



IPLOCA HSE & CSR Committee

Sue Sljivic

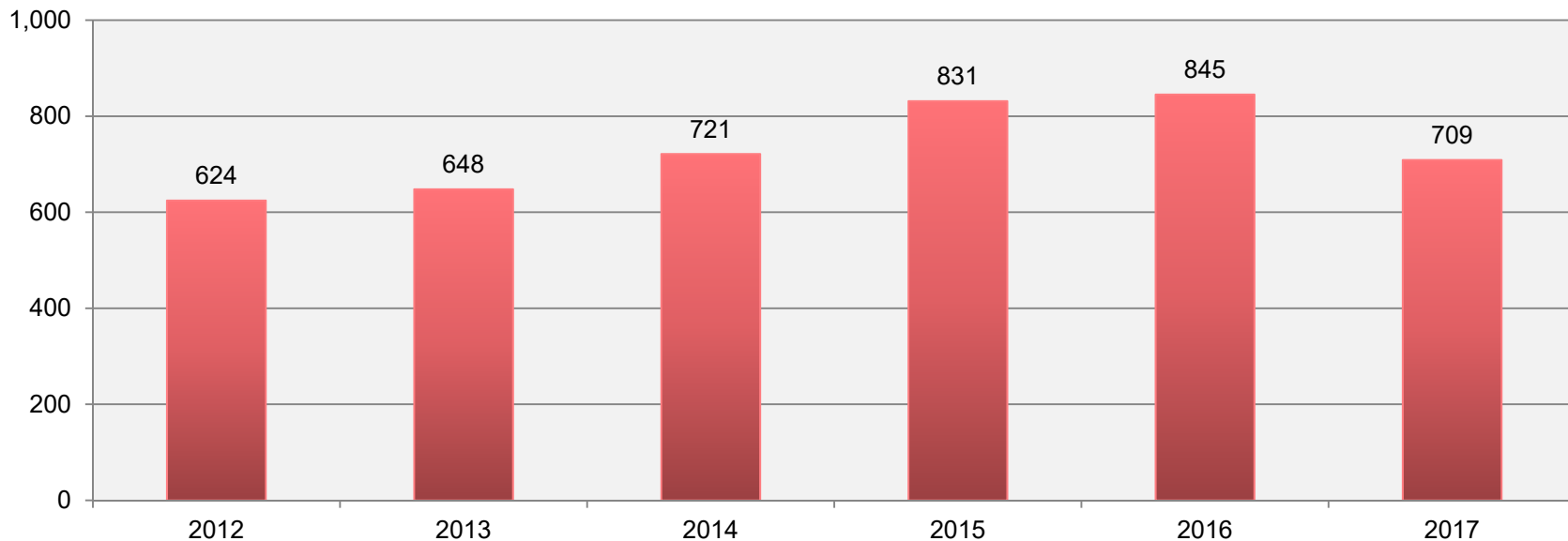
HSE & CSR Committee Chair



2017 IPLOCA Health & Safety Statistics



Worked-Hours in Millions





KPI Objectives for 2020

➤ **Lagging indicators:**

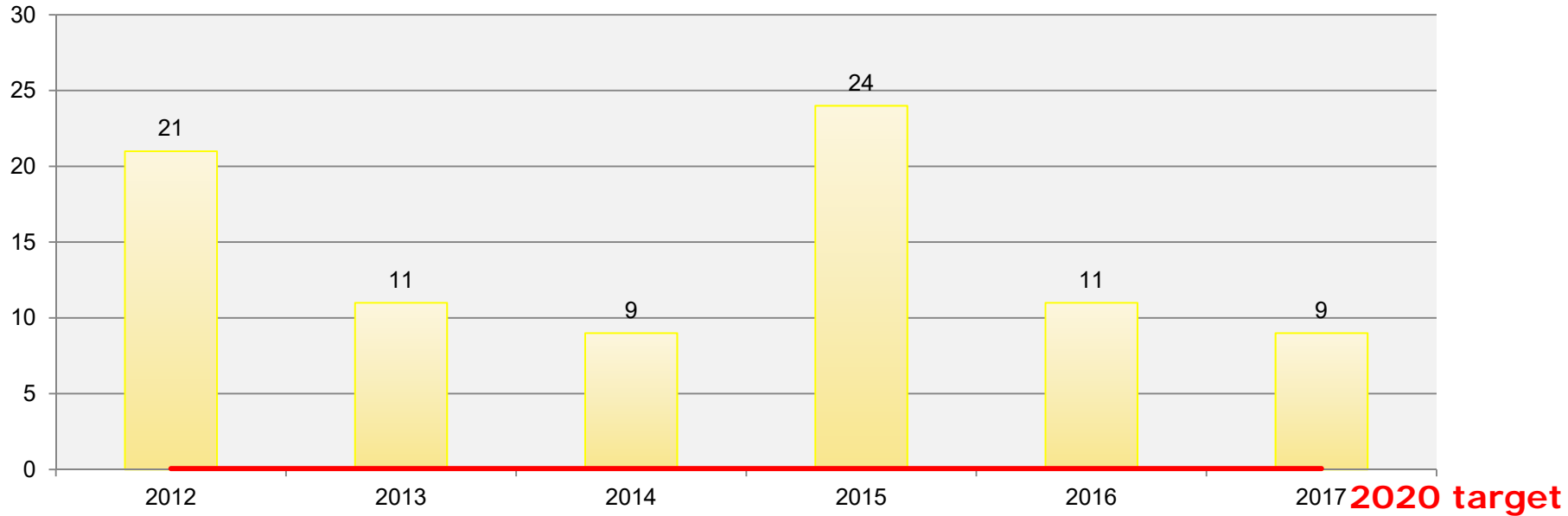
- 0 fatalities
- Total recordable incident rate (TRIR) < 1

