Corrib Gas Project Transport and Logistics Team (2011 to 2013)

This nomination is being submitted by Shell E&P Ireland Ltd (SEPIL) on behalf of the Corrib Gas Project Transport and Logistics team (CGPT&LT). It recognises the performance, during the period 2011-2013, of the project team who are involved in the transportation and logistics that support the construction of one of the largest single infrastructural projects in the state’s history. The CGPT&LT comprises multiple disciplines and specialists as well as a broad mix of contractors of various sizes, who, collectively, are responsible for the transport and logistics to and from a remote location in North Mayo.

The Corrib Natural Gas Project - a strategically important development for Ireland

The Corrib field was discovered in 1996 by Enterprise Oil, was bought by Shell in 2002. Following a sometimes troubled history, development of the project commenced in earnest in 2006 when construction of the Bellanaboy terminal began. The project is now in its final phase with work on the onshore pipeline, including the Corrib gas pipeline tunnel under Sruwaddacon Bay. At peak production Corrib will meet 60% of Ireland’s gas needs. The expected life of the field is 15 to 20 years.

A key element of the project is the 8.3km long onshore pipeline. Approximately 4.9km of the pipeline will be laid underneath Sruwaddacon Bay in a specially constructed tunnel. The tunnel which is 4.2m in diameter is being constructed using a tunnel boring machine. The tunnel is lined with precast concrete segments and will be backfilled with cement grout.

This type of construction project generates significant volumes of traffic that must be managed to safely transport the required construction materials, stone, excavated peat, concrete, tunnel arisings, concrete segments and generated water in a region that has a poor road network infrastructure.

Initiative, Leadership, Creativity

Preparatory works at the tunnelling compound at Aughoose, started in July 2011. Significant volumes of materials have been transported including 75,000 tonnes of peat, the import and export of over 1,000,000 tonnes of construction material and tunnelling equipment. In December 2013 just over 2.5 km of the Corrib tunnel had been built. See appendix.
The table below summarises the total number of truck movements, kilometres travelled and volumes transferred

<table>
<thead>
<tr>
<th></th>
<th>Truck Movements</th>
<th>Kms Travelled</th>
<th>Tonnes Transferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>8,531</td>
<td>719,562</td>
<td>94,480</td>
</tr>
<tr>
<td>2012</td>
<td>14,778</td>
<td>1,488,250</td>
<td>490,750</td>
</tr>
<tr>
<td>2013</td>
<td>26,306</td>
<td>4,287,791</td>
<td>497,844</td>
</tr>
<tr>
<td>Totals</td>
<td>49,615</td>
<td>6,475,603</td>
<td>1,083,074</td>
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Safely managing the transportation of these huge volumes of material and personnel, within the boundaries of a stringent Traffic Management Plan (TMP) presented a significant challenge for the Project Team. Key priorities were to minimise the impacts on the local community, identifying the road exposure risks in an area with a high road traffic incident frequency and dealing with a road infrastructure that required significant investment to bring it up to the required standard for a development of this size.

The Project Team designed and implemented a traffic management plan (TMP) that ensured the local road network remained fully accessible to the local community and allowed farming, business and school activities to continue as normal during periods of peak haulage traffic. At all times, the Team ensured that the highest safety standards were met, while at the same time managing, on occasion with Garda assistance, the activities of protestors who were intent on causing traffic disruption to halt the construction project.

**Continuous Improvement**

The Team called on previous experiences and external expertise to strengthen and improve the overall management systems and processes. Important learnings were taken from 2005 when a programme to remove approximately 450,000 tonnes of peat from the Bellanaboy terminal site commenced. In this early phase, a number of trucks overturned on the public road. This was due to local factors, road conditions, driver’s inexperience and schedule pressure. These vehicle events had the potential to cause harm but fortunately none was sustained.

The team learned from these early issues and implemented improvements so as to prevent any reoccurrence. Key to these improvements were the use of project approved haulage contractors, project assessed drivers, road infrastructure investment and a programme of continuous training and safety initiatives as summarised below:

- Defensive driving (HGV, Buses, Arctic trucks).
- Skid pan training for buses.
- Load securement training and only use of ratchet binders.
- Fatigue awareness.
- Winter awareness presentations.
- Driver specific inductions
- Safety items installed in project vehicles
- CCTV Cameras
- Reversing Cameras
- IVMS – Driverite by Celtrak
- In vehicle broadcast communication system
- Tool Box Talks and Project Stand Downs
- GPS driver awards
- Conflict management and Protestor Management Guidelines
- Safety road show
- External audits for road safety culture.
- Seat belts reflective strip to encourage employee intervention.
- Life Saving Rules
- Flat bed trailer edge protection
- Load Restraint and securement
- Life Saving Rules
- Sat navs in HGVs and Buses to allow the drivers look forward at the speed rather than down at the dashboard.
- Road Safety Task Force
A comprehensive defensive driving training programme for project employees, not just the professional drivers, has been undertaken, together with other Road safety awareness campaigns including winter driving, simulator sessions, external involvement (Road Safety Authority) and audits.

**Change and Improvement**

A comprehensive review of previous project experience was undertaken to learn from events, including a detailed understanding of what is important in the community, the controls required and documenting these outcomes in the Traffic Management Plan for the onshore pipeline construction works.

A programme of engagement with key local stakeholders to review their previous experience of project impacts was embarked upon which identified specific community-related concerns.

