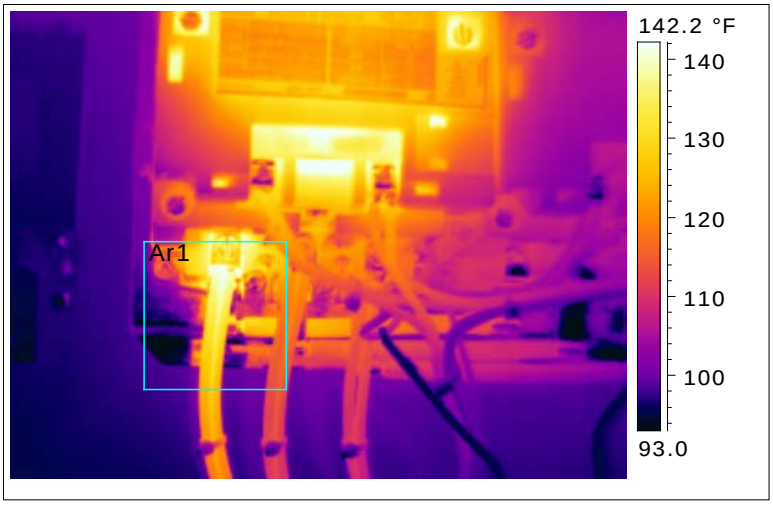


Image Time	9:00:39 AM
Ar1 Max. Temperature	145.5 °F
Ar1 Min. Temperature	90.5 °F
Ar1 Max - Min Temperature	55.0 °F

Item 3

Item Number	3
Location	Dust collector
Equipment	Bagger Bearing
Reference Temp.	127 °F
High Temp.	204 °F
Temperature Rise	77 °F
Fault Rating	Serious
Description: The drive side bearing was 77 degrees higher than the non-drive side bearing.	
Recommendation: Replace bearing ASAP to prevent equipment failure and downtime.	

Item 3

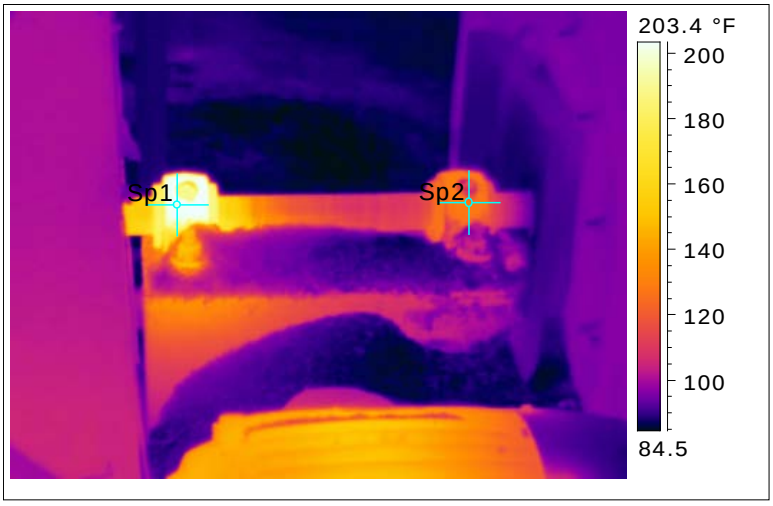
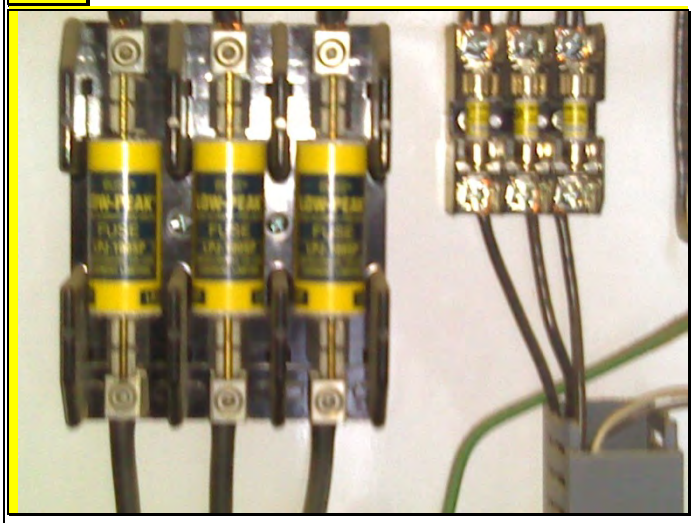