➤ **Leading indicators:**

- Minimum 30,000 recorded near misses
- H&S training rate > 15,000 hrs per million wkhrs



Fatalities





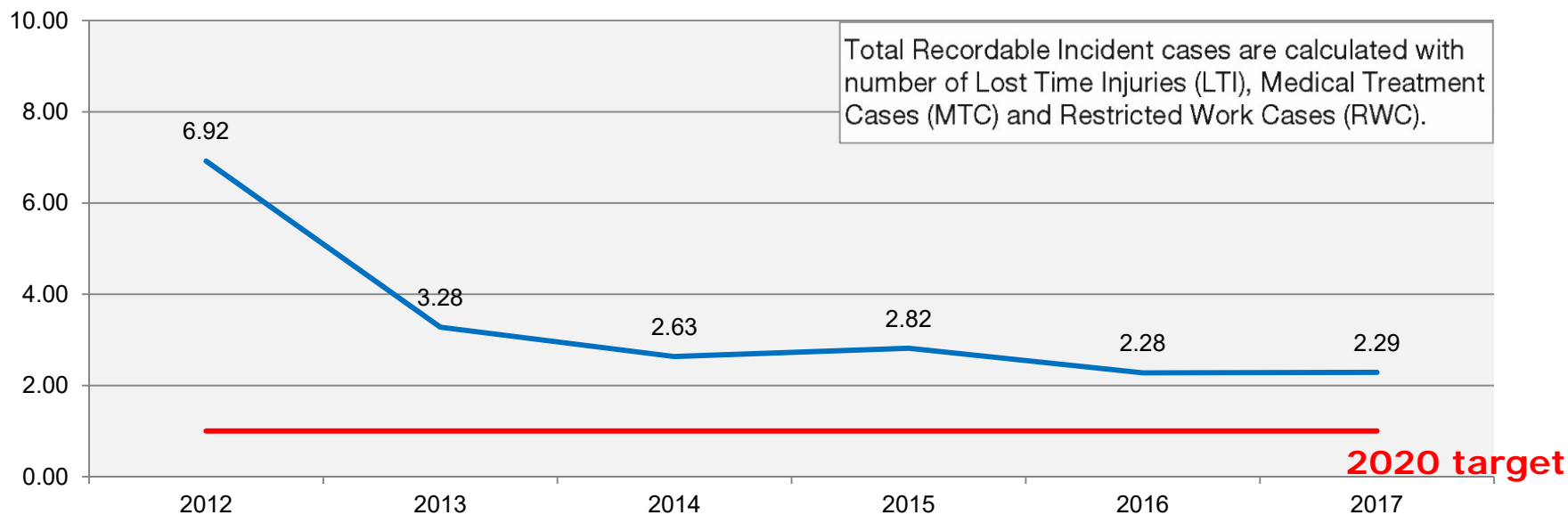
Fatalities

Split of fatalities 2017:

- 4 in road traffic accidents
- 3 in collisions with site equipment
- 1 during lifting operations
- 1 due to an electrocution

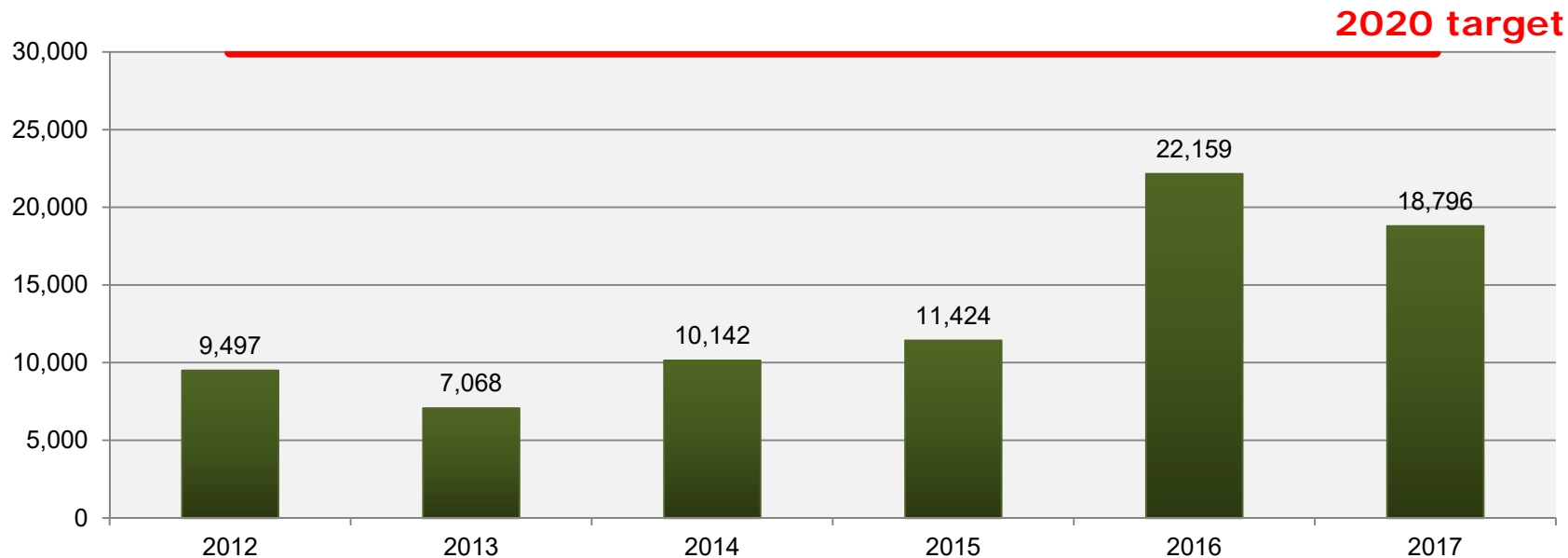


Total Recordable Incident Rate (TRIR) (per million worked hours)



