



## **Emission Systems O&M Preventive Maintenance Program**

This is the preventive maintenance program for emission systems at CWC-Extron, 1085 West Sherman Blvd, Muskegon MI 49441.

The use of equipment checklists is the way all information regarding preventative maintenance observations are carried out.

Maintenance equipment checklists contain the following basic identification information:

Equipment number, description of system to be inspected, frequency of inspection, date of inspection, if the item is ok or needs repair, gage readings, comments section, notification to supervisor if problem, completed sheet checked, clock number of sheet checker and doc no.

Checklists are completed on a daily basis (some each shift) or a twice a month basis.

Blank equipment checklists are available in the maintenance office.

Procedure:

- The superintendent of maintenance shall assign a supervisor to be responsible for carrying out this procedure.
- The maintenance supervisor will assign personnel to make the preventive maintenance inspections.
- The inspector will review all items and mark with a check in the appropriate box.
- The completed form is turned in to the maintenance supervisor, who will assign or schedule corrective action by use of the EAM computer maintenance program where a work order will be generated. The work order will include the date, repair and man-hours required.
- The supervisor in charge will identify any equipment requiring maintenance and give the completed checklist to the maintenance coordinator.
- The repairs will be carried on the open work order until the work has been completed.
- Completed copies of current year equipment checklists are maintained in the maintenance office and prior year records are held in the records storage area.

## Preventative Maintenance Plan for Cupola Venturi Scrubbers

Maintenance will complete the following checklists on a daily basis:

5767D  
5766D  
5765D  
5520

Maintenance will complete the following checklists twice a month:

5527  
5526  
5525  
5523  
5522  
5519  
5517  
5516  
5515  
5513  
5512

Maintenance will complete the following checklist as required (depending on melt campaign frequency):

5500

The manager of environmental services will record information on a daily basis regarding:

Static pressure for venturi and demister  
Pump pressure  
Visible emissions  
Magnesium Hydroxide daily flow rate and total flow rate  
Static pressure for dust collectors

And will record on a weekly basis:

Emission pond temperature  
Emission pond PH

Deviations will be promptly noted and corrective action taken.

## **Preventive Maintenance Plan for Dry Collectors**

Maintenance will complete the following checklists on a daily basis:

5601  
5600  
5600A  
5600B  
5603

Deviations will be promptly noted and corrective action taken.

Dry collectors #1, #5, #6, #12, #13, #17, #19, #20 will be black light tested on a semi-annual basis.

The manager of environmental services will conduct daily inspections and record information regarding:

Static pressure drop readings for #1, #2, #5 (1,2,3) #6, #12, #13, #16, #17, #19, #20  
Visible emissions from all sources  
Emission panel readings for #1, #5, #6, #12, #13

An outside contractor at a minimum of once a year will conduct detailed inspections.

### **Checklists and Plant Map**

The pages that follow contain the checklists mentioned above and a plant dust collector map.

Updated: 12/15/17

By: Bob Meacham

**KT-MUSKEGON**

**%**

**MKG Foundry**

PM Code

Job Type

5601M-D-FRI PM

Description

D - 1st SHIFT - MR - DUST COLLECTOR - D5

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
01	M5100	SAND SYSTEM		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed
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Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

C) REPORT ALL DISCREPANCIES

#7 BOND BIN - SHAKER

1) \_\_\_ Check TO ENSURE SHAKE DOWN OPERATION

2) \_\_\_ Check Visually For Leaks

#11 BOND RECEIVER

3) \_\_\_ Inspect RECEIVER For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

4) \_\_\_ Check Air Pulse Unit Operation.

5) \_\_\_ Check Visually For Leaks

#17 SHAKEOUT DUST COLLECTOR

6) \_\_\_ Inspect Collector For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

7) \_\_\_ Check Visually For Stack Emissions And Leaks (If Visible Emissions Contact Immediate Supervisor)

8) \_\_\_ Check Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_

9) \_\_\_ Record Manometer Reading: \_\_\_\_\_ (If Reading Is Outside 4.0 - 10.0, Contact Your Supervisor)

10) \_\_\_ Was ANY Manometer Reading Out-Of-Spec ? Yes \_\_\_\_\_ No \_\_\_\_\_.

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MKG Foundry

PM Code	Job Type
5601M-D-MON	PM

Description

D - 1st SHIFT - MR - DUST COLLECTOR - D1

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
01	M5100	SAND SYSTEM		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

C) REPORT ALL DISCREPANCIES

#7 BOND BIN - SHAKER

1)\_\_\_ Check TO ENSURE SHAKE DOWN OPERATION

2)\_\_\_ Check Visually For Leaks

#11 BOND RECEIVER

3)\_\_\_ Inspect RECEIVER For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

4)\_\_\_ Check Air Pulse Unit Operation.

