



Client: **JGC Corporation (JGC)**
 Industry: **Energy Major Capital Projects – EPC Contractor**
 No. of Employees: **(Consolidated: 9,600)**
 Location: **Worldwide and local projects based in Yokohama, Japan**
 JMJ Capability: **Creating a culture shift with the *Incident and Injury-Free™ (IIF™)* Safety Approach throughout Major Capital Projects**

Organizational Transformation: Building a Positive Safety Culture Across an Entire Organization, Resulting in a Breakthrough in Performance and Improvement

- Transformed the safety culture throughout JGC
- The *IIF* safety approach resulted in best in class safety performances with vastly improved LTIR and TRIR on all major capital projects and local projects
- JGC's safety culture greatly influenced their Subcontractors, joint venture partners, clients, module fabricators and vendors



About JGC Corporation

JGC was established in 1928, as Japan's first engineering contractor. Since then, JGC has contributed to industrial development and economic growth not only in Japan, but around the world, designing and building plants and other facilities for a wide range of fields, including petroleum, gas and chemicals.

As one of the world's top engineering contractors, JGC has drawn on its broad range of engineering technology and project management capabilities to provide EPC (Engineering, Procurement and Construction) services to some 20,000 projects in more than 70 countries around the world, including Japan.

Starting the Journey

JGC Corporation first encountered *Incident and Injury-Free (IIF)* in 2007, on the Shell Pearl GTL project in Ras Laffan, Qatar. The project involved the construction of a gas to liquid (GTL) plant with a production design capacity of 140,000 b/d of GTL products and 120,000 boe/d of upstream products (LPG, ethane, condensate) when operating at full production. Constructing the plant involved numerous high-risk tasks, including heavy equipment positioning and performing a significant amount of work at height. Ensuring worker safety was the paramount concern and thus the highest safety standards had to be applied.



The management team saw the effectiveness of the IIF safety approach as a safety leadership and safety culture development initiative, when the project culture started to change positively, including the response and attitude of the workforce.

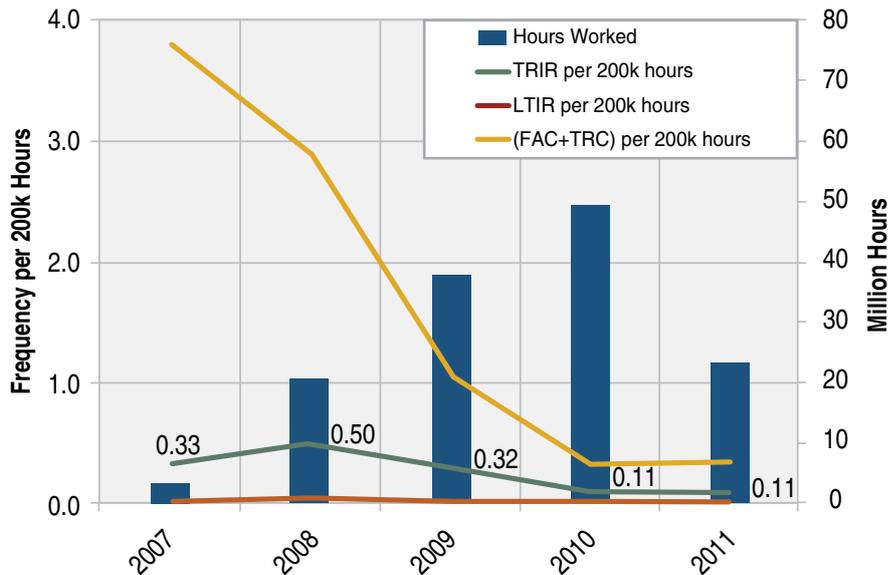
On the Shell Pearl GTL Project, JGC achieved the longest IIF safety record ever experienced, with 72.9 million worker-hours without a Lost Time Incident (LTI).

The project included seven large EPC packages, one of which was a joint venture with KBR. JGC was responsible for the construction of the GTL production unit, one of the plant's core facilities.