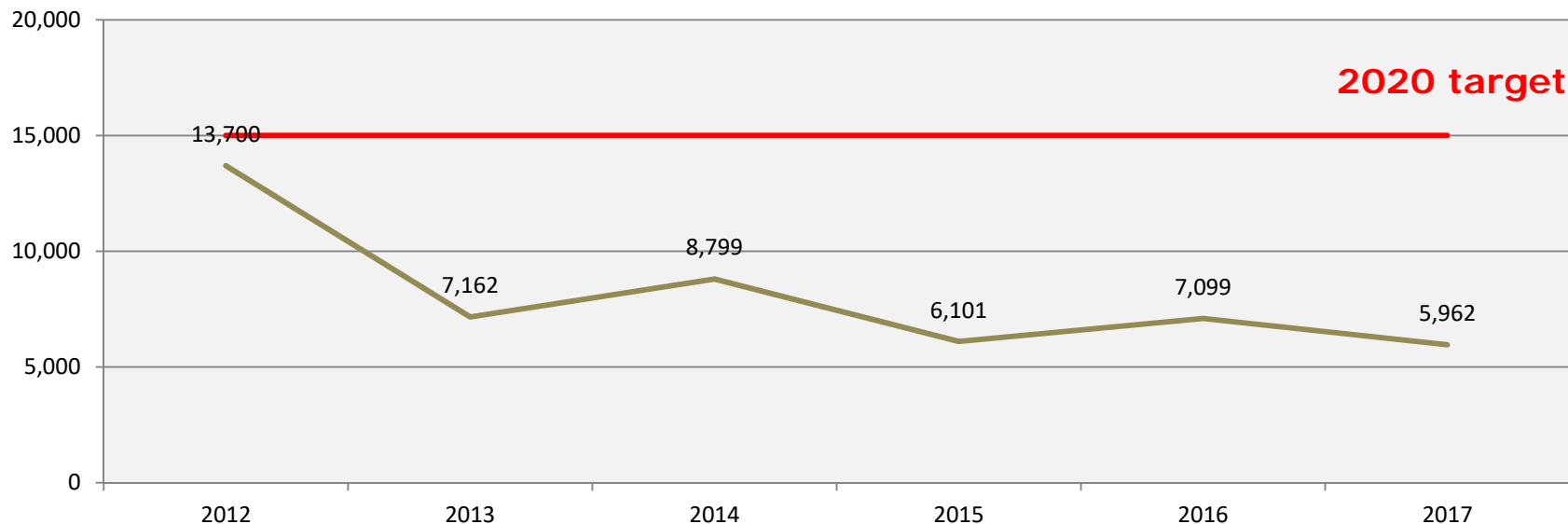


Near Misses Reported





Health & Safety Training Frequency Rate (per million worked hours)



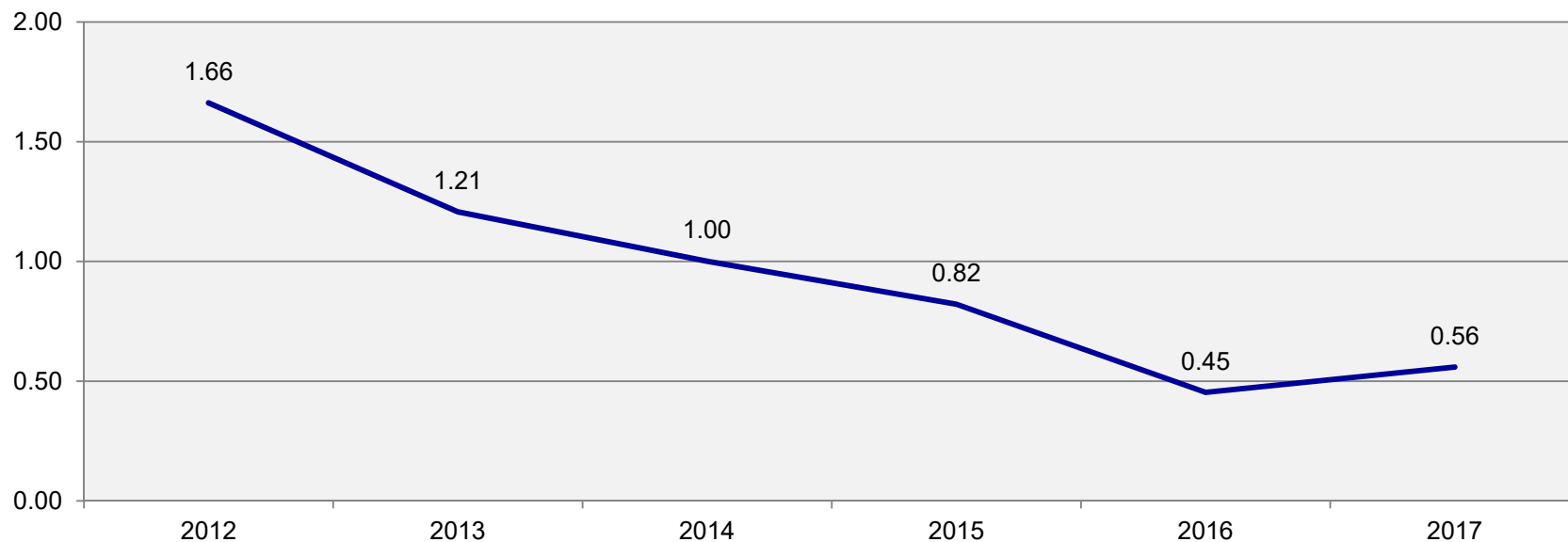


KPI Objectives for 2020

- | ➤ Lagging indicators: | | 2017 |
|--|---|--------|
| ➤ 0 fatalities | / | 9 |
| ➤ Total recordable incident rate (TRIR) < 1 | / | 2.29 |
| ➤ Leading indicators: | | |
| ➤ Minimum 30,000 recorded near misses | / | 18,796 |
| ➤ H&S training rate > 15,000 hrs per million wkhrs | / | 5,962 |

