

Client: IGD Habshan 5 Process Plant Project  
 Industry: Gas Processing and Sulphur Production  
 JMJ Service: Achieving extraordinary project success through the creation of an Incident and Injury-Free® (IIF®) Safety Culture



**Results:**  
 A world record 100 million man hours without an LTI (Lost Time Incident)

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*The numbers were very important, but we cared for people going home safely. Going home safely was the real target.*

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*Giuseppe Contini  
 Project Site Manager  
 Kharafi National*

Extraordinary project success with the creation of a Safety Culture culminating in the world record 100 million man hours without an LTI (Lost Time Incident)



The Habshan 5 Process Plant Project is one of the four packages that constitute the Integrated Gas Development (IGD) Scheme of GASCO, a subsidiary of the state owned Abu Dhabi National Oil Company (ADNOC). In July 2009, GASCO commissioned the Joint Venture of JGC Corporation (JGC) and Tecnimont to manage and complete the development of the Habshan 5 Process Plant Project, the largest in the Abu Dhabi gas industry. The Engineering Procurement and Construction (EPC) contract was valued at around \$4.7 billion USD and involved over 800 Engineers from 6 different countries.

All information in the following document is based solely and entirely on information related to the Habshan 5 Process Plant Project. It is important to note that all data, statistics, figures and factual information pertain only to this project and are not in any way intended to represent the entire Habshan 5 Project.



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*You're going out on the project and finding people are waving to you, saying hi, stopping and talking to you. They are asking questions, pointing out issues, getting real enjoyment out of being able to engage with us. There is definitely a positive feeling on the project that is palpable. No question about that. One of the clear factors that brought that about is clearly the IIF program.*

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*Grant Wilson  
JV Site HSE Manager  
Technimont*

The sheer scale of the IGD Habshan 5 Process Plant Project is immense:

- Over 100 million man hours worked by tens of thousands of people, including over 25,000 people on site at peak.
- A total site area of over 4 square kilometers.
- Around 72,000 tonnes of steel on the project, the equivalent of 10 Eiffel Towers.
- More than 7500 km cables of wiring, almost a fifth of the world's circumference.
- Over 267,000 m<sup>3</sup> of concrete, enough to build a replica of the Petrona twin towers in Malaysia.

The construction of the project was completed in 2012 with full production expected in 2013.

### **Business Challenges:**

As would be expected on a project of this scale and complexity, the creation of a high performing safety culture proved a challenging task. This was a project unprecedented in the region, and ensuring safety among the entire workforce was of utmost concern.

Like many large scale projects, another significant challenge was bringing together teams from different parts of the world with all the associated cultural and language differences. Overall, the presence of over 35 different nationalities on the IGD Habshan 5 Process Plant Project necessitated a thorough and dynamic approach in the creation of a high performing safety culture. It was clear that with the many dynamics at play, there would need to be a concerted effort to establish a safe workplace right from the start.

The project also suffered a deeply unfortunate but preventable accident in 2011. Subsequent investigations determined that a communication gap between the workforce and line management was a contributing factor. Further investigations into accommodation camp disturbances also determined that a lack of communication to improve relationships was also contributing to some of the safety concerns on site.

### **IIF Safety Goals:**

- Create a project culture where there would be no injuries or incidents.
- Engage a critical mass of people on the project to hold safety as a primary value.
- Transform the relationship of the overall workforce with regards to IIF safety, so that a project with no incidents and no injuries could occur as a real possibility.
- Sustain a working environment on the project that allowed for open and honest communication.
- Ensure all levels of the project held an aligned, authentic commitment to creating an IIF project.
- Have Senior Leaders act as a catalyst for the IIF commitment.
- Have individuals responsible for their own safety, the safety of others around them and have them contribute to the overall safety performance of the project.



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*We quickly realized that building relationships at all levels was going to be critical to the success of the project. We made sure that leaders were on the site daily talking with the workers to make sure that they knew that safety was about everybody. It became clear to all that relationship was the foundation of accomplishment.”*

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*Tauqir Khan  
Senior Project Manager  
GASCO*

## The IIF Approach:

At the outset of the IIF engagement, it was clear that, in order to reach the goals of the IGD Habshan 5 Process Plant Project Leadership Team, the entire project would need to embrace their commitment to safety. This wasn't just a matter of education; they required a shift in cultural norms and thinking.

One of the critical components of this was to form the IIF Leadership Team (IIF LT), comprising of decision makers from all the major companies involved in this project. In order to sustain an authentic IIF culture, it was critical to establish a group of like-minded and committed individuals who would lead and be accountable this engagement from the beginning. To achieve this, the IIF LT created their own powerful vision document. Their vision for the IGD Habshan 5 Process Plant Project was that all people would experience care and concern, and the project would share, learn, communicate and cooperate effectively as one aligned and committed team.

