

Operations-Led Reliability: Continuously Improving

David Landry and Joe Mikes

Executive Summary

Downtime tracking can leave a leadership group with fractured data that makes decision making difficult. By shifting the emphasis from which equipment is "down" to "the reasons why we are not performing well," the data at the end of the cycle becomes much more meaningful. By fixing the top causes of production losses, businesses are steadily achieving better results. This article details how Joe Mikes, Production Loss Elimination SME, and David Landry, Chief Production Engineer at a uranium processing facility, led the change from downtime tracking to a robust production loss elimination process that is delivering monthly improvements to the facility's operation.

Introduction

Since 2002, the Cameco Port Hope Conversion Facility (PHCF) in Ontario, Canada, has been striving to improve its downtime tracking system.

Past attempts have been made, but ultimately the gains were short term. Since then, a whole new philosophy that engages employees' input has been put in place and results are already evident from this effort.

The past practice was based on a "downtime" approach, where data was routinely collected and entered into a simple spreadsheet template. The concept was to highlight process equipment or areas in the process that were effectively recording zero production. This information was intended to be used as a rationale to explain monthly production target misses and to identify areas for improvement.

For each downtime event, engineers working Monday to Friday collected and entered data into the spreadsheet for each process area. Because of multiple, duplicate processing streams, each process area was broken down by area, then further by process stream. To collect this data, the engineers reviewed operational trends for periods in which a process stream was not in operation or recording zero production. Further effort





production loss opportunities to improve throughput and reduce operating costs. A key element of operations-led reliability is establishing a program where front-line operators are given a voice to share their top concerns about how the production process is running. The culture change is a big deal. Deciding how it is going to work and who will be accountable for the processes are key to a successful change. Because the culture change is so important to success, a systematic approach to change management is required.

To manage the culture aspect, several things happened to prepare the site for the change. Management had to understand the value of the new approach. Employees at many levels had to be educated and engaged to design how the new process would work.

At PHCF, one key task was to prepare employees to work within the new process. It was important to address concerns around individuals' roles and how they may change. Overall, there was a temporary cloud of doubt that had to be addressed in order to drive the new process forward. This was to be expected because previous efforts to reduce downtime had been unsuccessful. Cameco leadership recognized that a new direction was necessary and downtime tracking alone was not going to result in measurable improvements.

It is common for organizations to be overly focused on downtime versus all production losses. Unfortunately, that approach leaves about 60% of the problem undetected. Operations-type problems are the bulk of what needs to be fixed. After the data is collected for a month, items like start-up procedures, standard operating guidelines, incoming raw material, shift to shift communications, etc., will surface as some of the top causes for lost production. There may be a piece of equipment that keeps acting up, but more than half of the time it is because of how it is being operated or maintained, not an actual functional failure of the equipment itself.

After educating the stakeholders at PHCF, the next step was to begin collecting the right data at the right frequency. Loss time or reason codes were defined and the frequency at which they would be recorded was set. When setting up the reason codes for operators to use, it's important to set the expectation that these codes would not be recording root causes

was conducted by the engineer to determine the specific equipment involved and the underlying cause of each downtime event. To determine the reasons for the downtime, engineers had to review log book entries, conduct field observations and communicate with operations personnel to identify and/or support these observations.

Several inefficiencies existed with this approach. Firstly, engineers were not always present when downtime events occurred. Secondly, reasons for events were not always recorded in operational log books, so engineers spent time and effort to determine a reasonable cause. Because of these inefficiencies, monthly compiled results were often inconclusive. In many occasions, reason codes, such as "miscellaneous" or "unknown," were recorded as the highest causes or reasons for downtime for the month.

Setting up a production loss elimination program requires getting the right information at the right time and then taking action on that information. It sounds really simple – get data, then act on the data. But it is challenging to shift old habits. In September 2010, PHCF began preparing for, and has since started, a full loss elimination program. The goal of the program is to focus attention on

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of failures. Operators will only be capturing symptoms they can detect from their perspective on how things are running. The actual root causes are determined after a symptom surfaces as a top issue. When establishing this effort, a spreadsheet program is recommended to keep responses from operators written in a consistent manner.

Operators are expected to record an issue when production for any given period is below target. This is best done on a short interval, usually every hour. Recording primary issues every hour when they do not meet the target rate is a significant responsibility for operators. The benefit for the operators is that they have been given control of the data that goes to the senior manager at the end of each month.

Basic ground rules were set in order to convert monthly data into real actions with measurable results. At PHCF, operators and process engineers are responsible for compiling the data at the end of each month, conducting some preliminary research on the top issues and presenting this to the production and maintenance/engineering leaders. Collectively, they decide on which actions to pursue that month to make improvements. These decisions are then presented to the senior manager of the site. Once the action plans are agreed upon, the operators get feedback on the top issues and what is being done about them.

At PHCF, the tracking tool has been rolled out in four different areas of the site. All areas are reporting reasons for their losses when the hourly production target isn't met. Over 45 highly-skilled operators have been trained to load information into the tracker. Operators and process engineers, as well as several layers of management, have been trained to address the results with the focus on removing barriers that operators face.

Keeping it simple is key. Employees need to be able to understand the issues during each period they are below the target, then fill in the loss tracker tool with appropriate data and return to running their area quickly. To keep it quick and simple, drop-down lists in the spreadsheets should be used.

Software solutions were considered by the site before implementation. In combination with the spreadsheet and a database, the site's current needs were met. Perhaps in the future, a software solution could help take the performance to a new level, but for now, PHCF has everything it needs to get to the reasons for production losses.

As the first month's data was compiled, it became clear that one shift wasn't producing the same as another shift. As the root causes were investigated, it was due to a gap in standard operating procedures. Steps have been taken to improve these procedures, thereby removing it as the primary issue requiring a resolution. The plant is now focused on a specific operating area that was always known to be a problem, and operators, engineers and maintenance employees are working together to permanently resolve it. The ROI for this effort is accumulating.

Summary

Production losses of many types keep us all from performing at our very best. Don't allow past failed attempts at downtime tracking stop you from putting this into action. Education of employees at all levels is required to launch the process effectively. Setting up the actual tracking tool to be user-friendly is one key to success. The next key is to have management committed to support the solutions. Expect the program to grow and mature. It will not be perfect the first time out of the block. However, if employees see their ideas for improvement being put into play, the program will grow and achieve sustainable results.



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