Image Time	9:06:35 AM
Sp1 Temperature	194.7 °F
Sp2 Temperature	126.5 °F
Ar1 Max. Temperature	-
Ar1 Min. Temperature	-
Ar1 Max - Min Temperature	-

Item 4



Item Number	4
Location	Kiln 1
Equipment	MCC
Reference Temp.	96°F
High Temp.	107 °F
Temperature Rise	11 °F
Fault Rating	Minor
Description: The middle fuse connection was 11 degrees higher than the other fuse connections.	
Recommendation: Have electrician check for loose connection.	

Item 4

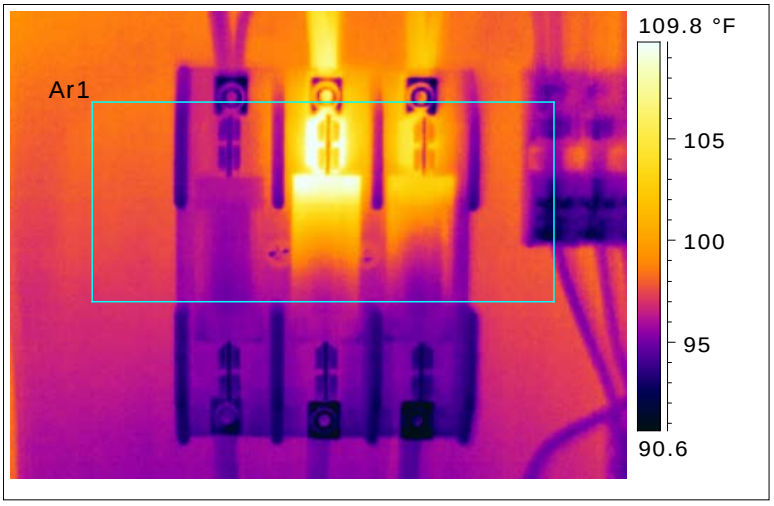
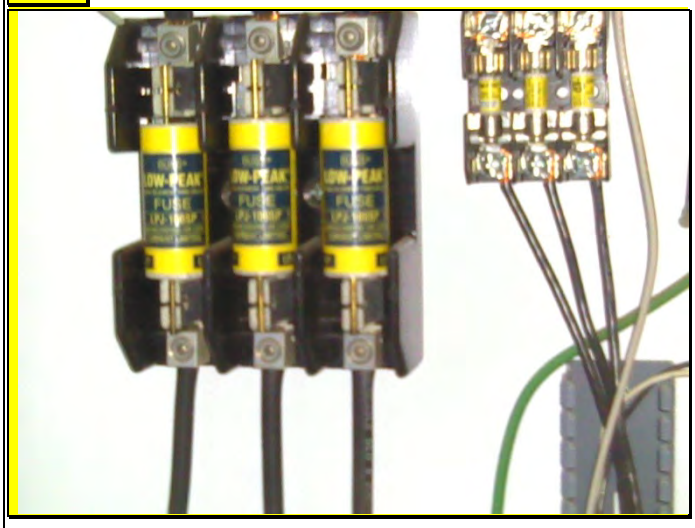


Image Time	9:08:47 AM
Ar1 Max. Temperature	111.5 °F
Ar1 Min. Temperature	90.9 °F
Ar1 Max - Min Temperature	20.6 °F

Item 5



Item Number	5
Location	Kiln 3
Equipment	MCC
Reference Temp.	91°F
High Temp.	101 °F
Temperature Rise	10 °F
Fault Rating	Minor
Description: The left fuse connection was 10 degrees higher than the other fuse connections.	
Recommendation: Have electrician check for loose connection.	

