



Maintenance painting of operational plants

The Customer

Reliance Industries Ltd operates the third largest refinery in the world at any single location, with a capacity of 30 million tons per year or 0.6 million barrels per day of crude throughput, at Jamnagar, Gujarat.

JKSC have successfully executed multiple projects for RIL Jamnagar and are today the main company that RIL relies on to maintain surfaces.



The Problem

RIL Jamnagar was a ground - up development of a petroleum refinery. The work on this refinery started in 1998. Once the plant, its pipelines and other structures were up, RIL was only 6 months away from the date of inauguration. The surface area to be prepared and coated in this short time was huge.

The Solution

RIL decided to give the work of coating the surfaces to as many companies as possible with the idea of completing the job in the shortest possible time.

JKSC swings into action:

The first engagement - MTF RTF Pipeline painting:

JKSC was first awarded the contract to paint the Marine Tank Farm (MTF) - Refinery Tank Farm (RTF) pipelines which carry crude oil, gas and seawater from the MTF to the RTF. There are 18 pipes, with a surface area of approximately 105000 sq mtrs, running across roughly 10 kms. JKSC was responsible to coat approximately 55000 sq mtrs. Despite the fact that speed was of the essence to RIL, the quality of the coatings was of equally high priority.

JKSC adopted a two pronged approach to be able to ensure both, speed and quality:

- >> Mobilization of a large, trained and experienced workforce comprising project managers, planning engineers, project supervisors, site supervisors, Quality assurance / Quality control engineers, trained machine operators, blasters and painters and helpers.
- >> Deployment of large numbers of the required equipment like blasting nozzles and spray painting nozzles.

The job comprised :

- >> Abrasive blasting to SA2.5.
- >> One coat of Chlororubber zinc phosphate primer.
- >> One coat of Chlororubber MIO.
- >> One coat of Chlororubber HB finish paint.

Due to this planned approach, our extensive experience and our total dedication to the RIL's requirements, we were able to complete the job to the total satisfaction of the customer within the short span of three months.



The second engagement - Painting of the RTF pipelines:

Midway through the first engagement, RIL were impressed with our speed, efficiency and quality focus. They therefore awarded us the second contract to paint the RTF tanks. This was especially challenging for us due to the fact that these RTF tanks (for Oil storage) have diameters of upto 94 mtrs and are at a height of 20 mtrs. These are among the largest tanks in the world.

Understanding the urgency and quantum of the job on hand, JKSC mobilized large numbers of especially suited equipment like:

- >> Automatic multi-nozzle blasting equipments
- >> Heavy duty airless spray equipment which allow for the usage of upto 3 guns per compressor .

At the peak of the project lifecycle, JKSC achieved coverages of 1200 to 1500 sqmts of abrasive blasting and coatings everyday. Given that RIL's focus on quality was very high, JKSC used very advanced painting systems.

Schemes for the tank exteriors:

- >> 75 microns of inorganic zinc silicate primer
- >> 100 microns of epoxy MIO
- >> Finishing coat of aliphatic, aromatic, polyurethane finish paints of 50 microns.

Scheme for the internal surfaces : Epoxy tank liners of 300 microns were applied.

- >> Again, the job was completed well within the stipulated time period and to the complete satisfaction of the customer.

The third engagement - Coating of the fire - water pipeline:

As a part of their commitment to the safety of the plant and people, RIL had installed pipelines for carrying water (to be used in case of emergencies) across the plant. These pipelines were operational throughout the plant. The challenge in this job was that the length of the pipeline was approximately 3kms and it was not possible to make it inoperational since their plant was already running.

JKSC designed and deployed a specially constructed mobile airless painting van consisting of onboard air compressor clubbed with airless painting equipment and a paint reservoir with a direct online paint dispenser. The complete fire-water pipeline of 2,00,000 sq kms comprising a system of intermediate and finished coats was completed in 2 months time.

The fourth engagement - Painting of the Coker Area:

Shortly before the go live date, JKSC was awarded the contract to paint the Coker area, which was an erected structure of 11500 metric tons (height of 80 to 100mtrs). The structure was a mix of large sized beams and very small surface area structures. Although the focus of the job was speed, the requirement was also on savings of effort and paint which was supplied by RIL.

To ensure speed, we deployed very high pressure (68:1) air compressors. To ensure maximum paint coverage we utilized hi tech airless rollers and airless brushes. This eliminated the wastage of time taken to dip the brush in the paint container and also the wastage of paint caused by conventional airlines spray systems.

The entire job comprising surface preparation, and intermediate and finishing coats was completed in a record 3 months.