5)\_\_\_ Check Visually For Leaks

#17 SHAKEOUT DUST COLLECTOR

6)\_\_\_ Inspect Collector For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

7)\_\_\_ Check Visually For Stack Emissions And Leaks (If Visible Emissions Contact Immediate Supervisor)

8)\_\_\_ Check Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_

9)\_\_\_ Record Manometer Reading: \_\_\_\_\_ (If Reading Is Outside 4.0 - 10.0, Contact Your Supervisor)

10)\_\_\_ Was ANY Manometer Reading Out-Of-Spec ? Yes \_\_\_\_\_ No \_\_\_\_\_.

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MKG Foundry

PM Code

Job Type

5601M-D-THUR

PM

Description

D - 1st SHIFT - MR - DUST COLLECTOR - D4

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
01	M5100	SAND SYSTEM		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

C) REPORT ALL DISCREPANCIES

#7 BOND BIN - SHAKER

1)\_\_\_ Check TO ENSURE SHAKE DOWN OPERATION

2)\_\_\_ Check Visually For Leaks

#11 BOND RECEIVER

3)\_\_\_ Inspect RECEIVER For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

4)\_\_\_ Check Air Pulse Unit Operation.

5)\_\_\_ Check Visually For Leaks

#17 SHAKEOUT DUST COLLECTOR

6)\_\_\_ Inspect Collector For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

7)\_\_\_ Check Visually For Stack Emissions And Leaks (If Visible Emissions Contact Immediate Supervisor)

8)\_\_\_ Check Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_

9)\_\_\_ Record Manometer Reading: \_\_\_\_\_ (If Reading Is Outside 4.0 - 10.0, Contact Your Supervisor)

10)\_\_\_ Was ANY Manometer Reading Out-Of-Spec ? Yes \_\_\_\_\_ No \_\_\_\_\_.

**KT-MUSKEGON****%****MKG Foundry**

PM Code

Job Type

5601M-D-TUE

PM

Description

D - 1st SHIFT - MR - DUST COLLECTOR - D2

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
01	M5100	SAND SYSTEM		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

C) REPORT ALL DISCREPANCIES

#7 BOND BIN - SHAKER

1) \_\_\_ Check TO ENSURE SHAKE DOWN OPERATION

2) \_\_\_ Check Visually For Leaks

#11 BOND RECEIVER

3) \_\_\_ Inspect RECEIVER For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

4) \_\_\_ Check Air Pulse Unit Operation.

5) \_\_\_ Check Visually For Leaks

#17 SHAKEOUT DUST COLLECTOR

6) \_\_\_ Inspect Collector For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

7) \_\_\_ Check Visually For Stack Emissions And Leaks (If Visible Emissions Contact Immediate Supervisor)

8) \_\_\_ Check Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_

9) \_\_\_ Record Manometer Reading: \_\_\_\_\_ (If Reading Is Outside 4.0 - 10.0, Contact Your Supervisor)

10) \_\_\_ Was ANY Manometer Reading Out-Of-Spec ? Yes \_\_\_\_\_ No \_\_\_\_\_.

**KT-MUSKEGON**

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**MKG Foundry**

PM Code	Job Type
5601M-D-WED	PM

Description

D - 1st SHIFT - MR - DUST COLLECTOR - D3

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
01	M5100	SAND SYSTEM		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed
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Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

C) REPORT ALL DISCREPANCIES

#7 BOND BIN - SHAKER

1) \_\_\_ Check TO ENSURE SHAKE DOWN OPERATION

2) \_\_\_ Check Visually For Leaks

#11 BOND RECEIVER

3) \_\_\_ Inspect RECEIVER For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

4) \_\_\_ Check Air Pulse Unit Operation.

5) \_\_\_ Check Visually For Leaks

#17 SHAKEOUT DUST COLLECTOR

6) \_\_\_ Inspect Collector For Misc. Failures ( Loose Fasteners, Missing Guards, Etc.)

