



UTTER PRECISION, INC.
The Next Generation in Reliability

Infrared Inspections

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Thermography Inspection at

Manufacturing Plant

Our Town, KS

10/1-2/2007

By

OJ Utter Level II itc



	Thermography Inspection at Manufacturing Plant	Date: 10/1-2/2007
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Inspection Site Information	
Customer	Manufacturing Plant
Address	Our Town, KS
Contact person	Maintenance Manager
Phone number	785-555-1212
E-mail address	big.guy@manlamaman.com
Thermographer	OJ Utter Level II itc

INFORMATION

This year's inspection was reduced to only the issues that were either in a critical state or would be in a critical state by the next inspection.


There has also been a General Cost Analysis added to show the value of inspection.

Overview of Fault Rating:

3: NORMAL OPERATION Temp rise 0-50 °F No action

2: SCHEDULE REPAIR Temp rise 50-99 °F Repair as indicated

1: IMMEDIATE ATTENTION Temp rise >100 °F Repair immediately

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Summary of Inspection

Page Number	Equipment	Component	Priority Level
5	South Raymond Mill Main Breaker	A Phase Line	IMMEDIATE ATTENTION
6	Master Magnet & Rock Elevator	10E Contactor A Phase Load	SCHEDULE REPAIR
7	Main Disconnect	C Phase Load	SCHEDULE REPAIR
8	Main Disconnect	A Phase Line	SCHEDULE REPAIR
9	Blower #1 Starter	Starter Coil Gap	SCHEDULE REPAIR
10	Blower #1 Disconnect	A Phase Line	IMMEDIATE ATTENTION
11	Thermal Fluid Heater Panel	B Phase Line FU4	IMMEDIATE ATTENTION
12	South Afterburner Panel	B Phase Knife Disconnect	IMMEDIATE ATTENTION
13	Capacitor Disconnect	A Phase Load	SCHEDULE REPAIR
14	CECO Fume Sucker Disconnect	A Phase Load	IMMEDIATE ATTENTION
15	GRL Line Drive Panel	FU3 Fuse Load side	IMMEDIATE ATTENTION
16	GRL Line Panel North Doors	M11 Contactor Right Phase	IMMEDIATE ATTENTION
17	South Thermal Fluid Heater	A Phase Line	SCHEDULE REPAIR
18	Granule Recovery System	C Phase Line	SCHEDULE REPAIR
19	Main Disconnect	A&B Phase Line	SCHEDULE REPAIR
20	VA Burner Disconnect	C Phase Load	IMMEDIATE ATTENTION
21	VA Supply Fan Disconnect	A Phase Line	IMMEDIATE ATTENTION
22	Main Disconnect	Top of Panel	SCHEDULE REPAIR
23	Machine Chest Pump Dissconnect	A Phase Line	IMMEDIATE ATTENTION
24	Machine Chest Pump Starter	A Phase Overload Line side	IMMEDIATE ATTENTION
25	Pressure Screen Disconnect	C Phase Line	IMMEDIATE ATTENTION
26	North Wall Fan Starter	C Phase Overload Line side	IMMEDIATE ATTENTION
27	W. Shower Pump Disconnect	B Phase Line	IMMEDIATE ATTENTION
28	N. Vacuum Pump Fuses	C Phase Load	IMMEDIATE ATTENTION
29	VAC Main Disconnect	All Phases Line side	IMMEDIATE ATTENTION
30	Whitewater Filter Pump Disconnect	A Phase Load	IMMEDIATE ATTENTION
31	Whitewater Pit Adj Disconnect	C Phase Line & Load	IMMEDIATE ATTENTION
32	Corr. Chest Pump Disconnect	C Phase Load	IMMEDIATE ATTENTION
33	Hydrapulper Main Disconnect	All Phases Line side/ C Phase Load	IMMEDIATE ATTENTION
34	Hydrapulper Service Entrance Disconnect	B Phase Line	IMMEDIATE ATTENTION
35	East Jordan Dissconnect	A Phase Line	IMMEDIATE ATTENTION
36	Main Disconnect	A Phase Line	SCHEDULE REPAIR
37	Wet Sand Auger Fuses	A&C Phase Load	SCHEDULE REPAIR
38	Top Breaker Panel	A Phase Knife	IMMEDIATE ATTENTION
39	SFL Dry Looper Panel	C Phase Load	SCHEDULE REPAIR
40	Capacitor Disconnect	B Phase Knife	SCHEDULE REPAIR
41	SFL PLC Cabinet	Resistors on Circuit Board ES-2	IMMEDIATE ATTENTION
42	North Middle Air Compressor Disconnect	B Phase Line	IMMEDIATE ATTENTION
43	Southeast Air-o-lator	A Phase Load	IMMEDIATE ATTENTION
44	Southwest Air-o-lator Disconnect	C Phase Load	IMMEDIATE ATTENTION
45	480V outcomming connections	B Phase- connection from transformer stab	IMMEDIATE ATTENTION
46	Granule Unload Panel	A Phase Knife	SCHEDULE REPAIR
47	Fire Room Disconnect	A Phase Load	IMMEDIATE ATTENTION
48	MPL Thermal Fluid Heater Disconnect	B Phase Knife	SCHEDULE REPAIR
49	ORL, PLC & Blender Panel	KS-4 Load Fuses	IMMEDIATE ATTENTION
50	Main Disconnect	A Phase Load	IMMEDIATE ATTENTION