Local haulage contractors were given the opportunity to work on the project and were supported to greatly improve their approach to HSE, to introduce training and assessment programmes, to increase the awareness of community issues and project specific management controls and to develop local driving skills.

It was recognised that cooperation with local schools, respect for funerals and major local events, improved road safety and understanding of the community was critical to an overall safe, sustainable, progressive project delivery.

Agreement was reached with the local school on suitable time restrictions during school drop-off and pick-up times. A school bus warden scheme was introduced to ensure children's safety when boarding and exiting buses along the project haul route. Haulage was managed to minimise and prevent any interference with funerals or other events and a service was introduced, on some roads, to transport livestock for local farmers.

The details below summarise the findings from an experience based assessment and review of what worked well, what needed to improve and what was required to achieve a Goal Zero (zero harm) target. It also details the initiatives, creativity and leadership that the team displayed on one of Ireland’s largest infrastructural projects.

<table>
<thead>
<tr>
<th>CONTROLS</th>
<th>COMMUNITY</th>
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<tbody>
<tr>
<td>• CCTV &amp; In vehicle monitoring system (IVMS)</td>
<td>• Established a School Bus Warden</td>
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<tr>
<td>• Local household pre condition surveys.</td>
<td>• Community Liaison &amp; Local Engagement.</td>
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<tr>
<td>• Contract Structures &amp; Employee Conditions</td>
<td>• Freephone Telephone Number</td>
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<tr>
<td>• Road Infrastructure Upgrades</td>
<td>• Restricted Haulage Times/Days.</td>
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<tr>
<td>• Transport Manager</td>
<td>• Dedicated Community Liaison Officer (CLO) (Knowledge of Funerals, local events etc.)</td>
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<tr>
<td>• Transport Foreman</td>
<td>• Stakeholder Consultation</td>
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<td>• Road Condition Monitoring</td>
<td>• Livestock Transportation</td>
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<tr>
<td>• Pavement Design standards</td>
<td>• Designated Lay-bys at School Bus Stop locations.</td>
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<tr>
<td>• Convoy Haulage and Lead Vehicle</td>
<td>• Road gritting backup (Winter periods)</td>
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<tr>
<td>• Sealed Tailgates for peat transport.</td>
<td>• Maintaining hedgerows during activity.</td>
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<tr>
<td>• Integrated vehicle broadcast radio system.</td>
<td>• Local Employment Opportunities.</td>
</tr>
<tr>
<td>• Road signage and distance chainage markings.</td>
<td>• Incoming Contractors</td>
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<td>• Route Assessment</td>
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Infrastructural Improvements

The Corrib project has contributed over €19 million specifically to road and local infrastructure improvements since the project commenced in early 2005, this contribution to the local authority recognised the impact the development would have on the poor local road infrastructure and was a contribution to the local authority to fund improvements as part of an overall commitment to road safety.

This spend contributed to pavement strengthening, bridge replacement, road widening, road lining, crash barriers, signage, parking areas, visibility assessments, pavement condition monitoring, road cleaning, livestock transport service and a local school bus warden.

Measurable Outcomes

- A project specific driver code of conduct has been developed.
- Overall standards of local contractor driving and safety performance have significantly improved.
- The implementation of in-vehicle monitoring systems (IVMS) has had a positive impact with haulage contractors not just on compliance but commercially due to fuel savings because of improvements in driver behaviour.
- Driver Performance for IVMS less is less than 0.03% infringement on a zero tolerance based system with project specific speeds less that legal requirements. These IVMS driver performance scores are significantly below industry standards with almost zero infringements. A driver performance league is implemented and good behaviour recognised.
- The local road infrastructure, road signage and safety culture is significantly improved, and will continue to benefit the local community into the future.
- With approximately 50% of the current project workforce drawn from the Erris community, the standards of road safety locally have been improved due to the strong safety culture that has emanated from the Corrib project.
- Awareness of road safety generally within the project and the wider community is greatly enhanced. A number of related initiatives have successfully followed on from it, including a driving skills programme for Transition Year students, distribution of DVDs highlighting Safety Tips for Driving on Mayo Roads and schools Cycling Safety Awareness events. Many of these initiatives have been carried out in conjunction with the Road Safety Authority of Ireland.
- Since July 2011 the project team have safely delivered over 50,000 trucks into the construction sites and travelled over 6.5 million kms.
• Up to a million tonnes construction materials have been transferred, thousands of people transported, hundreds of machines and items of equipment have been mobilised without incident
• Over 5,400 project personnel have undertaken defensive driver training with over 200 professional drivers trained and assessed for competence and behaviour.
• Over 25,000 shuttle bus transfers of personnel between the construction sites.
• Shell senior management undertake a comprehensive activity safety review of all new work scopes, where the contractor must demonstrate to the satisfaction of the review panel that the activity is adequately planned and risks mitigated and managed.
• Work on this major part of the Corrib project has continued without any serious disruption to the construction schedule.

Conclusion

During the period reviewed in this submission (2011 – 2013), the Corrib Gas Project celebrated, at different junctures, two million, three million and four million hours worked without a lost time incident. We believe that the achievements of the Corrib Gas Project Transport and Logistics team in delivering such a huge and varied logistical programme, in sometimes challenging conditions, are worthy of national recognition.

Brendan Moyles
Onshore Pipeline Project Engineer
Corrib Gas Project Transport and Logistics Team Leader