



CASE STUDY

Optimization of Chemical Equipment Facilitates Additional Product Worth \$1.9 Million Profit

PROJECT BACKGROUND

A major specialty chemical manufacturer had spent a substantial amount of capital to develop and optimize four polymer reactor systems and achieved the individual reactor performance expected; however, when operated concurrently, the reactors could not achieve optimized rates without overloading a shared distillate recovery system. Instead of operating at full production capacity and creating a costly waste stream, the reactors were operated at 90% of their new capacity.

Due to competing company priorities, internal resources could not be assigned to address this operating bottleneck immediately, even though the return potential was very high.

IPM'S SOLUTION

Integrated Project Management Company, Inc. (IPM) was requested to manage the activities associated with upgrading the distillate recovery system and removing this production bottleneck. IPM was selected for this assignment because of past project performance and its unique ability to organize and

lead client teams to achieve an objective efficiently.

To ensure project requirements and success criteria were understood, IPM assembled a project team consisting of client team members representing the Marketing, Environmental, Production, Operations, Maintenance, Process Engineering, and Production Engineering. Once the project requirements were defined, IPM used the requirements to manage the services of an external process equipment design company and developed a viable concept design.

During the design phase, additional instrumentation was installed to analyze the process and the distillation system was modeled. While optimizing the recovery process, the team identified a waste stream that was sufficiently refined to become a marketable product. This potential was explored further and validated to be worth substantial investment. The process modeling requirements were adjusted and the design optimized with this added goal. The result was a modification plan that would increase the throughput rate of this distillation system to remove the production bottleneck and convert a

previous waste stream into saleable product.

After the column modification plan was approved, IPM planned and implemented the modifications.

PROJECT RESULTS

The modification plan was implemented on time and within budget, and the distillate recovery system performed as modeled and planned. Further testing and tuning of the system, led by IPM's project manager, demonstrated that the system could operate at 115% of the optimized reactor production rate.

According to the superintendent of this production area, the results of this project have provided the ability to produce additional product worth \$1.9MM in net profit. Furthermore, one of the previous waste streams from this system now met the quality specifications to be considered a saleable fuel, and the ongoing disposal cost of that waste stream was replaced with positive cash flow.



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