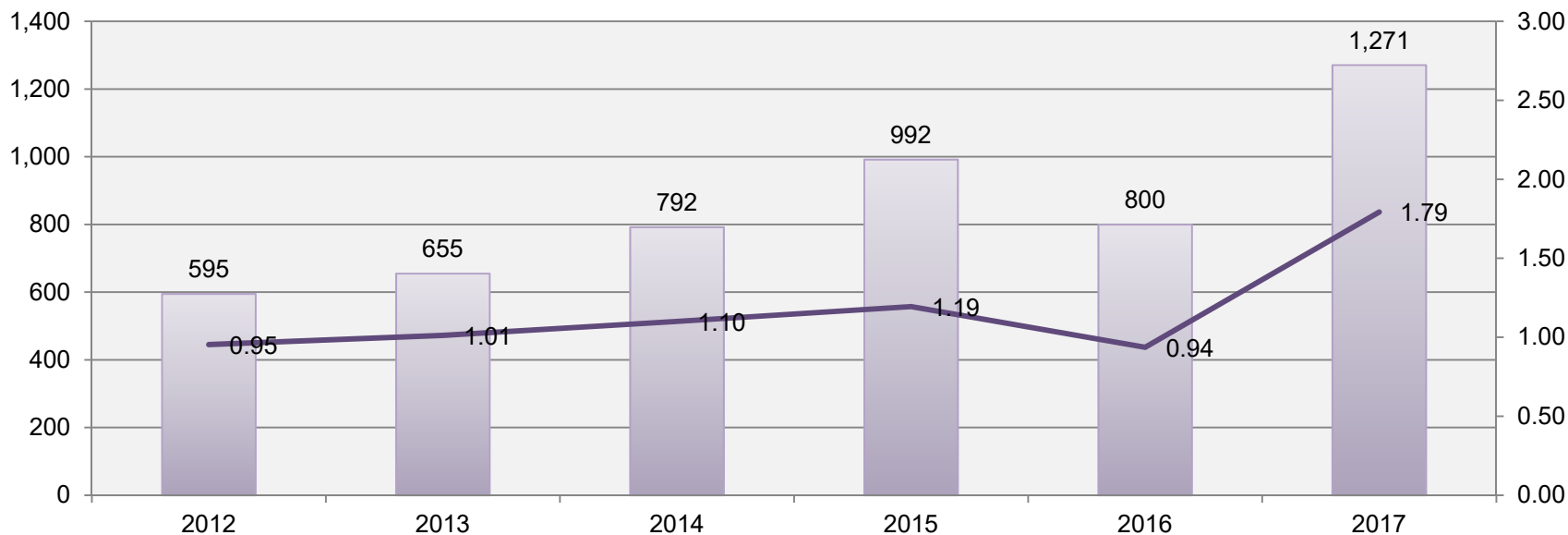


LTI Frequency Rate Index (per million worked hours)





Road Traffic Accidents (and rate per million worked hours)

