How a Multi-owned Megaproject used Wrench SmartProject for project monitoring and control

About the Client

Hindustan Urvarak & Rasayan Limited (HURL) is a joint venture between Indian Oil Corporation Limited, Coal India Limited, and NTPC Limited, who together hold 89% ownership, with Fertilizer Corporation of India Limited and Hindustan Fertilizer Corporation Limited holding the remaining 11%.

HURL's primary objective is to build and operate natural gas fertilizer complexes at Gorakhpur, Sindri, and Barauni, with each complex comprising a 2,220 t/d natural gas-based ammonia plant and a 3,850 t/d urea plant. (Both projects are on a lump-sum turnkey basis). The engineering, procurement, construction, and commissioning contract was awarded to Technip in a consortium with a subsidiary of Larsen and Toubro, with support from KPMG to monitor the work planned and executed by the contractors. Construction was scheduled for 36 months.

This mega project, valued at Rs.23,000 crores, is part of a series of national projects under the Make In India initiative from the Government of India, with the goal of 100% domestic production of chemical fertilizers, to keep up with the country's expanding population.

The Need

HURL's senior management (MD, CFO, COO, Project Control Head) wanted to be able to review the projects on a weekly basis, with the following parameters:
- Schedule - Critical Path and forecast dates, as well as the Key Milestone plan vs actual dates.
- Construction Progress - Annual Plan, Monthly Progress report, Weekly Progress Report, and Daily Progress Report, as well as a comparison of S Curve Plan vs Actual.
- Lead Procurement Item Progress Management.
- Safety.
- Quality and Risk.
- Construction Weekly status update with photos.
- Financial Progress - S Curve, Budgeted Vs Committed Amount, Cost Control Sheet with variation reports, and Cashflow.

The Solution

In accordance with the above parameters, Wrench set up SmartProject to deliver:-
- A 'live' dashboard.
- Reports in uniform formats (to adjust for the fact that the project's contractors were different for each project and each used different input formats).
- Verified Information in the reports ie. guaranteed authentic with evidence, so that people could 'drill down' to detailed information if needed.
- Each parameter was benchmarked with clear limits so that if any parameter exceeded those limits, escalation emails would be sent to the right person for action to be taken promptly.

HURL got status information and construction quantities directly from the site, captured on mobile phones with photos, with actual status captures getting updated into Primavera for delay analysis and rescheduling.

The Technology Breakdown

During implementation, the Wrench team imported the master project schedule of each project from Primavera into SmartProject and integrated them with the detailed schedule of each EPC contractor along with the progress weightages of each EPC deliverable. They set up the planned progress S- curve of the entire project to be displayed inside SmartProject, along with the completed project's budgeted cost.

How each parameter was set up to be monitored in SmartProject:

- **Schedule:** The EPC contractors provided their primavera / MSP schedules, which were fed into Wrench SmartProject every fortnight. What SmartProject sent to managers was Key Milestone Plan Vs Actual information, a Two-week look-ahead report based on responsibilities, and Critical Path- Gannt Charts.
- **Progress:** The contractors' list of deliverables, along with the plan dates for milestone completion and quantity scope were fed into SmartProject along with periodic input about actual dates for milestones (for relevant deliverables) and actual quantity completed. What managers got out from the system was an updated S Curve showing Planned vs Actual and exception-based deliverables reporting (ie about deliverables not completed as per plan.
- **Cost:** The cost breakdown structure with budget value and planned cashflow was fed into SmartProject. System output is S Curve, budgeted Vs committed amount, Cost Control Sheet with variation reports, and updated Cashflow.
- **Safety, Quality, Risk:** Raw data was fed into SmartProject & processed by the system into accurate, action-oriented reports for managers. For example, safety logs became weekly incidents logs, quality & issues logs became weekly quality registers and action resolution sheets, risk logs and risk heat maps became fortnightly risk creation and updates, and long-lead-item logs became weekly status updates.

'Smart' Reports:

Reports were set up in SmartProject by collating information from the various EPC contractors and their contractors in the listed frequencies. The reports could then be sent to the relevant managers who would review the progress and status of the project, and take necessary corrective action as required. To help managers monitor as proactively as possible, Wrench set up a carefully-planned update schedule: Daily construction progress updates, Weekly resource productivity updates, Monthly schedule, Risk, Quality, Safety, and Procurement updates.

The Results

By implementing SmartProject, HURL got the following:
- A single version of truth (no chance for conflict and misunderstanding).
- Integration of schedules ie.. all schedules unified and working smoothly as one.
- Near-real-time access to information about the progress (people get notified about something as soon as it happens).
- Automated notifications in time to take action and prevent damage/delay.
- Cost escalation can be prevented by being able to aggressively monitor financial progress & nip any potential overruns in the bud.
- Dashboards of statutory requirements, including safety, quality, issues and risk (compliance assured on all aspects).