7) \_\_\_ Check Visually For Stack Emissions And Leaks (If Visible Emissions Contact Immediate Supervisor)

8) \_\_\_ Check Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_

9) \_\_\_ Record Manometer Reading: \_\_\_\_\_ (If Reading Is Outside 4.0 - 10.0, Contact Your Supervisor)

10) \_\_\_ Was ANY Manometer Reading Out-Of-Spec ? Yes \_\_\_\_\_ No \_\_\_\_\_



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MKG Foundry

PM Code

Job Type

5100-003 - D3 PM

Description

D - 1st SHIFT - MW - FOUNDRY DRY DUST COLLECTOR - D3

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
01	M5100	SAND SYSTEM		AA-MW	DAILY	1	WEEK	Aug 17, 2011 12:00:00 AM

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed
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Task Instructions

Created - Gundy, Michelle (MKG)(MGUNDY) [08/11/2010 10:29]:

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

DURING OPERATION VISUALLY INSPECTION FOR DRY DUST COLLECTORS # 1, #2, #5, #6, #12, #13, #17:

- 1) \_\_\_ CHECK FOR LOOSE FASTENERS
- 2) \_\_\_ CHECK DRIVE CONDITION
- 3) \_\_\_ CHECK MOTOR FOR HOT OR NOISEY
- 4) \_\_\_ CHECK BELTS - GOOD OR SLIPPING OR MISSING # \_\_\_\_\_
- 5) \_\_\_ CHECK SHEAVE WARE
- 6) \_\_\_ CHECK BEARING CONDITION, HOT OR NOISEY
- 7) \_\_\_ CHECK FOR EXCESIVE VIBRATION
- 8) \_\_\_ CHECK TO SEE IF DUST COLLECTOR IS EMITTING

ANY DISCREPANCIES REPORT TO YOUR SUPERVISOR

REV. 08/10/10

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MKG Foundry

PM Code

Job Type

5100-003 - D1

PM

Description

D - 1st SHIFT - MW - FOUNDRY DRY DUST COLLECTOR - D1

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
01	M5100	SAND SYSTEM		AA-MW	DAILY	1	WEEK	Aug 17, 2011 12:00:00 AM

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed
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Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

DURING OPERATION VISUALLY INSPECTION FOR DRY DUST COLLECTORS # 1, #2, #5, #6, #12, #13, #17:

- 1) \_\_\_ CHECK FOR LOOSE FASTENERS
- 2) \_\_\_ CHECK DRIVE CONDITION
- 3) \_\_\_ CHECK MOTOR FOR HOT OR NOISEY
- 4) \_\_\_ CHECK BELTS - GOOD OR SLIPPING OR MISSING # \_\_\_\_\_
- 5) \_\_\_ CHECK SHEAVE WARE
- 6) \_\_\_ CHECK BEARING CONDITION, HOT OR NOISEY
- 7) \_\_\_ CHECK FOR EXCESIVE VIBRATION
- 8) \_\_\_ CHECK TO SEE IF DUST COLLECTOR IS EMITTING

ANY DISCREPANCIES REPORT TO YOUR SUPERVISOR

REV. 08/10/10

**KT-MUSKEGON**

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**MKG Maintenance**

PM Code Job Type

5600-D PM

Description

W - 1st SHIFT - MR - DUST COLLECTORS - GENERAL PLANT

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
44	M5800	ENVIRONMENTAL		AA-MR	WEEKLY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

DAILY DUST COLLECTOR TOUR / READINGS - 1st Shift / / / MACHINE REPAIR

Check Off Completed Tasks, Record Readings -

Cleaning Rm - #1 & #2 DUST COLLECTORS - Visually Check For Stack Emissions And Leaks  
( If Visible Emissions Contact Your Supervisor )

- 1) \_\_\_ Record # 1 Manometer Reading: \_\_\_\_\_  
( If Reading Is Outside 3.0 - 10.0 Contact Your Supervisor )
- 2) \_\_\_ Check # 1 Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_.
- 3) \_\_\_ Record # 2 Manometer Reading: \_\_\_\_\_  
( If Reading Is Outside 2.0 - 6.0 Contact Your Supervisor )
- 4) \_\_\_ Check # 2 Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_.

KNOCK / OFF - # 6 DUST COLLECTOR Visually Check For Stack Emissions And Leaks  
( If Visible Emissions Contact Your Supervisor )

- 5) \_\_\_ Record # 6 Manometer Reading: \_\_\_\_\_  
( If Reading Is Outside 1.0 - 9.0 Contact Your Supervisor )
- 6) \_\_\_ Check # 6 Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_.

PREBLAST - # 12 DUST COLLECTOR Visually Check For Stack Emissions And Leaks  
( If Visible Emissions Contact Your Supervisor )

- 7) \_\_\_ Record # 12 Manometer Reading: \_\_\_\_\_  
( If Reading Is Outside 3.0 - 12.0 Contact Your Supervisor )
- 8) \_\_\_ Check # 12 Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_  
( Operating Pressure 85 - 100 Psi, Adjust Regulator If Necessary )

FINAL BLAST - # 13 Visually Check For Stack Emissions And Leaks  
( If Visible Emissions Contact Your Supervisor )

