



CASE STUDY | PROJECT OF THE YEAR WINNER

Demonstrating Excellence in Complex Project Execution

PROJECT TITLE

Super Absorbent Polymer (SAP) Project

LOCATION

Jubail,
Kingdom of Saudi Arabia

PROJECT DURATION

28 Months
(42 months from start of
PDP through to RFSU)

VALUE

*Confidential (Large project
category)*

COMPANIES INVOLVED

ECI Member

Fluor

Client

SAPCO (JV - SAAC (JV - TASNEE
AND SAHARA) AND EVONIK)

Subcontractors

Nasser S. A-Hajri (NSH) & Khalifa Al-
Mulhem (KAMCO)

PROJECT OVERVIEW

The project investment was made by SAPCO, a joint venture between SAAC (itself a joint venture between Tasnee and Sahara) and Evonik, which has a licensed process to produce a state-of-the-art super absorbent polymer (SAP). This is used in diapers and incontinence products to capture and retain liquid. Worldwide demand for these products is increasing - the new plant delivered through this project will support this demand by serving the Middle Eastern market.

Delivering Value-Enhancing Practice with ECI-ACTIVE

The project:

- Main production building for SAP plant with polymerisation, drying, milling and sieving, post-treatment, HVAC unit, pneumatic transport systems and silos.
- General facilities including conveying air, chilled water, brine water, vacuum cleaning system, and filling/loading/unloading facilities for trucks.
- Control building housing the central control room, quality control laboratory and three storey sub-station.

Fluor B.V. executed this LSTK project, reporting to an **integrated management team** comprised of Tasnee, Evonik, and Fluor personnel under a separate PMC contract. This full integration of all stakeholder teams, together with a shared goal of executing a world-class project, was the most important factor in achieving overall success.

The project was delivered on time and within budget, with an excellent safety record despite the scale and complexities of the vertical construction involved. From commencement of the EP phase within the home office site in Haarlem, The Netherlands, through to the detailed engineering in Manila and construction on site, a total of 6.5 million manhours were recorded without a Lost Time Incident. The project reached a TCIR (Total Case Incident Rate) of only 0.03 and a DART-R (Restricted Workday Case) of 0.



Evonik is proud to finalise together with our partners and EPC contractor, a world-scale and state-of-the-art specialty chemicals plant (Superabsorber) in the Kingdom of Saudi Arabia. The stakeholders (owner, licensor and contractor) jointly completed this challenging “front runner” project with a remarkable safety record, on time, on budget and achieving the excellent quality target. Fluor, as EPC contractor and expert for project execution, allowed us, as owner of the Superabsorber technology, to be closely involved throughout the whole engineering, procurement, construction and commissioning phases.

Detlef Jung

Vice President Technology - Evonik



Effective execution planning was extremely important, and the team was focussed from the start on defining the execution strategy and adopting the principle of 'serving the needs of construction'. The early engineering, was placed highly on the agenda. The project engaged its own structural steel supplier, main instrumentation vendor (MIV), main automation vendor (MAV), main electrical vendor (MEV) and piping materials supplier by **establishing partnerships, leveraging engineering capabilities of the partners, optimising costs and providing a high level of control** over the supply of materials.

Underground works, as well as civil and structural steel works, started only five months after project commencement, thereby supporting the critical path of the project. The meticulous planning for the installation of modular structural steel, and equipment in a well sequenced floor-by-floor fashion was key.

An integrated team was established, with a **clear understanding of the project objectives, requirements, scope and commercial baseline**. Effective communication across the team and the **delegation of responsibility** for the budget, services and cost to the lead engineers and construction team, enabled a culture of *'cost-consciousness across one team'*.

Building trust and a supportive 'climate' across the team and the client was critical. All engineers were actively encouraged to contribute to design solutions and reviews. Frequent team-building events and celebration of successes, with engagement from the client and full leadership team, encouraged this culture of trust.

A conscious effort was made to **monitor the overall morale, empowerment and levels of communication** demonstrated within the project team through an online survey. This enabled the leadership team to assess the well-being of both the project team and all project individuals.

Monthly project performance dashboards enabled the teams in Haarlem, Manila and the construction site in Al-Jubail to collectively keep track of the project status, which facilitated the ability to **resolve and tackle project issues on a pro-active basis**.

An important factor has been retaining knowledge within the project, which was ensured by a 'cradle-to-grave' principle of engaging key project members on a full-time basis from engineering through construction. Finally, empowerment, combined with real ownership and accountability across all levels of the project team, has contributed greatly to the success of the project.

The project team established a **transparent reward and recognition program**. This provided the opportunity for individuals to be nominated for awards, based on their own contribution to the project in terms of project cost, schedule, quality procedures, HSE and extraordinary personal effort. The awards, which consisted of a framed certificate and net monetary gift (the same for all project team locations – Haarlem, Manila and Jubail), were handed out at celebratory events by senior office management.

Fluor can look back with great satisfaction on the construction of this first-of-a-kind, LSTK complex specialty chemicals plant in the Kingdom of Saudi Arabia. First and foremost because of the excellent safety record, but also due to the on-time and on-budget execution with great teamwork across the globe, in the Netherlands, the Philippines and Saudi Arabia. The ECI-ACTIVE Principles combined with Fluor's Baseline Centric™ Execution, have been the compass and benchmark guiding my team to success.

Bernd de Jonge

Project Director - Fluor B.V.

For further information on this project and the individuals involved, please contact the ECI Head Office on **+44(0)1509 222 620** or email **eci@lboro.ac.uk**



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