2017 IPLOCA Health & Safety Award

Road Safety Initiative – Robot Road Safety Manager

Dodsal Engineering & Construction Pte. Ltd.

Business Profile

Brief description of the company:

Dodsal Engineering & Construction is the flagship business of the Dodsal Group. As part of EPC business, Dodsal undertakes Engineering, Procurement and Construction projects as well as large scale complex Construction only Projects in the Energy, Industrial and Infrastructure sectors. The Company has been successfully executing projects across the Energy, Industrial and Infrastructure sectors in the Middle East, Far East, Indian and African region for over five decades since 1960. While Dodsal has executed projects in over 40 countries, currently Dodsal is executing projects in India, UAE, Kuwait, Saudi Arabia, Algeria and Tanzania.

The range of projects executed successfully by Dodsal includes all kinds of Pipelines, Process Plants, Power Plants, Industrial Plants, Railways, Roads, Canals and Buildings. etc. for leading International and National Oil and Gas companies amongst other reputed Government Organizations.

Products and Services Offered:

DODSAL Group operates in the areas of Trading and Distribution; Engineering, Procurement and Construction; Exploration and Production.

Number of employees including temporary and sub-contractors:

DODSAL employs around 12,435 employees across all projects in GCC & North Africa Regions which includes 2,525 Sub-contractors and 9,910 DODSAL employees (average for year 2016) .

Business Profile

Management System Certificates:

DODSAL is certified with OHSAS 18001: 2007 , ISO 14001:2004 and ISO 9001:2008.

Brief description of the pipeline site:

Project	:	EPC for Rumaitha/Shanayel Facilities-NEB Phase III
Owner	:	Abu Dhabi Company for Onshore Petroleum Operations (ADCO)
Location	:	Abu Dhabi, United Arab Emirates
Type of Project	:	Engineering, Procurement and Construction

Abu Dhabi Company for Onshore Oil Operations (ADCO) intends to proceed with phase III of the North East Bab (NEB) development as part of ADCO's program to add an additional 400 MBOPD sustainable capacity. New processing facilities will be required to handle the additional oil, gas and water produced at Al-Dabb'iya and Rumaitha fields, located approximately 50 km south west of Abu Dhabi. Water and gas injection facilities will also be required to provide pressure support and enhanced oil recovery.

Business Profile

The project scope includes the following:

Export Pipelines	:	118 Kms
Trunk Lines/ Flowlines	:	270 Kms (Gas lift-3",Oil-6"-18,WI-4"-16,WS/D-6"- 16")
Scope also includes	:	Oil Storage & Export, 17 clusters, Utilities, substation 5, Flare, Production Manifold, Effluent Water treatment, industrial

This project has been awarded to DODSAL & GS Consortium, wherein the above mentioned is the scope for DODSAL. It is a part of Rumaitha / Shanayel Facilities – Phase III Development Project to handle an additional production of 39 MBOPD from Rumaitha and Shanayel fields. The Contract is an EPC for Rumaitha / Shanayel Phase III Development considering the scenario of Hydrocarbon (HC) Water Alternating Gas (WAG).

Findings

What was the situation before the initiative was implemented:

DODSAL Top Management understands that, Road Safety is a key area to improve HSE performance considerably in Pipeline Projects, since pipeline projects are jobs on wheels.

Following systems pertaining to Road Safety have been in place from the beginning of the Project; HSE Induction, Defensive Driving Training, Daily Vehicle inspection, Journey Management Plan, Vehicle spot checks, Drivers Forum & In Vehicle Monitoring System (IVMS). This has enabled Dodsal to communicate, track, and record drivers behavior.

However, an element of possible human inaccuracy existed where the role and behavior of Transport coordinator was important in dealing with the Drivers . We have understood that, almost all the drivers are uncomfortable in coming to the Transportation coordinator to give explanations for their bad driving behavior. As the Drivers are from different regions and speak different languages , it was a daunting task for Transport /HSE department to coordinate and communicate with them.

Findings

What were the reasons that lead to a decision made:

As a practice all Incidents including Near-Misses are analysed at the Project; Out of the total incidents analysed it was observed that Road Safety was an area where improvements were required. Hence to have a control on Drivers and Vehicles and their movements, a Technological support system was a necessity. This lead to the decision of implementing the FMS Robot Manager system.

Following parameters can be monitored by FMS Robot;

- KM driven
- Duration of over speeding violation in each speed zone
- Duration of not wearing seat belt
- Over revving occurrence
- Night driving occurrence
- Harsh braking occurrence
- Harsh acceleration occurrence

However it provides the option to modify parameters based as per the policy and client Road Safety Policy.

Solutions

What was the initiative selection process:

Initiative was selected based on uniqueness of the approach, where the evaluation of Drivers was carried out by a Robot instead of an officer.

