

A large industrial facility, likely an aluminum mill, with a high ceiling and complex steel structure. Several large yellow overhead cranes are visible. In the foreground, there are large rolls of aluminum material. The scene is dimly lit, with some overhead lights visible.

ALUMINUM PRODUCER ROLLS RIGHT TEAM FOR SUCCESSFUL OUTAGE

USC CONSULTING
GROUP™

Empowering. Performance.

THE CLIENT

A global leader in rolled aluminum products, with more than a dozen facilities throughout the world, serving a customer base in a variety of industries.

THE CHALLENGE

The aluminum vendor had made a strategic decision to expand its market and enter the automotive market space. To service this space, the business required a \$400 million investment in rolling mill upgrades to accommodate wider rolls and stringent surface qualities required by the industry. The investment included acquisition of new equipment for finish rolling, automation and technology upgrades, lifting equipment, as well as throughput improvements in surface finishing and pre-heat ovens to accommodate expected production rates.

The complexity of this undertaking brought together multiple equipment vendors along with a series of contract services for the vendors, and multiple sub-contractors in

support of the contractors. To effectively install and commission the equipment and technology, the mill decided to execute the installations in concert with its semi-annual maintenance shutdown. Maintenance shutdown planning has its own challenges, but add on a multi-million dollar plant upgrade and those challenges increase manifold. Just planning the management of multiple levels of contractors and their scopes of work for day to day operations is difficult enough, but the devil in the details lies in coordinating the activities, space constraints, worker safety, equipment, and utility takeover points.

With less than 100 days before outage start, questions were asked regarding the planning and execution effort, which in turn, generated more questions all of which sought to answer the one big question – Are we ready to execute the installation? The answer, in a word, was No.



THE SOLUTION

The mill engaged USC Consulting Group to create and execute an integrated master plan, and ensure that all parties involved – internal and external – were ready to execute their portions of the mill upgrade installation. Known for its fact-based, action-driven, hands-on approach to solution implementation, USC quickly assessed the situation and deployed functional teams aligned along installation areas as well a management oversight team to facilitate team readiness. Extensive checklists were developed by which the teams had to prove their readiness, actions identified and taken.

USC Consulting Group was brought in to orchestrate the creation of an integrated project schedule using critical path methods, and to monitor the outage execution. To facilitate outage readiness, oversight teams were deployed for the installation areas to validate what was complete and ready, and what was required to complete. Utilizing extensive checklists, action item lists, and regular meetings with the management team, the oversight teams had to prove their readiness for outage

planning, execution and production. USC facilitated the meetings and followed up on action items with the teams.

The nucleus of this engagement was USC's Outage Management Methodology that focuses on Critical Path Methods, employee engagement, and action-driven follow-up for planning and schedule development. The integrated project schedule was developed through the engagement of project engineers and contractors to construct precedence networks via interactive whiteboard sessions. In these sessions, USC facilitated the creation of the optimal sequence of flow, resources required, expected task durations and any additional task attributes such as special equipment and contractor performing the work. These networks were entered into a project planning tool and sequenced together from which a critical path was created.

USC Consulting Group was brought in to orchestrate the creation of an integrated project schedule using critical path methods.



Outage execution was monitored by creating custom reports in the project planning tool, based on filtering and sorting by the task attributes. The reports were followed up during outage shifts by collecting task-level percent of completion and actual durations then updating the planning tool. New reports were provided to the next outage shift for follow-up. A key element of the plant-wide shift review meetings was the need to have a visual reference from which to mark progress and provide a focal point of discussion in the event issues arose. To provide that visual reference, the precedence networks were printed on large format plotters, activities marked off when completed and notes made on the plots where issues arose and mitigated.

THE RESULT

Through USC's extensive engagement and deployment of its methodology and tools with plant personnel, vendors and contractors in planning and preparation for the outage, the plant's management team had the confidence that all aspects of the outage covered and risks minimized entering the outage. Competing objectives and personalities precluded some areas of outage execution to be successful. However, where USC's outage project management methodology was accepted and deployed, those portions of the outage ended on or ahead of schedule.



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