This vision took hold from the first JMJ led Commitment and Alignment Workshops—opportunities for Senior Management across all organizations and disciplines to align behind a common commitment: the commitment that everyone on the IGD Habshan 5 Process Plant Project goes home safe, every day, with no exception.

As communication and alignment improved, JMJ coached leaders to approach their issues as adaptive challenges—challenges that required them to learn their way together. These workshops and coaching sessions led to the cascade of the *Incident and Injury-Free* message throughout the project and down to the workforce.

The Joint Venture also encouraged their subcontractors to include all levels of management in the daily STARRT (Safety Task Analysis Risk Reduction Talk) and TBT (Tool Box Talk) meetings. These meetings were the daily pre-task planning conversations that took place every morning on site.

At the beginning, the Tecnimont team had less previous experience with the approach compared with those from JGC and CCC (for example), many of whom had prior exposure to IIF on past projects. Because of this, it was JGC who initially started the IIF program on their site, creating IIF Unit Leaders with regular IIF meetings and IIF patrols.

Once the Tecnimont Project Management Team witnessed this, they, too, engaged this approach and created a similar structure to their daily meetings. This ultimately led to the IIF culture gathering momentum, and caused eventual alignment among GASCO, the Joint Venture and their unified drive for an *Incident and Injury-Free* project.

Not only did participation in the IIF approach grow, but the overall perception of care and concern on the project increased. The workforce were interacting more with Senior Management and communication barriers were being removed, leading to the workforce operating as one high performing project team on the IGD Habshan 5 Process Plant Project.







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*We set up a system that selected IIF Unit Leaders from all companies [including sub-contractors] and we started IIF patrols. The main part of the IIF patrols were [to have] constant discussions with the workforce, getting them clear on what IIF [safety] was. We also concentrated on improving the STARRT meetings and TBT's through IIF conversations; the workers began to choose to work safely, identifying the hazards and discussing amongst themselves the counter measures on a daily basis.*

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*Mikio Fukumoto  
Area Construction Manager  
JGC*

Another integral part in demonstrating care and concern was the creation of welfare committees in the villages [worker camps] designed to provide a focal point for issues relating to the working and living conditions. There were Monthly Village Welfare visits by Senior Management initiated by GASCO where Senior Management and village representatives would discuss potential problems and highlight solutions and recommendations.

### Results in Safety, Quality and Production

As of July, 2013, the IGD Habshan 5 Process Plant Project recorded just over 100 Million Man-Hours without a Lost Time Injury (LTI).

At the outset of this project, the Lost Time Injury Frequency Rate (LTIFR) target was 0.02 and the actual result was 0.002. The Total Recordable Injuries Rate (TRIR) target was 0.20 and the actual result was 0.06. The project ended up with only 0.9% weld repair against 2 3% expectation on a project where 47% of construction weightage goes towards piping. Absenteeism also dropped significantly [85% reduction].

Over 50 IIF Areas or Units were created, each with their own leader, carrying out regular patrols, looking out for safety and company issues as well as taking care of the workers in each area. Together with JMJ's support, an environment was established that created a space for open and honest communication of issues and challenges among the workforce and supervision across all layers of the project. Leadership was in action, acknowledging contributions, creating IIF Champions and resolving issues and challenges. Issues raised by the workforce and supervision were heard, and actions were generated to address these issues.

Key to these results was also the alignment among all levels of the project. There were relationship breakthroughs throughout the leadership team. By the end, there was a clear stand from each organization for the success of every person on the project. As a result, the Joint Venture (JV), including all subcontractors, were fully aligned and in coordinated action in the effective delivery of the project's vision and goals.





“I think, first of all, the perception amongst people is that we care,” says Yousaf Mohammed, Project Manager (Descon Engineering). “I see that as an achievement. Also, in return, people started caring. The team spirit and effort also improved and that is an achievement, because that helped the project to move forward. Certainly *IIF* [safety] played a significant difference in that instance on this project.”

With these relationships, came fewer conflicts, less disruptions, and, as a result, an outstanding project completed on schedule.

“One of the key learning’s from *IIF* [safety] is that relationship is the foundation for accomplishment. *IIF* [safety] helped us create relationships at all levels of the project that showed we cared about each individual working on the project. This relationship building truly helped create the accomplishment of one million man hours without an LTI,” said Tauqir Khan, Senior Project Manager (GASCO).

The IGD Habshan 5 Process Plant Project finished on schedule, resulting in significant revenue savings for the client and all stakeholders in comparison to a number of similar sized projects that have suffered delays.

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*JMJ helped us analyse more deeply what the problem was rather than just finding technical solutions.*

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*Richard Prime  
Special Projects Manager  
BAM Nuttall*