Item 5

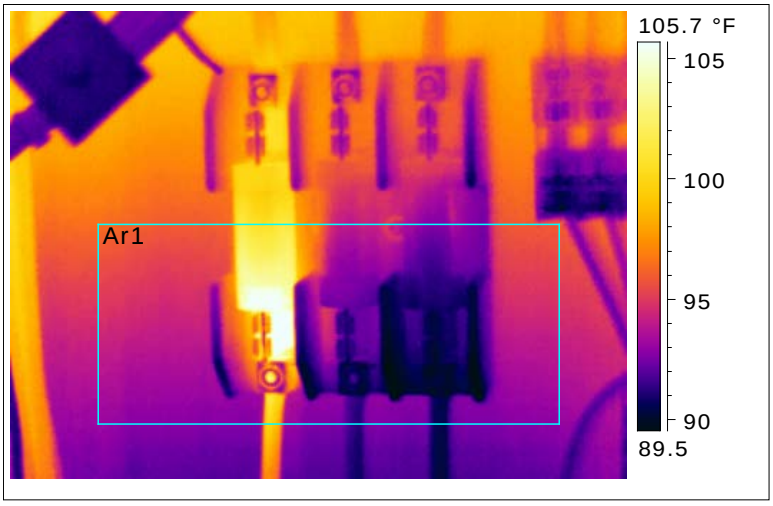
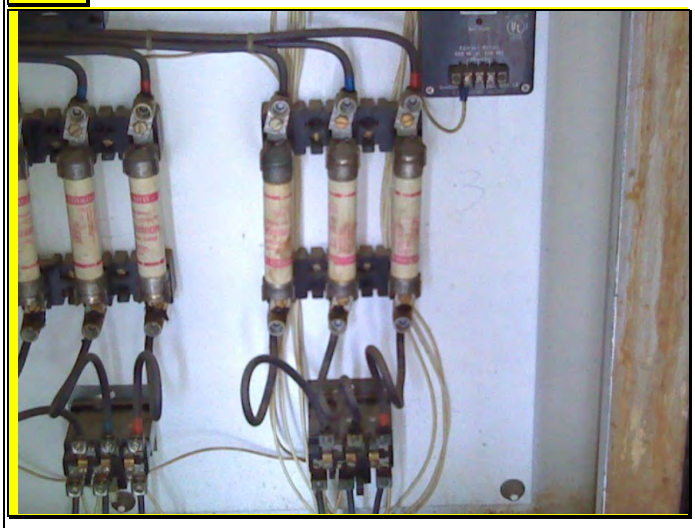


Image Time	9:10:01 AM
Ar1 Max. Temperature	107.8 °F
Ar1 Min. Temperature	89.1 °F
Ar1 Max - Min Temperature	18.7 °F

Item 6



Item Number	6
Location	Kiln 6
Equipment	MCC
Reference Temp.	111°F
High Temp.	132 °F
Temperature Rise	21 °F
Fault Rating	Minor
Description: The right fuse connection was 21 degrees higher than the other fuse connections.	
Recommendation: Have electrician check for loose connection or issues with circuit.	

Item 6

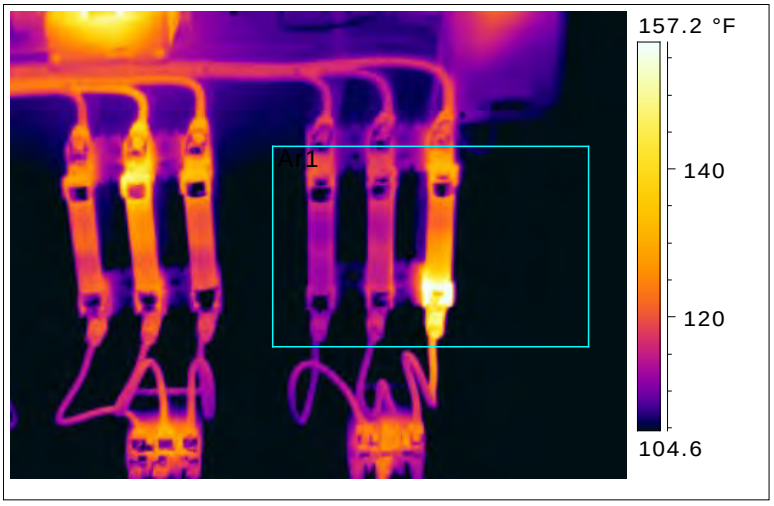


Image Time	9:26:09 AM
Ar1 Max. Temperature	182.2 °F
Ar1 Min. Temperature	94.7 °F
Ar1 Max - Min Temperature	87.5 °F