

**STOPPING OF MAERZ KILN  
# 2 DURING REVERSAL  
AT RPD**

December 28, 2005

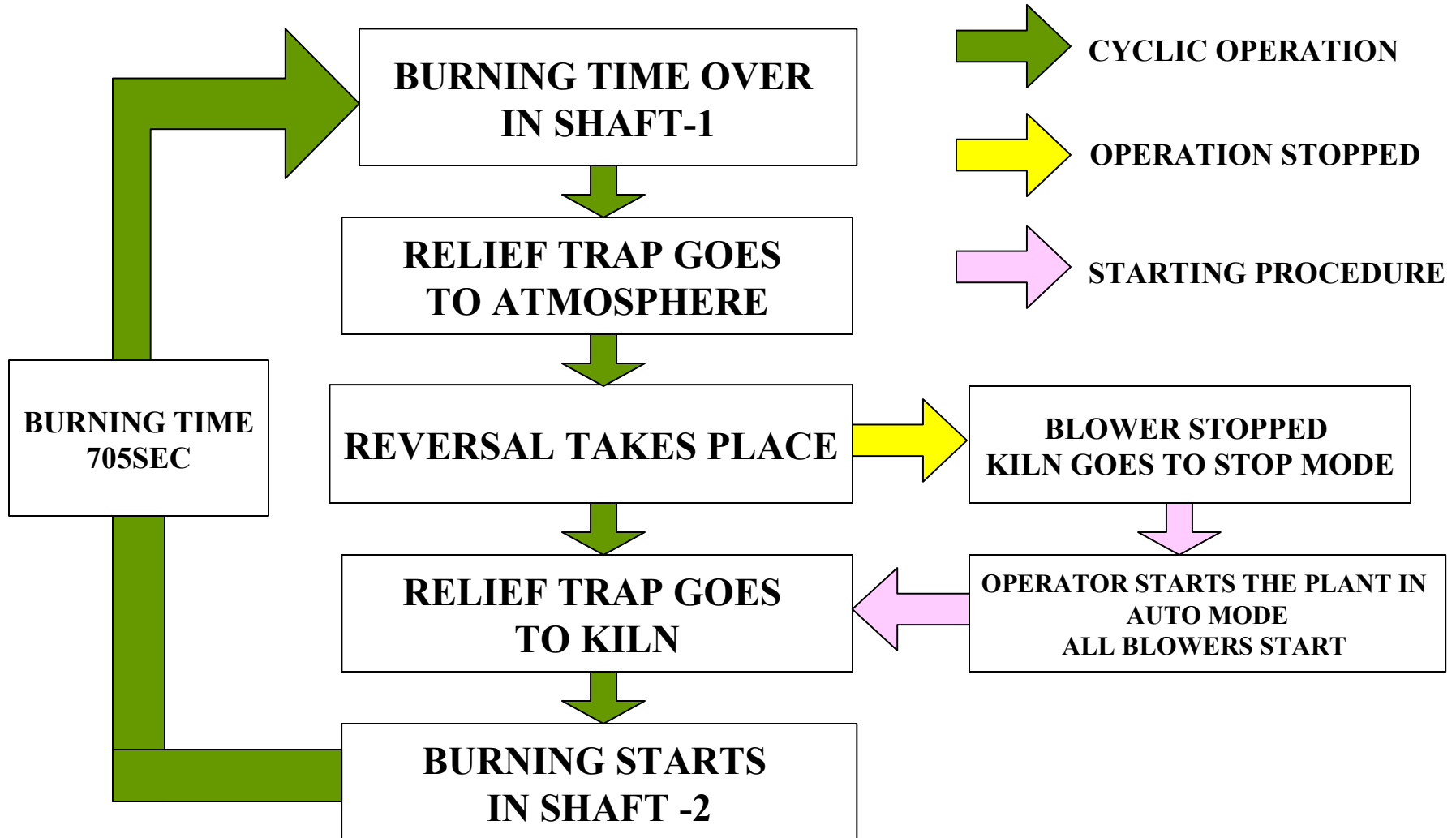
# FAILURES

```
graph TD; A[FAILURES] --> B["11th December'05  
MK#2 stopped  
during reversal  
NEW or  
SPORADIC"]; A --> C["REPETITIVE or  
CHRONIC"];
```

**11<sup>th</sup> December'05**  
**MK#2 stopped**  
**during reversal**  
**NEW or**  
**SPORADIC**

**REPETITIVE or**  
**CHRONIC**

# REVERSAL SEQUENCE OF MAERZ KILN



# REVERSAL PROCESS

**RELIEF TRAP GOES TOWARDS  
ATMOSPHERE**



**KILN GETS DEPRESSURISED**



**DISCHARGE TRAP OPENS FOR 6 SEC**



**SHAFT CLOSING TRAP & SERVICE HOPPER  
TRAP OPENS FOR MATL CHARGING  
AND CLOSES AFTER 10 SEC**



**RELIEF TRAP GOES TO KILN**

# Failure Analysis as per Watanabe's Model

**FAILURES**

```
graph TD; FAILURES[FAILURES] --- NEW[NEW or SPORADIC]; FAILURES --- RECURSIVE[Dec11, 2005  
Dec12, 2005  
Dec13, 2005  
Stoppage of BlowerS in Maerz kiln#2 during reversal.  
REPETITIVE];
```

**NEW or  
SPORADIC**

**Dec11, 2005**  
**Dec12, 2005**  
**Dec13, 2005**  
Stoppage of  
BlowerS in Maerz  
kiln#2 during  
reversal.  
**REPETITIVE**

# PHENOMENON

Sl No.	Date	Shift	Outage	Description	Observation	Action	Classification	Remarks
01	11 <sup>th</sup> Dec'05	B SHIFT	30 mins	MK-2 stopped during reversal.	Blowers of MK-2 stopped during reversal.	Kiln was started after resetting from HMI and observed 4 cycles of operation.	New	Cause of stopping not known
02	11 <sup>th</sup> Dec'05	C SHIFT	45 mins	MK-2 stopped during reversal.	Blowers of MK-2 stopped during reversal. Relief Trap to atmosphere feedback signal blinking.	Blowers panel checked and found ok. Checked Relief Trap to atmosphere proximity signal and found ok. Kiln was started after resetting.	CMNE	Trap feedback checked found ok.
03	12 <sup>th</sup> Dec'05	A SHIFT	40 mins	MK-2 stopped during reversal.	Blowers of MK-2 stopped during reversal.	Depressurization time was increased from 10 sec to 15 sec and kiln started.	CMNE	Kiln ran for 24 hrs. Started monitoring depressurization time on HMI.
04	13 <sup>th</sup> Dec'05	A SHIFT	2 hrs	MK-2 stopped during reversal.	Blowers of MK-2 stopped during reversal. Depressurization time increased to 17 secs.	Transmitter checked & found ok Impulse line found choked due to lime deposition. Impulse line cleaned and Kiln started.	CME	The same problem did not repeat.

# ANALYSIS

- First time Maerz Kiln - 2 was started just after resetting.
- Second time normal checking was done and nothing found abnormal.
- Third time depressurization timer value was increased to 15 secs and plant ran 24 hrs without stopping. We started monitoring depressurization time.
- Fourth time it was detected that depressurization time is  $>15$  secs due to the impulse line choking. This was rectified and kiln started. Thereafter no problem.

**NEW or  
SPORADIC**

**Poor  
Jishu Hozen**

**Poor Time Based  
Maintenance (TBM) –  
Choking of impulse  
line for kiln pressure.**

**Design  
Weakness**

**Poor  
Skill**

Thank you