The client, Qatar Shell GTL Limited, partnered with MJM to implement the *IIF* safety approach for the entire project. In the first year of the project 10,000 workers completed their *IIF* Orientation training, with the remaining workers and new arrivals completing their training in the following year. The management team saw its effectiveness as a leadership and safety culture development initiative, when the project culture started to change positively, including the response and attitude of the workforce.

At peak times, the project had over 52,000 workers from about sixty countries on site of whom 16,500 worked on the JGC scope. JGC implemented the *IIF* safety approach to take the lead in raising safety awareness among workers and promoting safety activities in construction work. Using two slogans, "Everyone Goes Home Safe" and "Caring for Each Other", *IIF* activities helped to build a culture based on the principle that safety cannot be coerced, but must emerge from a transformation of individual attitudes, when everyone makes safety a personal choice.

All project participants worked together to improve and raise safety awareness. JGC project management staff communicated with local workers to familiarize them with all aspects of safety, and a mechanism was built to promote communication between workers. This approach significantly helped in building a strong and open relationship between the client, JGC and its subcontractors, resulting in a positive safety culture project-wide. As a result, JGC achieved the longest *IIF* safety record ever experienced, with 72.9 million worker-hours without a Lost Time Incident (LTI) out of a total of 135 million worker-hours (Site wide 77 million worker-hours without a LTI out of a total of 490 million worker-hours). Clients strongly commended JGC for its attitude toward safety in construction work and the results achieved.



The chart illustrates JGC's incident statistics on the Shell Pearl GTL Project, reflecting the significant and gradual decrease of incidents until 2010. After that, a low rate of incidents was maintained until completion of the project in 2012.



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Tsutomu Akabane
 Director,
 Senior Executive Vice President

Bringing IIF to Life

JGC faced two major challenges on its journey to organizational transformation:

- A multi-national workforce (about 50 different nationalities) employed on international projects, some with over a workforce of over 30,000, with language barriers and cultural differences
- Short duration of projects and the turnover/rotation of the project workforce. Personnel are usually mobilized on a project for between one and three years, but changing the culture significantly requires long term application of culture change initiatives.

JGC initiated its corporate safety culture transformation by implementing a safety culture approach company wide (Head Office, regional overseas offices, and on both local and overseas projects).

Major Capital Projects

With its experience on the Shell Pearl GTL project, JGC's management recognized the potential of the IIF safety approach very quickly and from 2010, it implemented the IIF safety approach on more than ten of its overseas projects including the Integrated Gas Development (IGD) project in Abu Dhabi and the Donggi-Senoro LNG project in Indonesia. As the first IIF project, the Shell Pearl GTL project was considered a 'Model Project'.



Towards the end of the construction, project managers and other key leaders visited the project to personally see the distinction between different levels of safety culture and safety leadership. Motivated by the climate and excellent safety performance results on the Shell Pearl GTL project, they went back to their own projects to significantly improve their own safety performance.

The improvement of the safety performance was a tangible result of the active contribution to safety made by JGC project management. They made efforts to deepen communication between the JGC project management and the workforce, the subcontractors' area supervisors and local workers.

In order to develop and maintain a robust and successful IIF safety culture throughout all JGC Major Capital Projects, the following activities/initiatives have been introduced:

- Coaching subcontractors' employees by focusing on front line supervision, imparting their skills and knowledge with open communication during pre-task meetings
- Learning from a project's IIF safety journey with new managers visiting projects where the IIF safety approach has been successfully implemented
- IIF Health Checks (culture) conducted by IIF champions from JGC Corporation at three stages (start, peak and commissioning/start-up)
- IIF initiatives created by each project (no common solutions!) and adjusted in consideration of each project's unique, cultural elements
- An IIF community with corporate head office promoting the sharing of IIF safety initiatives and learning from other projects



The approach resulted in remarkable safety performance records on all these major capital projects.

