



Client: Shell Pearl GTL Plant  
 Industry: Energy  
 JMJ Service: Safety: Delivering *Incident and Injury-Free*® (IIF)® Results  
 Results: Logged 77 million-exposure-hours without a Lost Time Injury among a combined workforce of 52,000 people, achieving a record for Shell in its more than 100 years of project history.

“

The scale and scope of our work on Shell Pearl GTL is unprecedented—integrating our whole team including contractors and subcontractors to accomplish world-class safety performance on a work site with the population of a small city. We have achieved many safety milestones in our work, most recently attaining 77 million-exposure-hours without a Lost Time Injury among our combined workforce of 52,000 people, achieving a record for Shell in its more than 100 years of project history. This is a remarkable team accomplishment and speaks loudly to our commitment to safety and the effectiveness of the *Incident and Injury-Free* programme.

”

Andrew Brown  
 Executive Vice President,  
 Shell; Managing Director of Pearl GTL

## Construction of the Shell Pearl Gas-to-Liquids (GTL) Plant, the World's Largest, Achieved World-Class Workplace Safety Culture on a Massive Scale

### Context:

When Project Managers and organizational leaders are considering whether to adopt JMJ's *Incident and Injury-Free* methodology, the question they often ask is, “what will make the biggest difference to the success of our IIF program?” JMJ's response to this question is to say, “You will”. It is the commitment and stand taken by leadership to send everyone in their organization home safely every day that is the biggest single factor in successful IIF programs. This success story will demonstrate some of the methodologies deployed by JMJ when applying their *Incident and Injury-Free* approach, and it should be read with the understanding that a truly committed leadership team from both Shell and its contractors was instrumental in delivering the world-class safety performance achieved on the Shell Pearl Gas-to-Liquids (GTL) project.

### Business Challenges:

Upon its completion, Shell Pearl GTL will be the world's largest plant that converts natural gas into 140,000 barrels per day of clean-burning liquid transport fuel and other products. The plant, a joint development by Qatar Petroleum and Shell, also will produce natural gas liquids and ethane comparable to 120,000 barrels of oil equivalent per day. Overall, Shell Pearl GTL represents a major step forward in meeting the growing demand for cleaner energy. The transport fuel, for example, can be used in existing light and heavy diesel engines with benefits including lower emissions and engine performance enhancement.



Located in Qatar, at Ras Laffan Industrial City, Pearl GTL is being constructed in an immense industrial zone the size of Amsterdam on Qatar's coast, about 55 miles north of Doha. Approximately 52,000 workers from more than 50 countries speaking dozens of languages are constructing Pearl—a site that Shell describes as being almost as large as New York's Central Park—making it one of the largest industrial developments in the world. The total number of workers who will have had a hand in constructing Pearl GTL across all functions will total more than 250,000 upon its completion. At the peak of its construction, enough steel and pipe will be installed at Shell Pearl GTL to build 2.5 Eiffel Towers per month.

The main contractors for construction of Shell Pearl GTL are KBR and JGC Corporation. Due to the size and scope of the project, a number of other contractors and subcontractors also are utilized, including CB&I, Consolidated Contractors Company, Descon Engineering Limited, Hyundai Heavy Industries, Toyo Engineering, Hyundai Engineering and Construction, Nasser al Hajri, Strabag, Saipem, Linde Engineering and Qatar Kentz. Honeywell was contracted to supply the process control systems. The first train will start up in 2011 with the second train to be brought on to full production in 2012.

Workplace safety has been a major focus of Shell Pearl GTL from its very beginnings. Shell formed a leadership group with the CEOs of the contractors and, initially, the focus was on establishing excellent worker welfare and outstanding training facilities. As these initiatives were implemented, Shell management wanted to do more work on the safety culture among the growing workforce. Based on industry and Shell HHSE historical statistical data, as many as 20 people could lose their lives on the project given the huge workforce and exposure hours required to build the plant and the road safety risks. This was an unacceptable and uncomfortable future for this team, and they knew they would need something very different on this project if they were to create a different future. Shell brought JMJ Associates into the project in January 2008 to support building a strong safety culture on the vast site—spanning all projects and all teams— including contractors and subcontractors, and from project leadership to the individual worker.

At the time JMJ became involved, there were 14,000 workers on the site and the complexity of the assignment was readily apparent. Due to the massive numbers of construction projects generally, the Middle East has a deficit of skilled construction workers and large numbers of the workers on Pearl GTL were unskilled in construction with little or no safety background. Many of these laborers had never been away from their home countries. The combination of untrained workers from approximately 50 countries, who spoke dozens of different languages and represented multiple cultures and religions, called for a nontraditional approach to workplace safety.

### Client Goals:

Shell, its contractors and subcontractors worked with JMJ Associates to achieve these goals:

- Create an *Incident and Injury-Free* workplace
- Build a strong safety culture of care and concern in a very large multicultural, multilingual workforce
- Develop a strong communication capability across languages and cultures, reinforcing safety as a shared value across the workforce



### How JMJ Helped:

Due to the size and scope of Shell Pearl GTL, with approximately 500 million-construction-hours and an investment of \$18- to \$19-billion, the construction project was divided into 10 separate smaller projects—something of a misnomer since each individual project is an enormous undertaking, frequently ranging from \$1- to \$3-billion in size with thousands of workers in each project.

Under Shell's leadership, JMJ quickly established a two-pronged approach. One prong focused on immediate delivery of *Incident and Injury-Free* Orientations, *IIF* Supervisor Skills workshops, and *IIF Train the Trainer* sessions across a broad range of the workforce to generate a strong safety culture within the workforce.