- 9) \_\_\_ Record # 13 Manometer Readings: \_\_\_\_\_  
( If Reading Is Outside 3.0 - 12.0 Contact Your Supervisor )
- 10) \_\_\_ Check # 13 Air Pulse Unit Operation - Record Inlet Air Pressure \_\_\_\_\_  
( Operating Pressure 85 - 100 Psi, Adjust Regulator If Necessary )

REFUSE SAND SYSTEM - # 16 {Bin Vent} Visually Check For Stack Emissions & Leaks  
View From Ground Level - West Side. ( If Visible Emissions Contact Your Supervisor )

- 11) \_\_\_ Record # 16 Manometer Readings: (Lower Meter) \_\_\_\_\_  
( If Reading Is Outside .5 - 4.0 Contact Your Supervisor )

+++ Were Any Air Pressure Gauges Readjusted ? Yes \_\_\_\_\_ No \_\_\_\_\_.

+++ Were Any Manometer Readings Out-Of-Spec ? Yes \_\_\_\_\_ No \_\_\_\_\_.

**KT-MUSKEGON**

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**MKG Maintenance**

Task Instructions

+++ If Above Is 'Yes', Was Maintenance Supervisor Notified? Yes \_\_\_\_\_ No \_\_\_\_\_.

**KT-MUSKEGON**

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**MKG Melting**

PM Code	Job Type
5513-001	PM

Description

M - 3rd SHIFT - OILER - # 1 CUPOLA EMISSION FAN BEARINGS

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5513	# 1 Cupola Emission Fan		AA-OIL	MONTHLY	1	MONTH	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed
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Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

1) \_\_\_ DRAIN OIL AND FILL WITH NEW, SHOULD BE MID-LEVEL ON SIGHT GLASS

TAKES OILS00046

**KT-MUSKEGON**

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**MKG Melting**

PM Code	Job Type
5513-002	PM

Description

w - 3rd SHIFT - OILER - # 1 CUPOLA EMISSION FAN BEARING INSPECTION

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5513	# 1 Cupola Emission Fan		AA-OIL	WEEKLY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed
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Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

1) \_\_\_ CHECK OIL IN SIGHT GLASS FOR 2-BEARINGS. OIL SHOULD BE MID-LEVEL - TAKES OILS00046

**KT-MUSKEGON****%****MKG Melting**

PM Code Job Type

5513-2M PM

Description

Q - 3rd SHIFT - MR - # 1 CUPOLA EMISSION FAN

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5513	# 1 Cupola Emission Fan		AA-MR	QUARTRLY	1	N/A	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

NOTE: CUPOLA BOTTOM MUST BE DROPPED FOR THESE TASKS TO BE STARTED.

- 1) \_\_\_ Check Boots On Incoming & Out Going Sides Of Fan
- 2) \_\_\_ Check Ducting To Staeck
- 3) \_\_\_ Check Fan Bearings, Mount Bolts
- 4) \_\_\_ Check Fan For Vibration
- 5) \_\_\_ Check Fan Runner For Build Up On Blades
- 6) \_\_\_ Check Guillotine Blades & Guides
- 7) \_\_\_ Check Guillotine Cylinder,Hoses.
- 8) \_\_\_ Check Louver Coupling, Bearings & Linkage
- 9) \_\_\_ Check Louvers & Louver Action
- 10) \_\_\_ Check Oil Level & Water Flow
- 11) \_\_\_ Check Spray Nozzles To Fan & Drains Are Open

KT-MUSKEGON

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MKG Melting

PM Code Job Type

5514-2M PM

Description

M - 3rd SHIFT - MW - # 1 CUPOLA EMISSION FAN MOTOR INSPECTIONS

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5514	# 1 Cupola Emission Fan Motor		AA-MW	MONTHLY	1	MONTH	

Material List Equipment Part Description Bin QTY Available QTY Needed

Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

- 1) \_\_\_ Check Coupling Bolts & Lub
- 2) \_\_\_ Check Motor Mount Bolts
- 3) \_\_\_ Check Oil Level In Bearings



**KT-MUSKEGON****%****MKG Melting**

PM Code	Job Type
5515-2M	PM

## Description

M - 3rd SHIFT - MR - # 1 CUPOLA EMISSION DUCT INSPECTIONS

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5515	# 1 Cupola Emission Duct		AA-MR	MONTHLY	1	MONTH	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

## Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

- 1) \_\_\_ CHECK / CLEAN OUT LONG TROUGH OF ANY DEBRIS
- 2) \_\_\_ CHECK DUCTING FOR SIGNS OF HOT SPOTS
- 3) \_\_\_ CHECK DUCTING EXPANSION JOINTS FOR WORN BOOTS = CAP
- 4) \_\_\_ CHECK CAP DRAIN FOR EXCESS WEAR
- 5) \_\_\_ CHECK CAP CABLE & CABLE SHEAVES FOR WEAR
- 6) \_\_\_ CHECK CAP STOPS
- 7) \_\_\_ CHECK CAP PIVOT PINS & BUSHINGS
- 8) \_\_\_ CHECK CAP CYLINDER : ROD END, CLEVIS PINS & BUSHINGS
- 9) \_\_\_ CHECK CAP CYLINDER : FOR BLOW BY & CONDITION OF AIR LINES = CONE
- 10) \_\_\_ WHEN CUPOLA IS DOWN FROM OUTSIDE ONLY DO A VISUAL CHECK AT THE INSPECTION COVER  
- CHECK CONE UPPER SPRAY NOZZLES FOR WEAR
- 11) \_\_\_ WHEN CUPOLA IS DOWN FROM OUTSIDE ONLY DO A VISUAL CHECK AT THE INSPECTION COVER  
- CHECK CONE OVERTOP OF CUPOLA & MOUNT STRAPS

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MKG Melting

PM Code	Job Type
5516-2M	PM

Description

Q - 3rd SHIFT - MR - # 1 CUPOLA SCRUBBER INSPECTION

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5516	# 1 Cupola Scrubber		AA-MR	QUARTRLY	1	N/A	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed
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Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

NOTE: CUPOLA BOTTOM MUST BE DROPPED FOR THESE TASKS TO BE STARTED.

- 1) \_\_\_ Check All Boots & Ducting For Worn Spots
- 2) \_\_\_ Check Cone For Excess Wear
- 3) \_\_\_ Check Cone For Proper Setting
- 4) \_\_\_ Check Scrubber For Build Up
- 5) \_\_\_ Check Scrubber For Excess Wear

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PM Code	Job Type
5516M-8W	PM

Description

6 - 3rd SHIFT - MR - # 1 CUPOLA DEMISTER INSPECTION

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5516	# 1 Cupola Scrubber		AA-MR	6-MONTH	6	MONTH	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

MANNING : 1 ON BURNER / 1 ON WATCH / 1 ON CLEANING

TO COMPLETE THIS TASK THE FOLLOWING IS REQUIRED:

RENTAL OF STEAM JENNIE FROM REDI RENTAL, [REF. P.O. # 72387]

INCLUDE 150 FOOT OF STANDARD HIGH PRESSURE HOSE FROM REDI RENTAL

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

1) \_\_\_ CHECK DEMISTER PADS TO ENSURE THEY ARE SECURLY FASTENED

2) \_\_\_ CHECK INSIDE DEMISTER TO ENSURE THERE IS NO DEBRIS - CAREFULLY REMOVE IF FOUND

3) \_\_\_ VISUALLY INSPECT NOZZLES FOR DAMAGE

**KT-MUSKEGON % MKG Melting**

PM Code Job Type  
 5517-2M PM

Description

Q - 3rd SHIFT - MR - # 1 CUPOLA SEPARATOR INSPECTION

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
27	M5517	# 1 Cupola Separator [ Demister ]		AA-MR	QUARTRLY	1	N/A	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE

B) PERFORM THE FOLLOWING TASKS

NOTE: CUPOLA BOTTOM MUST BE DROPPED FOR THESE TASKS TO BE STARTED.

- 1) \_\_\_ Check All Boots & Ducting For Worn Spots
- 2) \_\_\_ Check All Emission Drain Lines To Pond For Leaks & Worn Sections
- 3) \_\_\_ Check Mount Bolts For Motors & Pumps
- 4) \_\_\_ Check Packing Glands For Leakage
- 5) \_\_\_ Check Pump Pressure Should Be At 55 To 60 P.S.I.
- 6) \_\_\_ Check Separator For Plugged Screens
- 7) \_\_\_ Check Sheaves, Vee Belts For Wear & Alignment
- 8) \_\_\_ Check Sub Pumps

**KT-MUSKEGON**      %      **MKG Plant**

PM Code	Job Type
5000-E-D-MON	PM

Description

D - 3rd SHIFT - MR - PLANT TOUR - EQUIPMENT SHUTDOWN - D1

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
79	M5600	GENERAL PLANT		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

