

# MAP Conversion to AS

The Client wanted to revamp their fertilizer production operations to adapt to shifting business needs. The west train of one of their plants produced ammonium sulphate (AS), while the east train produced monoammonium phosphate (MAP). Rally was asked to participate in a project to convert the east (MAP) train of the plant to match the west train (AS) process, using as much existing and surplus equipment as practically possible. The project also provided an ideal opportunity to make strategic upgrades and improve product quality.



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Alberta

Mining & Metals

\$36M TIC



## CONCEPT VALIDATION

Rally delivered a design basis memorandum (DBM) that established a high-level feasibility plan for converting the east train of the plant from producing MAP to AS, while minimizing the impact to ongoing operations.

## DESIGN DEVELOPMENT

Rally's design team took a detailed look at how each system would need to be modified to achieve the target production rate of 60 tonnes per hour with a recycle rate of 6:1. While some new piping and equipment needed to be purchased, Rally identified many opportunities to use surplus equipment and modify in-situ machinery.

During Client stakeholder consultations, new scope elements were added to the project to debottleneck the process and improve plant operations. One key change was the addition of a pugmill-type mixer for coating the final granular product. Extensive repairs to the crumbling plant floor and reinforcements of the existing buildings were added to the project scope.

With the Client's endorsement of a Class III 'total installed cost' (TIC) estimate and a consolidated design basis, the design team proceeded to the final phase of engineering.



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## DETAILED DELIVERABLES

Rally created material requisitions (MRs), equipment data sheets, and detailed fabrication drawings for:

- Acid, binding agent, scrubber liquor, and water pumps
- Screw-type and belt-type conveyors
- Pipe reactor
- Pugmill-type coating mixer
- Hairpin heat exchangers
- MONDI ductile iron acid piping spools
- Stainless steel, Hastelloy, and PTFE-lined piping
- Low-voltage motor control center (MCC)
- Modular pre-wired electrical building
- Flow, density, conductivity, pH, and temperature instruments

Construction work packages (CWPs) were split out by engineering discipline for execution by contractors. These CWPs were individually tailored for construction during brief plant outages over a six-month period. This minimized the impact of revamp work on regular operations.

Throughout construction, Rally personnel were on hand to provide engineering support to the Client and field contractors. Commissioning and start-up were completed much more quickly than expected, thanks in part to the robust design and thoughtful project execution strategy.