The second area of focus involved working with management to develop *IIF* Leadership Teams containing all project contractor leadership across the 10 individual projects—leaders who implemented the safety vision on the ground and implemented initiatives and campaigns to keep the workforce safe and well. An *IIF* Steering Team sat atop this structure and was accountable for implementation of the *IIF* safety culture across-the-board for Shell Pearl GTL. All of these leaders, along with many others, attended initial Safety Commitment Workshops where they had the opportunity to explore their relationship to safety and commit to keeping their workers free from injury.

"The project experienced a significant step change in performance when those Leadership Teams came alive and became creative," said Doug Mowle, Senior Consultant, with JMJ Associates. "As the Leadership Teams started to develop, they started to take on the challenge of creating an *IIF* culture for their particular project. What we found was that a lot of different areas did it their own way. The project has Japanese, Indians, Koreans, Arabic and Nepalese—so many different languages, communities and cultures. And we had to cater to those different languages, communities and cultures and create an *IIF* safety approach in a way that worked for them and created value for them."

The Leadership Teams connected with the workers, setting up a new dynamic in supervisor-worker relations. "Something like 60,000 people went through *IIF* orientations," Mowle said. "Every single one of those sessions had a senior manager from the local area attend the session, put his phone number on the wall, and tell people that anyone can phone him about resolving safety issues. Every single one of those sessions captured the issues the workers had (whether they were food, welfare, safety-related, anything) and worked on resolving those issues. Leadership connected with the challenges of the workforce, and we worked with supervisors to further develop skills to build relationships with the workforce."

A number of myths were debunked along the way—supervisors discovered for themselves the power of recognizing the workers' contributions, of having high-quality conversations around safety and of intervening in potential safety issues in a positive way. "The shifts in performance started to get better and better," Mowle said. "One element was that workers had to be taught construction skills, such as how to use grinders and how to weld. Toolbox Talks were very simple and everything was translated." JMJ suggested reorganizing work parties and work groups into common language groups for more effective communication, which had a powerful impact on improving communications generally and safety emphasis specifically.



In 2009 the *IIF* Champions Program was inaugurated—comprised of well-respected people in the field who want to make a difference, who communicate well and want to be a champion for the *IIF* safety approach. The *IIF* Champions program has become a vital link between the workforce and the Leadership Teams, communicating messages in the field and providing the Leadership Teams with direction about the workforce's perspective.

"It's incredible," Mowle said. "The Leadership Teams are in place, the local leadership is in place and working effectively, more than 3,000 supervisors have been trained in *IIF* skills and they are connected to the workforce and treating them with respect and dignity, and the group of 500 *IIF* Champions is in the field keeping the safety message alive and completing the structure." Massive recognition programs also are in place, down to the local level. In fact, hardly a day passes without a safety recognition event.

Shell has won awards for the quality of its worker camp, which includes rigorous health care programs, on-site psychologists who help workers cope with being far from home for extended periods, baseball fields, cricket pitches, swimming pools, cinemas, recreational centers, Internet cafes and more. Safety Days are a regular part of the entertainment. These days reinforce a constant focus on keeping awareness high and engaging the levels in the workforce that can, and do, make the difference. Among the innovations that JMJ has supported the project to put in place is the use of Industrial Theatre to reinforce *IIF* safety messages. More than 10,000 people attend safety-related performances translated into local languages.

The *IIF* safety approach made it possible to introduce some tough accountability for individual behavior. Once the hearts and minds of the people had been captured and Pearl GTL had taken care of them in an extraordinary way with welfare provisions and programs, it became possible to have straight-up accountability for deliberate violations of safety-critical rules and procedures. When the critical mass held safety as a value, it enabled project management to authentically apply 'just culture' without any friction with personnel who were not supporting these absolutely sacrosanct standards.

In addition to the *IIF* workplace safety program, JMJ's High-Performance Projects team also engaged with clients and contractors to align interests and priorities, enabling candid conversations about partnering and making a difference by taking care of people. With Shell management's support, JMJ has over 100 ongoing leadership coaching relationships focused on management, including project directors, construction directors and commissioning managers.

#### **Results:**

In July 2010, Shell Pearl GTL announced that it had achieved a major milestone by attaining 77 million-man-hours without a Lost Time Injury for the first time since construction had begun several years before. This was a record for Shell in more than 100 years of project history. In the words of Andrew Brown, Shell's Executive Vice President and Managing Director of Pearl GTL, when celebrating 40 million-man-hours LTIF, "Celebrating this achievement is not only about the absence of lost time injuries, it acknowledges the positive, preventive actions that we practice daily..." The project had only six recordable injuries in April, improving TRCF to 0.62\*. Shell Pearl GTL has won the Shell CEO Award in recognition of "outstanding performance" in safety for the past two years and won the Shell Welfare Award in 2009.



### About JMJ Associates:

JMJ Associates is a global management consultancy with more than 20 years' experience serving large industries, including energy, mining and construction. JMJ provides clients with a powerful combination of strategic insight, deep industry knowledge and superb execution, assisting them to catalyze human innovation for breakthrough results.

JMJ is the world leader in project safety consulting, having developed and implemented its *Incident and Injury-Free* safety approach on behalf of multinational corporations around the globe. The firm's *High-Performance Projects*™ practitioners are well-known as trusted advisors to operating organizations, as well as to owners and contractors executing large, complex capital projects.

The firm serves its clients from offices in Austin, Doha, Durban, London, Perth and Singapore. JMJ can be found on the Web at [www.jmj.com](http://www.jmj.com).