The improvement of the IIF safety performance was a tangible result of the active contribution to safety made by JGC project management, and efforts to deepen communication between JGC project management, area supervisors of subcontractors, and local workers.

Project	Country	Total Worker Hours Worked	LTIR (Per 200,000 Hours)	TRIR (Per 200,000 Hours)	Longest LTI Free Hours (Million)	Year of Completion
Shell Pearl GTL (JGC scope only)	Qatar	134.2	0.016	0.232	73.0	2012
Manifa	Saudi Arabia	27.3	0.007	0.073	14.0	2012
IGD Habshan 5 (JGC scope only)	Abu Dhabi	50.7	0	0.093	50.7	2013
Taganito	Phillipines	21.3	0	0.094	15.3	2013
DS LNG	Indonesia	36.5	0.005	0.208	31.0	2015
PNG LNG (JV Project)	Papua New Guinea	80.1	0.007	0.210	64.5	2014
MLNG Train 9	Malaysia	39.1	0	0.077	39.1	2016
SRC MCP	Singapore	13.4	0.015	0.312	11.4	Ongoing
Ichthys Project Onshore LNG Facilities		237.5	0.006	0.189	74.9	Ongoing
KNPC (JGC scope only)	Kuwait	22.2	0	0.063	22.2	Ongoing

The tables show the incident statistics on major capital projects that have implemented the IIF safety approach and demonstrates JGC's individual projects' safety performance in comparison to each other.

In 2014, JGC, as Chiyoda JGC joint venture was awarded the ExxonMobil Development Company President's Safety Award for their part in executing the Papua New Guinea Liquefied Natural Gas Project with outstanding safety performance.



Project	Country	Total Worker Hours Worked	LTIR (Per 200,000 Hours)	TRIR (Per 200,000 Hours)	Longest LTI Free Hours (Million)	Year of Completion
PNG LNG (JV Project)	Papua New Guinea	80.1	0.007	0.210	64.5	2014

Local Projects

In 2011, JGC's management introduced a safety culture change initiative for its local projects with a similar approach to the IIF safety approach, under the name of 'li Fureai', which means 'close relationship'. The name was given by the workers of JGC's project where the initiative was first implemented, the Matsuzawa Hospital facility. That decision ensured that the IIF safety concept, of building good relationships between the employees and the management, was implemented across the organization. During the construction of the hospital, the 'li-Furei' approach significantly improved the safety culture.



Transforming a corporation from the top to the bottom of the organization is a slow process and requires patience and endurance, but the impact on our safety culture is rewarding. It has resulted in a safer workplace and excellent safety performance. Corporate transformation was not a target; it was a 'journey' and it still requires the continuous involvement of each individual employee and the right mind-set to reach and sustain a desired performance level. The organization's senior management is driving the transformation process relentlessly, ensuring continuous motivation and protection of the organization's most important asset; the human resources.



Tsutomu Akabane
 Director
 Senior Executive Vice President

Currently all local JGC projects have 'Ii-Furei' activities implemented and as for Major Capital Projects, new project management teams are required to visit current projects and learn how to successfully implement the activity and further develop a positive safety culture at their own site.



The chart shows the historical IIF milestones/checkpoints of JGC focusing on its organizational safety culture, starting from 2008 when it first encountered the IIF Safety Approach on the Shell Pearl GTL project.

A Vision for Safety

In 2010, JGC established its HSE vision "To be the Top in HSE", with a target to achieve this by 2015.

In 2015, JGC management decided to establish permanent HSSE core values across the organization. It introduced the new HSSE logo, reflecting the code of behavior that has to be promoted by every employee of the JGC Corporation and its Group Companies.