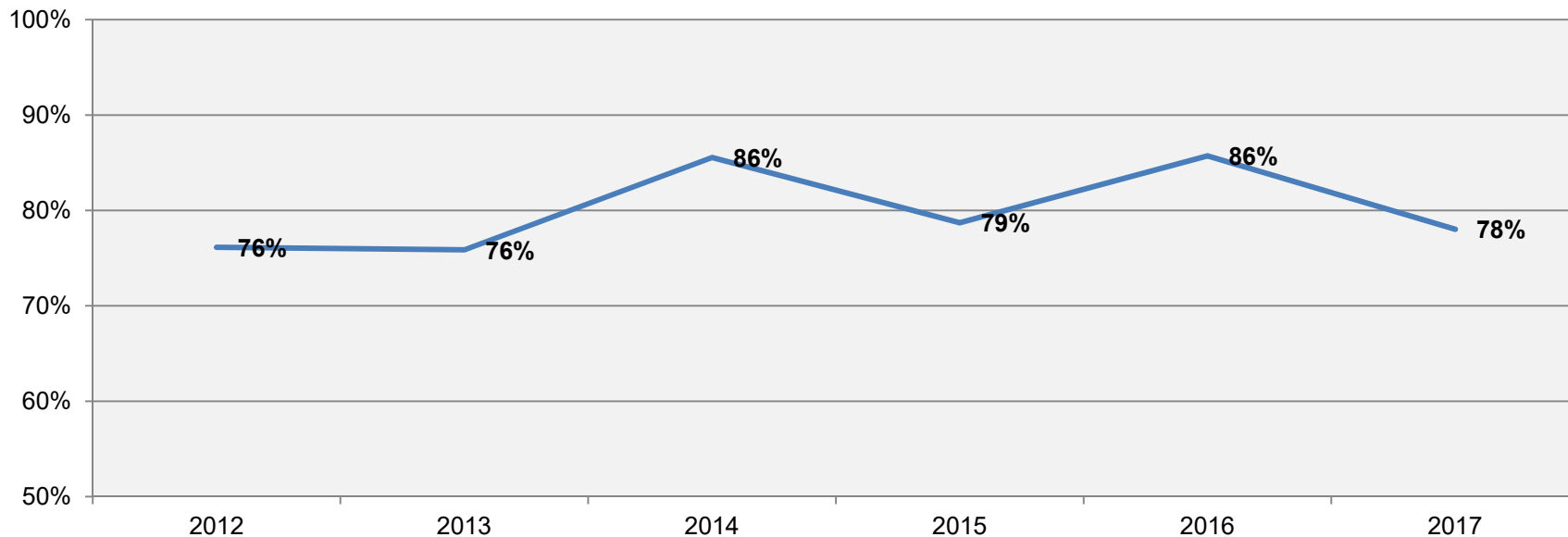




2017 IPLOCA Environmental Statistics

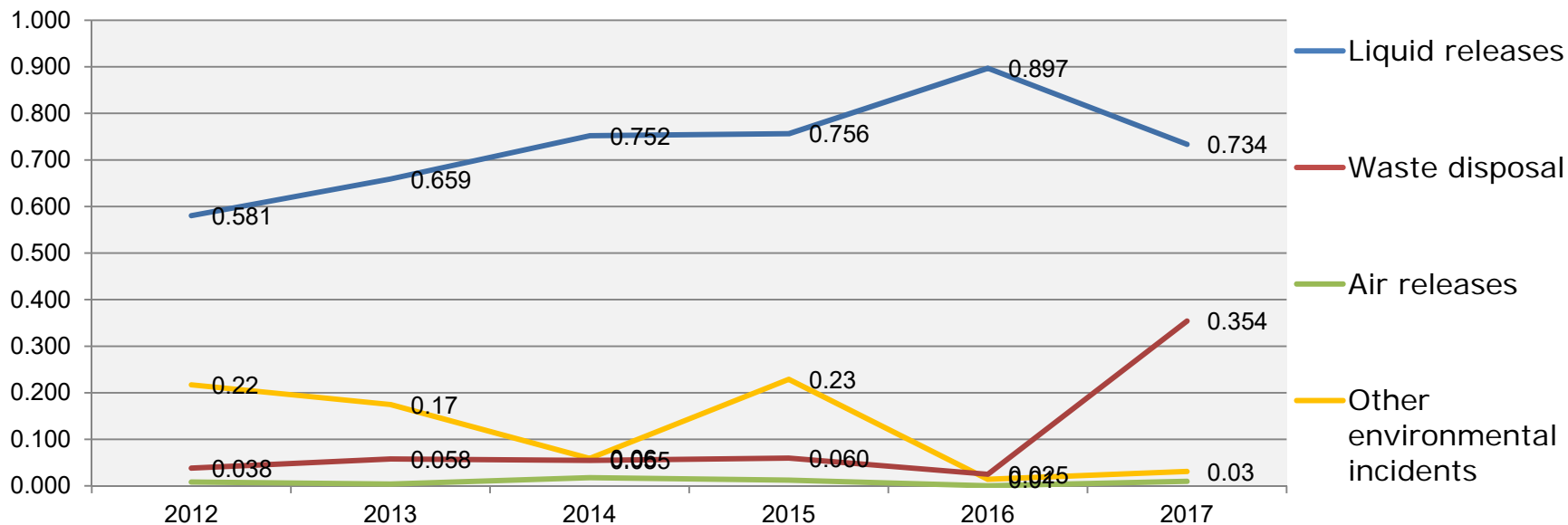


ISO 14001 certified IPLOCA Members



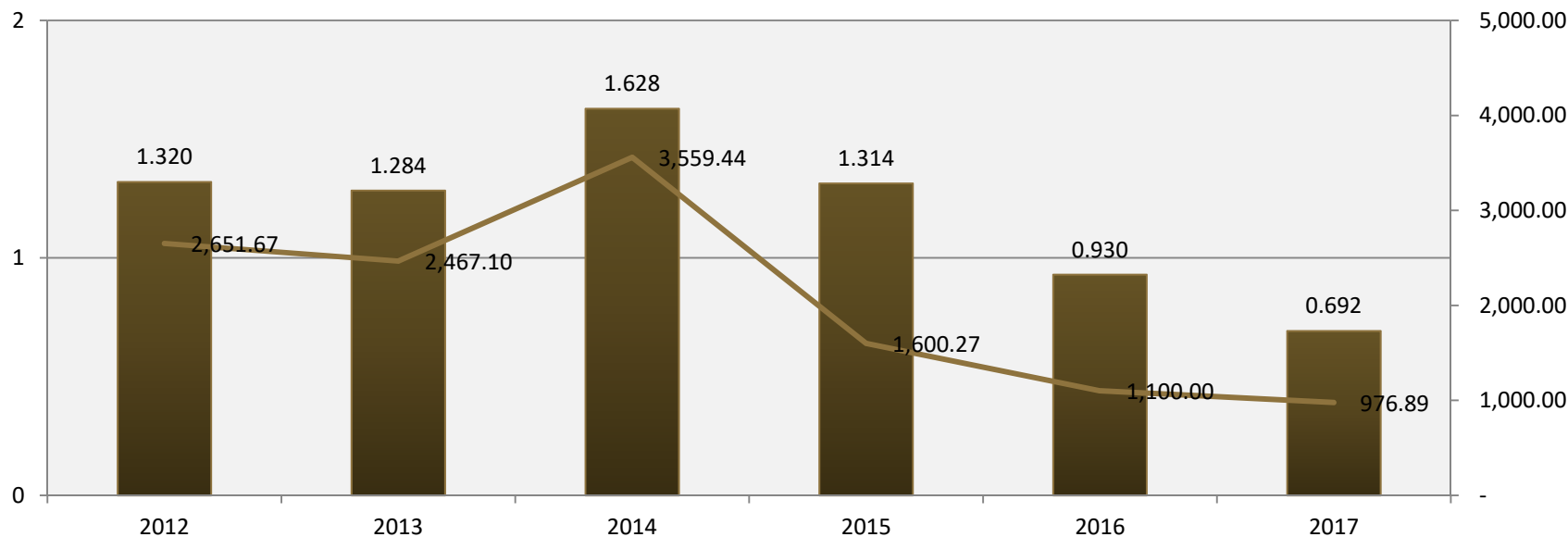


Environmental Incidents Frequency Rates (per million worked hours)





Environmental Training Hours (in millions) (and rate per million worked hours)





2017 IPLOCA Health, Safety & Environmental Statistics

Results published in:

- 2017 Health, Safety & Environmental Statistics Report
- www.iploca.com





Health & Safety Workshop (& webcast)

