

## PRODUCTION DELAYED

**Purpose:** To prevent recurrence, not place blame.

**Report Date:** 24-06-2015

**Start Date:** 01-07-2015

**Report Number:** 98-362B

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### I. Problem Definition

What: Production delayed

When: Current

Where: Granulation plant

Significance: High

Safety: Increased risk during purging process

Environment: Occasional spillage of small volumes but contained

Revenue: Est. \$1.3M pa

Cost: \$30k pa - labour and maintenance equipment hire

Frequency: Continuous since installation in 2012

### II. Report Summary

The plant has been experiencing frequent delays in start up because of the ongoing seizure of the current motors in the plant. The decision was made to determine the causes of the problem by conducting an RCA process and to ensure 100% availability of the motors in future

The analysis revealed that production has been delayed frequently because of excessive maintenance time which requires the whole plant to be stopped. The excessive maintenance is caused by the high frequency of drive failures when the pneumatic motors seize and fail to restart. They fail to restart because of corrosion which inhibits the movement of motor parts. This corrosion is caused by the entry of water and air which reacts with the motor component materials over time when the motors are idle.

The water entry into the motors is caused by carryover from the receiver which has insufficient capacity and is both infrequently and incompletely purged. The purge duration and frequency have not been specified and the precise volume of water received and removed has not been determined.

The following solutions have been proposed for immediate improvements but there will be more recommendations as the investigations continue and a higher level investigation is undertaken of the reasons why the purging process has never been specified. This will necessitate the formation of a different team with appropriate expertise and authority.

### III. Solutions

Causes	Solutions	Solution Owner	Due Date
Insufficient capacity of receiver	Install control instruments to measure and allow purging to occur automatically when reached a specified water volume	Trevor Reeks	14-07-2015
Size of receiver	Confirm the right size of receiver	Roy Theboy	06-07-2015
Size of receiver	Contact supplier for Technical Expertise	Roy Theboy	06-07-2015
No standard pm checks done	Create MSTs and standard daily PM daily	Roy Theboy	10-07-2015
Minimal purging checks in schedule	Engineer to create and schedule PM checks	Ross Ebbels	12-07-2015

### IV. Team Members

Name	Email	Member Info
Roy Theboy	rtheboy@imperial.com	Mechanical/Reliability Engineer
Trevor Reeks	treeks@imperial.com	Instrument Tech
Vin Daloo	vdaloo@imperial.com	Team Leader Instruments
Ross Ebbels	rebbels@imperial.com	Team Leader Maintenance
Mike Hunt	mhunt@imperial.com	Maintenance Fitter
Angela Diamond	adiamond@imperial.com	Chemical Engineer

### V. Notes

1. Realitychart Status: The Realitychart is in draft form and the Incident Report for the first stage of the investigation has been finalized.
2. Check the size and capacity of Motor and if applicable recommend change motor to hydraulic system
3. Some supposed causes have been purposefully left off the chart because there was contrary evidence.
4. Rules Check Status: Missing Causes Resolved.
5. Rules Check Status: Conjunctions Resolved.

### VI. References

1. RCA Team at 25-06-2015
2. Occurring every time motor stops
3. Found when opening up of Motor
4. From pipe and pneumatic hose connected to motor
5. Occurs every time motors stops
6. Electricians and operators confirm In time corrosion develops due to presence of water/air