HSSE Core Values

HSSE Philosophy: Safe, secure and healthy workplaces in which all employees can carry out their functions with confidence

HSSE Slogan: Respect and Care

HSSE Individual Code of Behavior:

- Be a willing observer of basic rules
- Be mutually supportive, and appreciate contributions made by others
- Be prepared to take the lead



Beyond Construction Sites

JGC's senior management recognized the importance of transforming the corporation to embrace a positive safety culture, from the top of the organization. Various culture changing and social initiatives and activities have been initiated in JGC's World Operations Center and subsidiary regional offices and JGC is actively expanding safety measures to prevent traffic accidents at overseas offices and bases.



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The IIF safety approach significantly contributes to the development of a positive safety culture on projects where a huge number of workers are exposed to the hazards and risks of the construction industry. Once a positive safety culture has been developed to a mature level, project personnel at all levels are enthusiastic about keeping the workplace safe and incidents decrease substantially.

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Toru Sugimoto
Corporate HSE Manager

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In such a work environment, employees enjoy work and motivate each other to act safely. As a result of the positive safety culture, quality and productivity on the project also improves and creates a strong bond between all employees.

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Toru Sugimoto
Corporate HSE Manager

One major activity is the in-house delivered ‘Introductory Health, Safety, Security and Environment Management’ course, where newly recruited employees, as well as experienced ones, are developed to have a positive attitude towards safety and social responsibilities. This spirit is then kept alive through regular team building and social activities. All activities are hosted, sponsored and supported by the most senior managers of the organization to demonstrate their commitment.

Promoting a Safety Culture



JGC Corporation holds regular events in order to demonstrate its commitment and dedication towards a positive safety culture.

On the annual JGC Safety Day, all Major Capital Projects and local projects, Group Companies and Head Office in Yokohama conduct safety related activities. All employees are encouraged to be involved in the activities.

In 2014, the JGC forum panel discussed the IIF safety approach and its introduction in office environments. Managers who faced difficulties in the implementation of the IIF safety approach within their offices, shared their experiences and opinions with senior management of the organization. These leaders were familiar with the IIF safety concept and its success at project level, but had no idea of the difficulties faced in offices. JGC implemented an IIF safety mindset to engineering and created a slogan ‘Quality in Engineering is Safety in Construction, Commissioning and Start-up’.

The annual HSSE conference is hosted by the President who delivers a strong safety message that clearly demonstrates his commitment. About 200 people participate. The purpose of the conference is to share information on measures for strengthening health and safety and preventing accidents. The IIF safety approach and corporate safety culture development are major focus points in this conference, where employees are motivated to shift their mindset and help the President to transform the organization to achieve the desired safety culture. Various projects with excellent safety performance levels are recognized and given awards during the conference.

HSSE moments, five-minute sessions given on HSSE matters by officers, are given at the opening of every meeting of the Operations Steering Committee, which is attended by senior management, officers and executives. The purpose of the HSSE moments is to increase HSSE awareness among JGC’s management and to encourage them to take the lead in addressing HSE matters.

A Leader in the Industry

JGC Corporation has been building its strong safety culture with the IIF safety approach and its concept of safety leadership, commitment and culture change. The safety culture development and corporate transformation was initiated with one of JGC’s Major Capital Projects and now includes all Major Capital Projects and local projects. Corporate wide safety culture activities are greatly influencing JGC’s subcontractors, joint venture partners, clients, module fabricators and possibly vendors.

JGC’s management believes that in order to be a leader in the industry, all personnel employed by JGC and its projects go back home safely every single day, regardless of what company they are employed by.



Who we are

JMJ is a global management consulting company with 30 years of experience serving the energy, manufacturing, mining and construction industries. We partner with leading organisations to see new possibilities, align on ambitious goals and achieve breakthrough performance in safety, productivity, reliability, efficiency and quality. JMJ has a proven track record of enabling cultural transformation that delivers sustainable and extraordinary organisational and project performance. Our approach directly impacts intangible areas including leadership, culture, relationships, moral and employee engagement to rapidly generate tangible business results.

www.JMJ.com

Contact Us

If you would like to set up a meeting to discuss the *Incident and Injury-Free* approach further, please email info@JMJ.com