Saving Lives in the Pipeline Industry



Health & Safety Workshop (& webcast)

Saving Lives in the Pipeline Industry

Geneva, Switzerland – 23 October 2018

- Targeted to all pipeline professionals
- International expert speakers selected amongst contractors, operators and consultants
- Focused on analysis from fatalities reported in the industry
- Followed by the Novel Construction Initiative Fall Session
- All presentations will be available live online



Health & Safety Workshop (& webcast)

Saving Lives in the Pipeline Industry

2018 IPLOCA Health & Safety Award sponsored by Chevron winning entries

7 Insights into Safety Leadership: How safety leadership impacts the prevention of serious injuries and fatalities

Filip Coumans, Executive Consultant EMEA, Krause Bell Group

Root Cause Analysis of Accident Investigations

Martin Geer, Associate Director, RSK Group



Health, Safety & Environmental Shared Experiences



Health, Safety & Environment Shared Experiences

Share your HSE experience,
raise awareness on potential common issues,
and learn from others using the
FREE databank of best practices,
lessons learned and safety alerts
specific to the pipeline industry

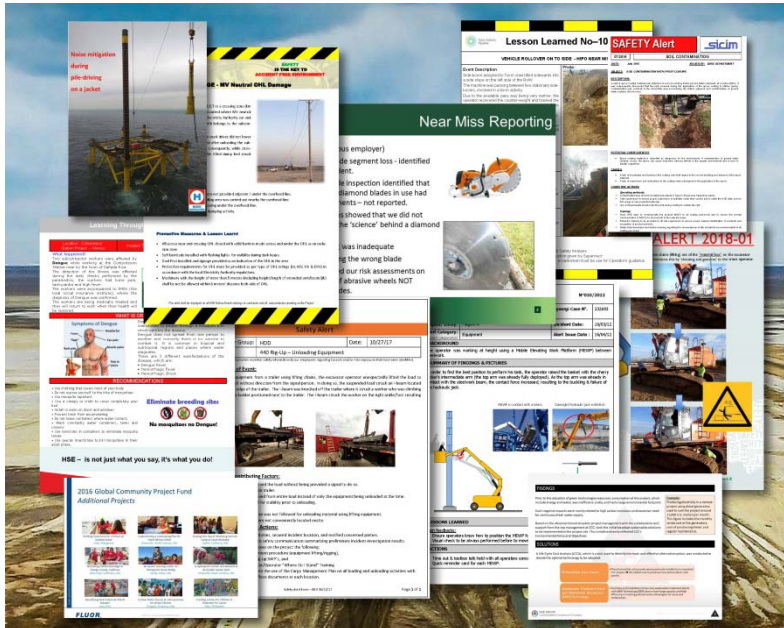
The screenshot shows the IPLOCA website's 'HSE Shared Experiences Platform' page. The header includes the IPLOCA logo and navigation links: ABOUT US, COMMITTEES, MEMBERSHIP, EVENTS, AWARDS, and PUBLICATIONS. Below the header, there's a section for the 'HSE Shared Experiences Platform' with a description of its purpose and a list of links: Guidelines, Form, and Template. A disclaimer is also present. At the bottom, there's a search bar with dropdown menus for Category and Description, and a search button. Below the search bar, there's a table with two columns: Description and Category. The table lists various HSE topics and their corresponding categories.

Description	Category
Confined spaces	Lessons learned
Confined spaces	Safety alert
Corporate social responsibility	IPLOCA Award winners
Electricity	Lessons learned
Electricity	Safety alert
Environment	IPLOCA Award winners
Environment	Lessons learned
Environment	Safety alert
Excavation/earth collapse	Lessons learned



Health, Safety & Environmental Shared Experiences

- 236 documents already uploaded
- open to different languages
- notification service via e-mail





IPLOCA Awards



IPLOCA Awards

Awards are intended to:

- Reward those who are “leading by example”
- Share information amongst the industry
- Inspire the industry for new initiatives
- Profile the industry trends





2018 IPLOCA Health & Safety Award sponsored by Chevron

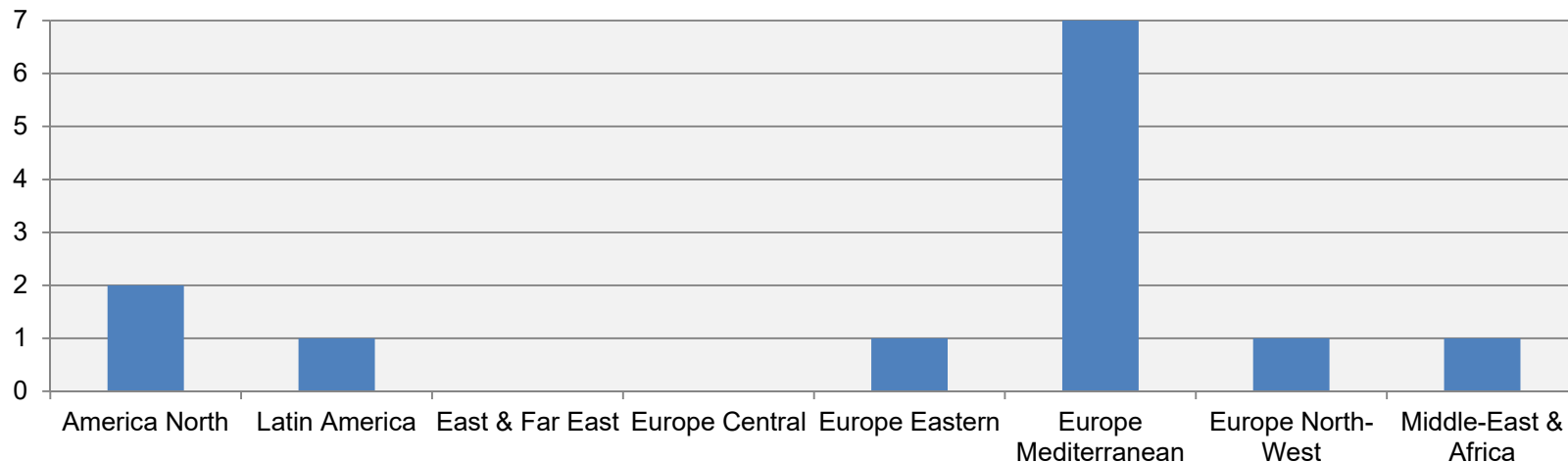
**Anne Lapworth
Commercial Advisor, Supply &
Trading**