Cost Avoidance Analysis Sheet

Prepared for: Manufacturing Plant

Date: October 1 & 2, 2007

Period: Annual Electrical Inspection

Issues Documented	# of Occurrences in Route	Est. Cost for Suggested Minor Repair	Est. Cost of Complete (Major) Failure	Production Loss	Period Total - Minor Repair	Period Total - Major Repair	Cost Avoidance
Infrared Thermography Issues Found							
South Raymond Mill Main Breaker	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Master Magnet & Rock Elevator	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Blower #1 Starter	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Blower #1 Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Thermal Fluid Heater Panel	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
South Afterburner Panel	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Capacitor Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
CECO Fume Sucker Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
GRL Line Drive Panel	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
GRL Line Panel North Doors	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
South Thermal Fluid Heater	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Granule Recovery System	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
VA Burner Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
VA Supply Fan Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Machine Chest Pump Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Machine Chest Pump Starter	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Pressure Screen Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
North Wall Fan Starter	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
W. Shower Pump Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
N. Vacuum Pump Fuses	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
VAC Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Whitewater Filter Pump Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Whitewater Pit Adj Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Corr. Chest Pump Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Hydrapulper Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Hydrapulper Service Entrance Disconn	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
East Jordan Disssconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Wet Sand Auger Fuses	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Top Breaker Panel	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
SFL Dry Looper Panel	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Capacitor Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
SFL PLC Cabinet	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
North Middle Air Compressor Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Southeast Air-o-lator	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Southwest Air-o-lator Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
480V outcoming connections	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Granule Unload Panel	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Fire Room Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
MPL Thermal Fluid Heater Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
ORL, PLC & Blender Panel	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Main Disconnect	1	\$ 250	\$ 1,500	\$ -	\$ 250	\$ 1,500	\$ 1,250
Total	46				\$ 11,500	\$ 69,000	\$ 57,500

Potential R.O.I (Potential Cost Avoidance vs. Program Investment)

\$ 27.03

Disclaimer: The listed prices are based on estimates. The repair cost do not include production loss, environmental hazard fines, or damages that occur



**Thermography Inspection
at
Manufacturing Plant**

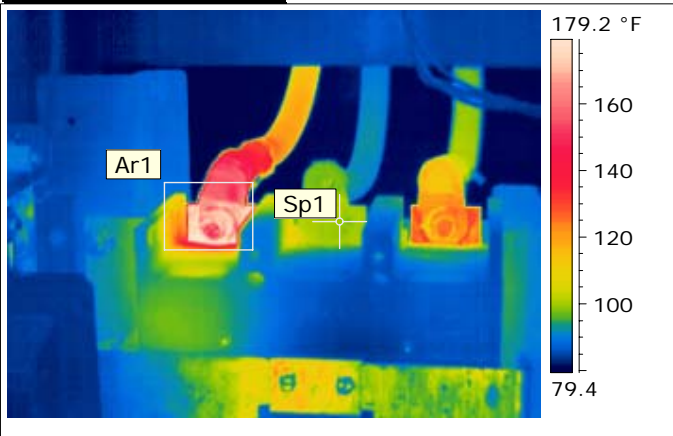
**Date:
10/1-2/2007**

Photo and Identification



Location	South Raymond Mill MCC
Equipment	South Raymond Mill Main Breaker
Component	A Phase Line
Priority Level	IMMEDIATE ATTENTION
Reocmmendations	85
Amperage Load	400amp
Average Load	A-123 B-130 C-126
Recommendation	splc1
Notes	

Thermogram 10/1/2007



Object Parameters	Value
Atmospheric Temperature	70.8 °F
Emissivity	0.90
Sp1 Temperature	99.2 °F
Ar1 Max. Temperature	181.0 °F

Analysis & Recommended action:

Heating of the connection is of such a high concern because of the temperature at load amperage rating and the fact that the heating is on the Line and Load side of the breaker indicates that the breaker could be failing. Tighten the connections within the week and inspect again with Infrared. If the heating continue check the load again and have testing performed on the breaker at the next available opportunity

Inspected by :

OJ Utter Level II itc

Signature:.....date: **10/1-2/2007**

Repaired by:

date:

Comment:.....