



## Enhancing Capabilities - Ethylene Cryogenic Project

We have made an entry into the niche area of large scale Cryogenic Terminal projects featuring Full Containment Cryogenic Storage Tanks. We bagged two orders from Reliance Industries to undertake the EPC contracts of Cryogenic Ethylene Tank at Jamnagar and Cryogenic Ethane cum LNG Storage Tank at Dahej.

Cryogenic Tanks are the future. Currently power plants and fertilizer plants are unable to work to their full capacities. However gas when used as the fuel, may stabilize such a scenario. Hence as soon as gas prices in India are under control, Cryogenic tanks for storage of gas, will be a great business opportunity. With our competency in cryogenic facility for gas storage, we will now have a competitive edge over others.

A mechanical completion of Cryogenic Ethylene Tank, Jamnagar was achieved in February'2016. The mechanical completion of Cryogenic Ethane cum LNG Storage Tank is likely to be achieved by November'2016.

These two projects will provide a good leverage for bidding for the forthcoming LNG Terminal projects incorporating LNG tanks and Regasification plants in India.

### First Successful Dome Roof Air Raising

We successfully completed our first ever dome air raising activity for both the tanks. Roof air raising is a very critical activity of the cryogenic tank construction and requires meticulous planning and strict quality checks to ensure that the roof is lifted flawlessly in a well-balanced condition. Since the travel of the roof inside the outer wall can happen only in the upward direction with minimum gap between wall and roof, the activity is critical and is to be carefully executed.

Critical activities include maintaining circularity of the concrete wall, blower selection, centroid calculation of the roof, proper sealing between the wall and roof edges, balancing weights, etc. to prevent tilting and imbalance in roof during air raise operation.

A significant achievement was that the roof was raised without the conventional method of prior trial air lift before the final lift. It was a great team effort by our engineers with support from Saipem, the design consultants for the project. RIL management congratulated the entire team for the successful and flawless lift.

### Developing Capabilities in Perlite Insulation

During execution of these projects, it was also the first time ever that we undertook the perlite activity. Perlite activity is carried out after completion of all the mechanical work inside the tank and it requires critical safety control system and measures along with expert supervision.

Perlite activity is a highly hazardous job and has led to several fatalities in other companies in the past. Typically, the space between inner shell and wall is only 700 mm. Personnel have to move from the tank suspended deck to the bottom with the help of Gondola which increases the safety risks considerably. Additionally, during the perlite filling, suspended particles float into the

atmosphere and cause poor visibility and health issues.

Key safety measures were taken to ensure the safe execution of this activity:

- Deployment of competent sub-contractor
- Kick off meeting with sub-contractor to brief HSE requirements & method statement.
- Prepared method statement & job safety analysis
- Job specific HSE training to all involved
- Close supervision by HSE staff & discipline engineer round the clock
- Special medical test for all involved personnel

We achieved the safe completion of this activity, and have now developed our competency in perlite insulation. This capability has been institutionalized and will prove to be useful in all cryogenic projects in the future.

An incident free track record of such critical activity will not only help us achieve our Zero Incident Credo but also give an edge over other competitors to bag new Cryogenic/LPG Tank tank projects.