2018 IPLOCA Health and Safety Award, sponsored by Chevron

13 entries received



Side booms are the work horse of the pipeline industry. They are as indispensable as the men who operate them



T-REX & 

SAFETY REVOLUTION



Consolidated Contractors Company
2018 IPLOCA Health & Safety Award

“Captain No Zone”





LAURINI
OFFICINE
MECCANICHE

2018 IPLOCA Health & Safety Award sponsored by CHEVRON

“APOLLO”
a safe evolution of sidebooms



PIPELAYER TRAINING PROGRAM

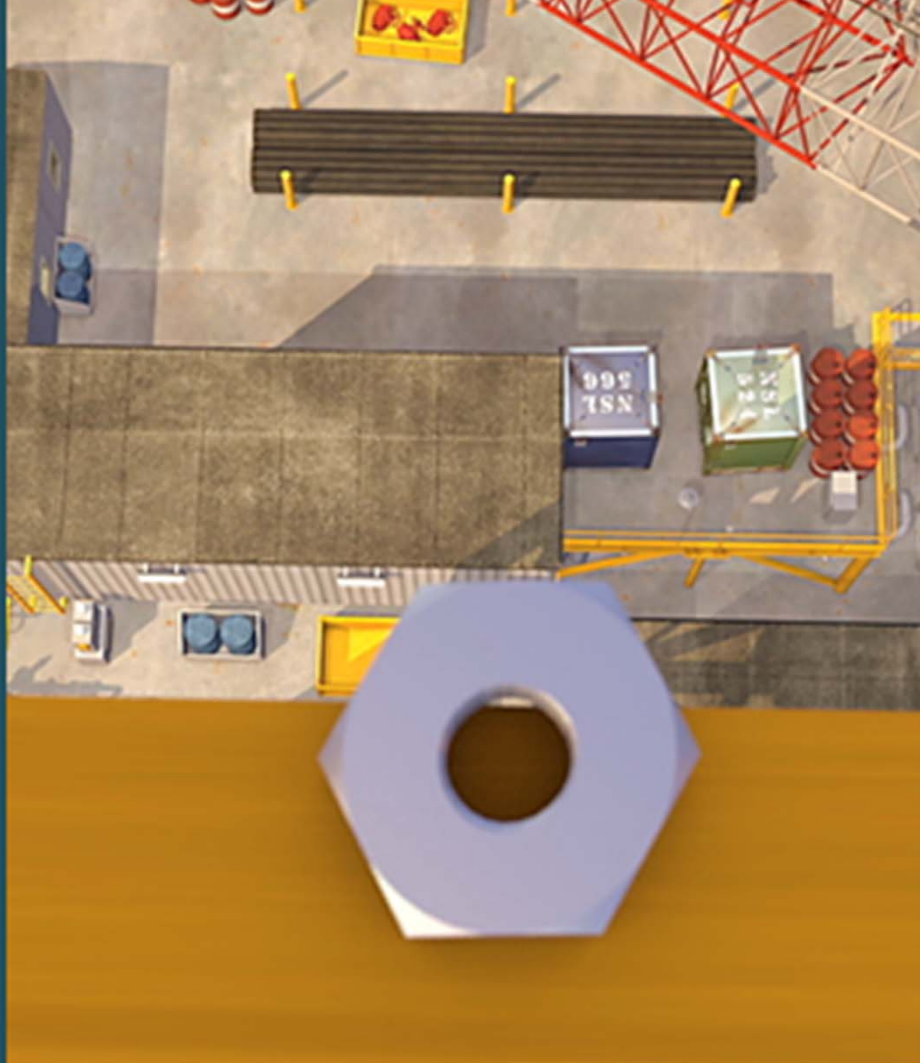
2018 IPLOCA HEALTH AND SAFETY AWARD





Choice not Chance

Reshaping Safety Culture
through Emotional
Engagement





**“IMPROVING LEADER’S COMMITMENT TO A HSE
GENERATIVE CULTURE”**

**ANALYSIS AND CONTINUOUS IMPROVEMENT OF THE HSE
MANAGEMENT SYSTEM**
SERPETBOL PERÚ CONSTRUCCIONES SEPCON S.A.C

V-Sup

A safe pipe support for line pipes to be used
“The right way on the right-of-way”

Iploca entry HSE award 2018

SHAWCOR

Shawcor Pipeline Performance Products BV
Delleartweg 9-E
2316 WZ Leiden
The Netherlands



Martijn Bayens, Engineering Manager (Dhatec)

Martijn.Bayens@Dhatec.nl



Summary Presentation

IPLOCA Health & Safety Award 2018



Let's share our ambitions



ISAC: Installation de Sablage à Aspiration
Contrôlée *or* Vacuum Sandblasting
Controlled System



Dynamic JSA

IPLOCA HEALTH AND SAFETY AWARD 2018



Safety Tag for Lifting Parts

IPLOCA HEALTH AND SAFETY AWARD 2018



The RED Team

Changing culture through **R**evision, **E**valuation, and **D**evelopment



2018 IPLOCA Health & Safety Award



Eddie Killian
RED Team Program Manager
edward.killian@crossfire-llc.com





OFF THE JOB SAFETY



TEKFEN CONSTRUCTION



2018 IPLOCA Health and Safety Award, sponsored by Chevron

3 entries selected



Side booms are the work horse of the pipeline industry. They are as indispensable as the men who operate them