DAILY - EQUIPMENT SHUTDOWN

1) \_\_\_\_\_ SHUTDOWN CENTAC COMPRESSOR

MELTING

2) \_\_\_\_\_ MAKE SURE CHARGE DOORS ARE SUPPORTED CLOSED

SAND SYSTEM

ENSURE HEATER PACKAGES FOR THE FOLLOWING ARE OFF

3) \_\_\_\_\_ 211 - MOLD DUMP CONVEYOR

4) \_\_\_\_\_ 212 - VIB DRUM

5) \_\_\_\_\_ 219 - MIXER / PUG MILL

EMISSION ROOM

6) \_\_\_\_\_ TURN OFF CHEMICALS

CUPOLA BLOWER ROOM

7) \_\_\_\_\_ SHUTDOWN ZURN FAN

8) \_\_\_\_\_ LEAVE BEARING WATER ON

9) \_\_\_\_\_ SHUTDOWN MAGNESIUM HYDROXIDE

**KT-MUSKEGON % MKG Plant**

PM Code	Job Type
5600-010	PM

Description

D - 1st SHIFT - MR - PLANT TOUR - D1

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
79	M5600	GENERAL PLANT		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

- A) COMPLETE PROPER LOCKOUT / TAGOUT PROCEDURE
- B) PERFORM THE FOLLOWING TASKS
- C) IF ANY DISCREPANCIES ARE FOUND IMMEDIATELY CONTACT YOUR SUPERVISOR.
- 1) \_\_\_\_\_ CHECK EMISSION STACK FOR LEAKS, WARE OR VIBRATIONS.
- 2) \_\_\_\_\_ CHECK EMISSION PUMP ROOM FOR PROPER TEMP (WINTER MONTHS)
- 3) \_\_\_\_\_ HEATERS AND PUMP PITS FOR EXCESS WATER.
- 4) \_\_\_\_\_ CHECK POND LEVEL (NO MORE 15" BELOW BAIL).
- 5) \_\_\_\_\_ CHECK KAISER COMP ROOM, HEATER, OIL AND FLOOR, WATER, FILTERS CLEAN AS NECESSARY.
- 6) \_\_\_\_\_ CHECK BOND SILO AND WATCH FOR PROPER CYCLE                      FILL                      BLOW

REVISIONS:  
NEW 09/13/11 REQ #134

PM Code	Job Type
5765-D-MON	PM

Description

D - 2nd SHIFT - MR - PLANT TOUR EMISSION - D1

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
79	M5600	GENERAL PLANT		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

DAILY PM - 1st Shift, MACHINE REPAIR

INSTRUCTION :

A) INITIAL COMPLETED TASKS ON THE LINE PROVIDED

B) ON FRONT OF PM ( GREEN SHEET )

a. @ BOOKED HOURS - ENTER YOUR CLOCK NUMBER AND DATE COMPLETED

b. @ REMARKS AREA - % % % TO BE REVIEWED BY SUPERVISION % % %

-- DOCUMENT NON-EMERGENCY ISSUES

-- DOCUMENT COMPLETED REPAIRS - STARTING WITH - DONE

INITIAL

- 1) \_\_\_ 1250HP - CENTAC COMPRESSOR: CHECK COOLING WATER OPERATION & RECORD HOUR METER READING : \_\_\_\_\_
- 2) \_\_\_ 700HP - CENTAC COMPRESSOR: CHECK COOLING WATER OPERATION & RECORD HOUR METER READING : \_\_\_\_\_
- 3) \_\_\_ CHECK KAISER COMPRESSORS FOR; PROPER OIL LEVEL, AIR FILTER CONDITION & RECORD HOUR METERS : # 64 \_\_\_\_\_ #65 \_\_\_\_\_
- 4) \_\_\_ CHECK AJAX FURNACE HYDRAULIC OIL LEVEL.
- 5) \_\_\_ CHECK AJAX FURNACE TILT CYLINDERS FOR LEAKING.
- 6) \_\_\_ Check Cupola Emission Water, Drains, And Cooling Water.
- 7) \_\_\_ RECORD OPERATING CUPOLA EMISSION SYSTEM MANOMETER READINGS.  
OPERATING CUPOLA NO. \_\_\_\_\_ HIGH \_\_\_\_\_ LOW \_\_\_\_\_  
( If No Reading Contact Your Supervisor )  
- DIFFERENCE BETWEEN HIGH & LOW READING \_\_\_\_\_  
- IF DIFFERENCE IS GREATER THAN (13) CONTACT MAINTENANCE SUPERVISOR IMMEDIATELY.
- 8) \_\_\_ IN ZURN FAN ROOM - RECORD VIBRATION AND AMP. READINGS ON LOG SHEET AT START OF SHIFT.  
RECORD NORTH BEARING (MILS) \_\_\_\_\_  
RECORD SOUTH BEARING (MILS) \_\_\_\_\_ [ RANGE LESS THAN 2.0 MILS ]
- 9) \_\_\_ Check Ajax Bac's Operation Of Pumps, Fans, Water Flow.
- 10) \_\_\_ Check Bac Chemicals.
- 11) \_\_\_ Check Ceramic Tower And Tuyere Pumps.
- 12) \_\_\_ Check Emission Pit Sump Pump.
- 13) \_\_\_ Check Emission Pond Water Chemicals.
- 14) \_\_\_ MAG. HYDROXIDE ROOM - CHECK PUMP OPERATION AND TANK LEVEL  
- RECORD MAG. HYDROXIDE FLOW METER READING : G.P.M. \_\_\_\_\_  
( If No Reading Contact Your Supervisor )
- 15) \_\_\_ Check Bond System Over Daily. Check For Leaks, Bad Boosters Etc.  
- Make Sure You Have Spare Boosters Built Up For New Sand System.
- 16) \_\_\_ Check New Sand System Over Daily. Check For Leaks, Bad Boosters Etc.
- 17) \_\_\_ Check Pond Water Level.