How many solutions have been studied:

Existing IVMS system was studied and compared to the FMS DMS Robot system. It was clearly evident that FMSTECH DMS had additional advantages over the existing IVMS system as mentioned in the previous slide.

Why was this initiative selected:

This initiative was selected based on the following factors;

- High accuracy during evaluation and impartial driver review.
- The Robot provides each driver with his own personal feedback.
- In each feedback the FMS Robot will interact with the driver in a friendly manner, 1st by addressing the driver by his name and 2nd, by speaking to him in his own native language as an option.
- It is a Merit system based on loyalty to safe driving hence, each driver will collect points for his good driving and will lose points for bad driving.
- The Robot will inform the driver how to increase his safety points and avoid losing points in a friendly and close to the heart manner.

Implementation

How, when and where was the initiative implemented, funded, communicated and explained to workers:

This initiative was first implemented in 2016 at DODSAL's NEB III project (ADCO), Abu Dhabi where we have over 350 vehicles crisscrossing the desert terrain to cover the entire distance of pipeline spread across 300 + K.Ms of brown field clocking approx. 38,000 K.M each day. It is an uphill task to monitor, meet & train the drivers on regular basis due to time & various base location constraints. Dodsal Management funded this initiative.

The implementation of this system was communicated to all the drivers via Drivers Forum/ display on the notice boards.

Personnel and management commitment; problems encountered;

Management has fully supported in purchasing and implementing this system, which shows the seriousness and commitment of management on HSE matters. Drivers were highly motivated by this initiative and expressed their full support.

Achievements

What were the results on H&S Statistics, productivity, image:

Implementing this system resulted in the following:

- Motivated Drivers ,
- Reduction in the Road Safety violations,
- Reduction in the number of Accidents /Incidents related to road safety,
- Improved Road safety behavior
- Encouraged drivers to accumulate more positive points to obtain awards

How did employees and clients considered this initiative:

Employees were highly motivated by the initiative. It has led to an improved safety culture in the organisation. Employees are more road safety conscious than before.

Clients have appreciated the DODSAL Management on implementing this initiative and acknowledged that there is an improved Safety culture.

Problems encountered; any positive/negative feedback:

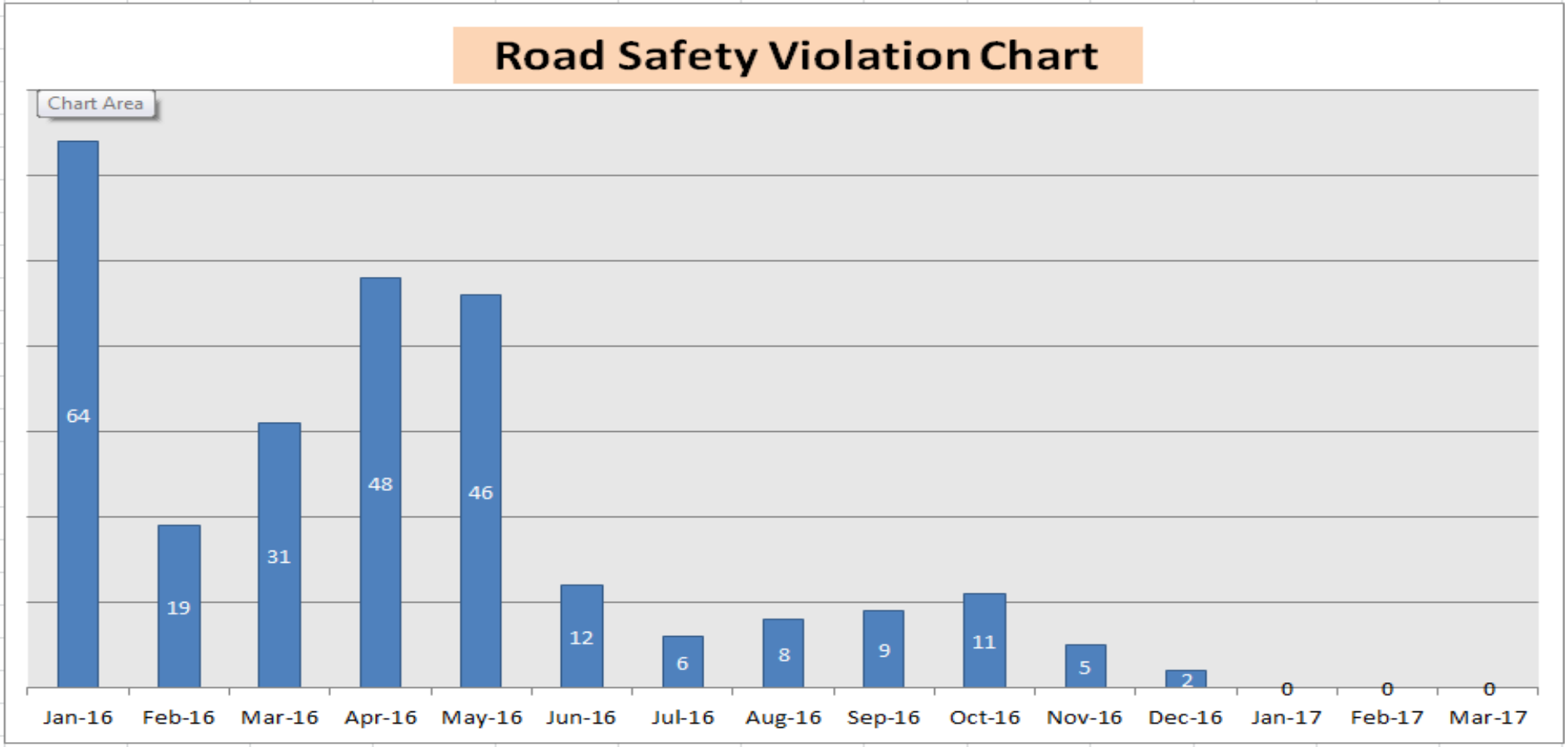
Though few drivers were concerned on usage of the Robot, however after awareness and feedback from fellow Drivers this concern was resolved.

