

## CHEMICALS

# 70-year-old Plant Production Output Exceeds Historical Best



**7:1**  
Return on  
Investment

## CHALLENGE

### To improve Overall Equipment Efficiency (OEE) via Maintenance

The market for this commodity (soda ash) was essentially unlimited because of strong demand domestically and internationally. Production losses due to low Overall Equipment Maintenance (OEE) resulted in direct loss of sales and profits.

## OUR FINDINGS

### Identified 6 items for improvement

- **Maintenance was highly reactive and mostly run to failure.** There was little focus on planning and scheduling or preventive maintenance routines
- Emergency maintenance led to **production losses averaging 320 tons / day**
- **No Management Operating System (MOS) in place** to drive efficient and effective, meetings, KPIs, and reporting
- **No use of Short Interval Controls (SICs), Supervisor Tours, or Standard Work**
- **Little use of Predictive methods** such as vibration analysis, oil analysis, or thermography, despite substantial use of rotating equipment
- **Maintenance technician productivity**, as measured by wrench time, was low at approximately 30%

**SECTOR**  
Commodity Chemicals

**WORKSTREAM**  
Safety, Production,  
Maintenance, Reliability

**REFERENCE**  
02-CW

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## IMPLEMENTATION

# We focused on 3 areas of impact to increase production volume & drive safety culture

### Production

- Implemented a standardized Management Operating System (MOS) including planning & review meetings, metrics and reports
- Installed Short Interval Controls (SICs), including operator rounds and Shift Tours, increasing operator and supervisor interfaces and time on the shop floor
- Implemented Operator Standard Work, Leader Standard Work, and Training Within Industry (TWI) in select operating areas to drive sustainability of gains

### Maintenance

- Transformed reactive, inefficient maintenance resources into a proactive organization built on executing planned and scheduled work at high compliance levels
- Installed an Outage Optimization process with stage gates to drive an integrated planning and execution process for major and minor plant outages

### Reliability / Manufacturing Engineering

- Created and installed over 500 Preventative Maintenance Routines (PMs)
- Created and installed vibration and lubrication routes
- Installed a Root Cause Analysis process to review product losses driven by production or equipment failures
- Dedicated a PM crew to execute PMs and work closely with Reliability and Manufacturing Engineers to fine tune work content and frequency

## RESULTS

All delivered at a  
**7:1 client ROI**

Annualized  
Savings

**\$25M**

Production output  
exceeded historical  
best (70-year-old plant)  
following phased

**5**  
**OUT OF**  
**6 YEARS**

Incremental tons of  
output over 6 years

**2M**

Reduction of  
recordable safety  
incidents

**75%**



“*The incredible increase in volume over the last 6 years delivers remarkable improvement to our top and bottom lines. But the record I am most proud of is that we accomplished this while dramatically improving our safety performance.*”

*Plant Manager*

“*The most important expectation we had was that we would be able to sustain the gains we achieved during each phase of our improvement project and smoothly transition to a continuous improvement culture.*”

*Director Continuous Improvement*