CHECK PROPANE VAPORIZERS

KT-MUSKEGON

%

MKG Plant

Task Instructions

- 18)  IS PROPANE PUMP OPERATING YES  NO
- 19)  IF PUMP IS NOT OPERATING - WILL PUMP OPERATE IN HAND? YES  NO
- 20)  RECORD LINE PRESSURE. \_\_\_\_\_ PSI ( If Below 45 psi, Contact Your Supervisor)



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**MKG Plant**

PM Code	Job Type
5766-D	PM

Description

W - 2nd SHIFT - MR - PLANT TOUR EMISSION

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
79	M5600	GENERAL PLANT		AA-MR	WEEKLY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

DAILY PM - 2nd Shift, MACHINE REPAIR

REVISED ON : 2/22/06, 1/17/06,

INSTRUCTION :

- INITIAL COMPLETED TASKS ON THE LINE PROVIDED, ON FRONT OF PM
  - a. @ BOOKED HOURS - ENTER YOUR CLOCK NUMBER AND DATE COMPLETED
  - b. @ REMARKS AREA - TO BE REVIEWED BY SUPERVISION
- DOCUMENT NON-EMERGENCY ISSUES / Write COMPLETED Repairs Starting With - DONE INITIAL
- 1) \_\_\_ 1250HP - CENTAC COMPRESSOR: CHECK COOLING WATER OPERATION & RECORD HOUR METER READING : \_\_\_\_\_
- 2) \_\_\_ 700HP - CENTAC COMPRESSOR: CHECK COOLING WATER OPERATION & RECORD HOUR METER READING : \_\_\_\_\_
- 3) \_\_\_ CHECK KAISER COMPRESSORS FOR; PROPER OIL LEVEL, AIR FILTER CONDITION & RECORD HOUR METERS : # 64 \_\_\_\_\_ #65 \_\_\_\_\_
- 4) \_\_\_ CHECK AJAX FURNACE HYDRAULIC OIL LEVEL.
- 5) \_\_\_ CHECK AJAX FURNACE TILT CYLINDERS FOR LEAKING.
- 6) \_\_\_ Check Cupola Emission Water, Drains, And Cooling Water.
- 7) \_\_\_ RECORD OPERATING CUPOLA EMISSION SYSTEM MANOMETER READINGS.  
 OPERATING CUPOLA NO. \_\_\_\_\_ HIGH \_\_\_\_\_ LOW \_\_\_\_\_  
 ( If No Reading Contact Your Supervisor )  
 - Diffence Between HIGH & LOW Reading \_\_\_\_\_ , [ IF Difference is greater than (13) Contact Your MAINTENANCE SUPERVISOR ' IMMEDIATELY ' .
- 8) \_\_\_ IN Zurn Fan ROOM - " At-Start-Of-Shift " : Record Vibration & amp. Readings on log sheet  
 RECORD NORTH BEARING (MILS) \_\_\_\_\_  
 RECORD SOUTH BEARING (MILS) \_\_\_\_\_ [ RANGE LESS THAN 2.0 MILS ]
- 9) \_\_\_ Check Ajax Bac's Operation Of Pumps, Fans, Water Flow.
- 10) \_\_\_ Check Bac Chemicals.
- 11) \_\_\_ Check Ceramic Tower And Tuyere Pumps.
- 12) \_\_\_ Check Emission Pit Sump Pump.
- 13) \_\_\_ Check Emission Pond Water Chemicals.
- 14) \_\_\_ MAG. HYDROXIDE ROOM - CHECK PUMP OPERATION AND TANK LEVEL  
 - RECORD MAG. HYDROXIDE FLOW METER READING : G.P.M. \_\_\_\_\_  
 ( If No Reading Contact Your Supervisor )
- 15) \_\_\_ Check Bond System Over Daily. Check For Leaks, Bad Boosters Etc.  
 - Make Sure You Have Spare Boosters Built Up For New Sand System.
- 16) \_\_\_ Check New Sand System Over Daily. Check For Leaks, Bad Boosters Etc.
- 17) \_\_\_ Check Pond Water Level.
- CHECK PROPANE VAPORIZERS
- 18) \_\_\_ IS PROPANE PUMP OPERATING YES \_\_\_ NO \_\_\_
- 19) \_\_\_ IF PUMP IS NOT OPERATING - WILL PUMP OPERATE IN HAND ? YES \_\_\_ NO \_\_\_
- 20) \_\_\_ RECORD LINE PRESSURE. \_\_\_\_\_ PSI ( If Below 45 psi, Contact Your Supervisor)
- 21) \_\_\_ RECORD TUYERE PUMP PRESSURE \_\_\_\_\_ PSI , ( Desired PSI )