Abbreviations

ADCO	:	Abu Dhabi Company for Onshore Oil Operations
DMS	:	Driver Merit System
EPC	:	Engineering, Procurement and Construction
FMS	:	Fleet Management System
FMS TECH	:	Fleet Management System Technology
GCC	:	Gulf Cooperation Council
HC	:	Hydrocarbon
H & S	:	Health and Safety
HSE	:	Health, Safety and Environment
ISO	:	International Organization for Standardization
IVMS	:	In Vehicle Monitoring System
KM	:	Kilometer
MBOPD	:	Million Barrel of Oil Per Day
NEB	:	North East Bab
OHSAS	:	Occupational Health and Safety Assessment Series
UAE	:	United Arab Emirates
WAG	:	Water Alternating Gas

Road Safety Statistics Before & After Implementation of FMS Robot (Dec-2016)

	Before						After								
Month	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Vehicle	398	425	407	427	415	400	395	342	372	355	345	334	325	306	285
KM driven	1,194,087	1,185,673	1,171,526	1,188,162	1,184,609	1,010,649	1,098,991	1,198,918	995,725	1,090,200	970,662	1,017,990	1,066,786	1,029,910	1,023,978
Violation	64	19	31	48	46	12	6	8	9	11	5	2	0	0	0
Ratio	0.05	0.02	0.03	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00



Long term planning

Plan to monitor, renew or expand the initiative:

DODSAL Management has witnessed an improved Road Safety performance by implementing this initiative and wishes to consider implementing this initiative on upcoming Pipeline Projects.

Please find few evidences (Photos & records) of the implementation in next slides.

Driver using FMS Robot

FMS Robot Implementation Awareness Session.

FMS Robot Implementation Awareness Session.

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EPC FOR RUMAITHA/SHANAYEL FACILITIES PHASE III
ADCO Project No. : P44010

MASS TOOL BOX TALK (MTBT)

Road Safety Awareness:

FMS TECH

FMS DMS ROBOT

FMS DMS Robot Features

- Connected to **FMSTECH** Fleet Management and DMS portal, the **FMSTECH** Robot will collect data on all your commercial vehicles and your drivers performance.
- Your drivers can access their individual reports and feedback using their own personalized RFID access card.
- The Robot will analyze each driver performance and improvise each driver in one-to-one session between the Robot and your drivers. The Robot will address each driver in his own name and speak to the driver in English or in the driver's own native language as an option.
- At the end of the feedback session, the Robot will print the driver receipt with the total points the driver could have earned and the total points he actually earned based on his past driving behavior. It is then up to you to decide which prize, a driver can get when he redeems his points with gift.
- **FMS DMS** Robot will improve your drivers behavior, encourage safe driving, improve your fleet management tools, reduce confrontation with drivers, and save you time and money.