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**MKG Plant**

**Task Instructions**

- 22) \_\_\_\_\_ RECORD MARLEY TOWER PUMP PRESSURE \_\_\_\_\_ PSI, ( Desired PSI )
- 23) \_\_\_\_\_ RECORD WET COLLECTOR PUMP PRESSURE \_\_\_\_\_ PSI, ( Desired PSI )

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MKG Plant

PM Code Job Type

5767-D-FRI PM

Description

D - 3rd SHIFT - MR - PLANT TOUR EMISSION - D5

Cost Code	Equipment	Description	Location	Assigned to	Class	Freq	UOM	Deactivated
79	M5600	GENERAL PLANT		AA-MR	DAILY	1	WEEK	

Material List	Equipment	Part	Description	Bin	QTY Available	QTY Needed

Task Instructions

TURN PM WORK ORDER OVER TO FIND TASKS !!!

= = = DAILY PM - 3RD Shift, MACHINE REPAIR = = = PM 5767-D

INSTRUCTION :

A) INITIAL COMPLETED TASKS ON THE LINE PROVIDED

B) ON FRONT OF PM

1. 'BOOKED HOURS' - ENTER YOUR CLOCK NUMBER AND DATE COMPLETED
2. 'REMARKS AREA' - TO BE REVIEWED BY SUPERVISION
  - DOCUMENT NON-EMERGENCY ISSUES [ Include your generated W.O. # ]
  - DOCUMENT COMPLETED REPAIRS - STARTING WITH ' DONE '

INITIAL

- 1)  CHECK CERAMIC TOWER AND TUYERE PUMPS FOR OPERATION.
- 2)  CHECK CUPOLA  
EMISSION WATER \_\_\_\_\_ DRAINS \_\_\_\_\_ COOLING WATER \_\_\_\_\_
- 3)  IN ZURN FAN ROOM - RECORD VIBRATION AND AMP. READINGS ON LOG SHEET AT START OF SHIFT. ( IF RANGE EXCEEDS 2.0 MILS - CONTACT SUPERVISOR )  
RECORD NORTH BEARING (MILS) \_\_\_\_\_  
RECORD SOUTH BEARING (MILS) \_\_\_\_\_
- 4)  RECORD OPERATING CUPOLA EMISSION SYSTEM MANOMETER READINGS.  
OPERATING CUPOLA NO. \_\_\_\_\_ HIGH \_\_\_\_\_ LOW \_\_\_\_\_  
( If No Reading Contact Your Supervisor )  
- DIFFERENCE BETWEEN HIGH & LOW READING \_\_\_\_\_  
- IF DIFFERENCE IS GREATER THAN (13) CONTACT MAINTENANCE SUPERVISOR IMMEDIATELY.

6)  TUNE ON CHEMICALS FOR POND AT 4:30 A.M.

7)  TURN ON MAG. HYDROXIDE AT 4:30 A.M.

# 5 DUST COLLETOR - DUCTILE COLLECTOR

9)  #1 MANOMETER READINGS \_\_\_\_\_

10)  #2 MANOMETER READINGS \_\_\_\_\_

11)  #3 MANOMETER READINGS \_\_\_\_\_

MANOMETER RANGE .5 - 15.0, WHERE ANY OUT OF RANGE ? YES \_\_\_\_\_ NO \_\_\_\_\_

IF ABOVE IS "YES" WAS MAINTENANCE SUPERVISOR NOTIFIED ? YES \_\_\_\_\_ NO \_\_\_\_\_

RECORD POSITION OF NITROGEN VALVE AT START OF RUN - OPEN \_\_\_\_\_ CLOSED \_\_\_\_\_

**KT-MUSKEGON**

**%**

**MKG Plant**

**Task Instructions**

**NOTE: NITROGEN VALVE SHOULD BE OPEN ON DAYS WHEN THE FURNACE IS FILLING.**

**NOTE: DUST COLLECTOR NEEDS TO BE ON WHEN POURING FROM THE FURNACE.**