Location: NEB-TSF Area			Date 31-12-2016	
Name of Supervisor Abhijit Singh			Signature	
S. No.	Name	Emp. No. / Sub. Contractor	Position	Signature
1	ANIL. P.	805553	DRIVER	
2	Mohiyaddeen	804114	DRIVER	
3	BENNY	800744	DRIVER	
4	MD BASHEER	8170/10	L.V.D	
5	Syed Sajid	808116	L.V.D	
6	Sanjeev	800179	L.V.D	
7	NAIM	800753	"	
8	Harendra	809308	L.V	
9	JAGDISH SINGH	804668	H.V.D	
10	Satram Singh	801280	LVD	
11	Navneet Singh	800136	H.V.D	
12	Mohd Shahid	805654	—	
13	PARASARAM	801869	H.V.D	
14	SANJEEV KUMAR	802685	L.V.D	
15	NARSINGRAM	805006	HV D	
16	Gopan	803573	H/D	
17	Subhash	801651	H/D	
18	Parwez	804615	LMV	
19	PAPPAN	806606	H.V.D	
20	Rudra	804596	H.D	
21	KAMLESH	803277	H.V.D	
22	PANNALAL	800846	L.V.D	
23	Palaniyappan	805459	L.V.D	
24	ARSHAD	800892	L.V.D	
25	Pashimal PATEL	808215	"	
26	Bhandagkel	721284	L.V.D	
27	Waghuddin	800096	L.V.D	
28	MANGAL	712719	L.V.D	
29	MUKESH	802361	L.V.D	
30	THOLASI	804549	L.V.D	

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EPC FOR RUMAITHA/SHANAYEL FACILITIES PHASE III
ADCO Project No. : P44010

MASS TOOL BOX TALK (MTBT)

Introduction

It is a Merit system based on loyalty to safe driving hence, each driver will collect points for his good driving and will lose points for bad driving. The driver will also lose points if he does not attend his feedback once every two weeks. In such way, we are keeping road safety on mind and heart of every driver rather at all times.

The Robot uses Merit and point system to keep driver commitment to road safety. The Robot will highlight to the driver in every feedback session his driving performance and his results in the session according to several performance parameters and violation criteria, these criteria are configurable in the **FMSTECH** software and can be altered based on client vision and policy:

- KM driven
- Duration of over speeding violation in each speed zone
- Not wearing seatbelt duration
- Over revving occurrence
- Night driving occurrence
- Harsh braking occurrence
- Harsh acceleration occurrence

The Robot will inform the driver how to increase his safety points and avoid losing points in a friendly and close to the heart manner. The FMS Robot will reward drivers for their good driving and deduct points from those who keep committing violations in their driving and not adhering to company road safety policy. The whole feedback session does not take more than 3-5 minutes. At end of the feedback session, the Robot will print the score and loyalty points the driver gained in this session.

Location: NEB-TSF Area			Date 31-12-2016	
Name of Supervisor Abhijit Singh			Signature	
S. No.	Name	Emp. No. / Sub. Contractor	Position	Signature
1	BUDH DASS	720710	L.V.D	
2	Mahmoud	803358	T.D	
3	Mohammed Rafi	802098	L.V.D	
4	S.MALLENDER	800150	L.V.D	
5	BASNAL	803627	L.V.D	
6	Abdul Jabbar	805290	L.V.D	
7	Sulfekar	800137	Supervisor	
8	Md. Kawal	810225	Bus Driver	
9	MDHAMIDSK	803833	L.V.D	
10	Abdulsalam	801605	L/V	
11	Ibrahim	804395	L/V D	
12	E.RAMESH	804800	L/V.	
13	JAGDISHLAL	800014	L/V	
14	Raghavendra	807134	H.B.D	
15	Babu Raj	805507	L.V.D	
16	John Hallmi	121457	L.V.D	
17	Mandeep Singh	803757	L.V.D	
18	Sallahu-C	801981	L.V.	
19	Ameenkhan	803442	L V	
20	Khurshid Alam	805612	L.V.D	
21	Gangaram	809113	HVB	
22	Gangaram C	817028	L.V.D.	
23	V. Radha	805506	L.V.D.	
24	Ravi Kumar	791171	—	
25	Srinivas A	809475	H.V.B	
26	Gangaram	807490	H V D	
27	Md. Shakar	807136	L.V.D	
28	Dontula.S	804707	L.V.D.	
29	ALIKUTTY	803524	L.V.D	
30	V Satwilkumar	804438	L.V.D	

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FMS Robot Scoring Slip

Dodsal

Driver : Mohammed Bablu

Scored Points : 66

Total Points : 66

Date : 07-01-2017 18:26

Powered by FMS-TECH

Dodsal

Driver : Mandeep Singh Mohinder

Scored Points : 98

Total Points : 98

Date : 08-01-2017 18:56

Powered by FMS-TECH

Dodsal

Driver : 2 Pawan Kumar

Scored Points : 94

Total Points : 94

Date : 14-01-2017 19:10

Powered by FMS-TECH

Dodsal

Driver : Vipin Kumar Baldev Singh

Scored Points : 47

Total Points : 47

Date : 04-01-2017 18:16

Powered by FMS-TECH

FMS Robot Monitoring by ADCO HSE Manager

Thank you