T-REX & 

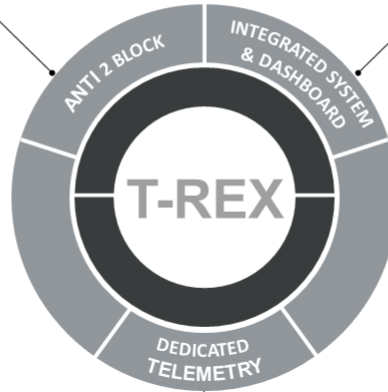
SAFETY REVOLUTION

BENEFITS

2

Main Safety aspects of the innovative "T-REX" model can be summarized in the following:

- ▶ Wireless self powered system that ensures the device continuous connectivity.
- ▶ Gives direct information and alerts to the integrated dashboard.
- ▶ Overcomes the accidental disconnection of the cables e.g. boom assembly/disassembly.
- ▶ Overcomes the common problems with the accumulator.



- ▶ Increases the ergonomics.
- ▶ Gives a single spot to be monitored
- ▶ The Advanced Control System allows to fully customize the authorization for each operator and for each Project location.

- ▶ Identifies the operator via a magnetic badge.
- ▶ Matches the assessment and following authorized area/mode of the operator and then switches on the engine.



WIDER TRUCKS



WIDER FRAME



"T-Rex" model has been designed and manufactured to match over the top technical and Safety standard. Its frame and tracks are wider to increase stability compared to other models of Sideboom of its category (67 t). It has a 127 t capacity.

INCREASED STABILITY



MOMENTUM LIMITER

3



The innovative Momentum Limiter is integrated in the dashboard and provides information to the operator on the load lifted and on the percentage of the capability reached at each single moment of operations.

The model has two functional mode:



“ON ISLAND”

Is activated on default; when during lifting is reached the 90% of the operative limit of the Sideboom, the integrated system stops the operator allowing only safe maneuver.



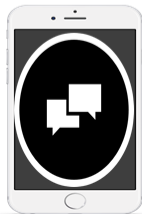
“IN TEAM”

In case of Sidebooms involved in a coordinated lifting to avoid any destabilization of any involved machinery, there is a dedicated selectable mode (only by “Advanced” Operator) called “In Team”. This mode allows the Sideboom to operate according to the Structural Diagram.

STRUCTURAL DIAGRAM

The Structural Diagram is a curve envelope constantly governed by the safety factor of the weaker component of the used configuration. There is no case the “Advanced” operator can bypass the Structural Diagram and the overturning point of the T-Rex.

“T-Rex” communicates continuously with the Bonatti IVMS System.



SMS & Email

It alerts immediately on mobile the Fleet Manager.



Website

Provides full-set info (e.g. overloading, not authorized zone access, equipment properly used, mechanical condition)

OPERATOR TELEMETRY

4

When the operator approaches an area without authorization, "T-Rex" immediately:

01

ALARM

Alerts the operator by acoustic and visual alarm message on the integrated dashboard of the equipment.



02

ALERT MESSAGE

Sends an alert message to the Fleet Manager, if the operator does not stop to operate in the forbidden area

03

STOP

In the case operator keeps on with a forbidden activity, the machine automatically slows down and stops.

Regardless of the operator ranking, when the T-Rex is operated on slope $> 10^\circ$, the equipment allows the operator to use only the first gear in order to reduce the speed and to stabilize the RPM of the engine.

$<7^\circ$

$<14^\circ$

$>14^\circ$

Each operator is assessed based on skills, experience, HSE requirements. From the results of such an assessment operators are included in the following three main categories:

ACHIEVEMENTS



OPERABILITY/ CAPABILITY

Takes fully advantage the operator's capabilities in any kind of terrain.



RESTRICTED AREAS

Define areas where equipment cannot be operate.



CUSTOMIZATION

Can utilize pre-set conditions avoiding human interference.

GOALS

The "T-Rex" model prototype is used on TAP Project in the JV Bonatti – J&P avax, in order to test and to enhance its innovative technology. Bonatti will apply this new technology to all the Projects. The devoted operator competences and skills assessments, already utilised on Projects, shall be incorporated in the worldwide Bonatti database.



5





2018 IPLOCA Health and Safety Award, sponsored by Chevron

The “T-Rex” & Safety Revolution model was selected for the following reasons:

- it shows management commitment
- it solves an industry problem
- it ties-in with “Man & Machine” subject
- it is an innovative technology
- it has the potential to become an “Industry Standard”





Safety Tag for Lifting Parts

IPLOCA HEALTH AND SAFETY AWARD 2018

Adding Value

The Safety tag for lifting parts allows each operator of construction machine, but also each worker to know at all time if a pin is in its axis. Thus, if a risk of falling of the lifting equipment exists or not.



Never Again!



Management Commitment

As the implementation of this solution has been done in the same time in all Spiecapag projects, it has been impossible within the support of Management.



Safety Tag for Lifting Parts

Step Forward in Health and Safety Management

When Spiecapag people searched a solution, this one was not seen. So, it is a real innovation.

In addition, this action is easy to share and to implement wherever. And the most important, everyone can see at all time if a safety sensitive device is in place to avoid severe incident.

	OK	NOT OK
Top Hook Black pin + retainer beam	<input type="checkbox"/>	<input type="checkbox"/>
Top Hook Black pin + retainer beam	<input type="checkbox"/>	<input type="checkbox"/>
Top Hook Black clamp cable	<input type="checkbox"/>	<input type="checkbox"/>
Down Hook Black pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>
Down Hook Black Hook safety catch	<input type="checkbox"/>	<input type="checkbox"/>
Bottom Black pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>
Bottom Black clamp cable	<input type="checkbox"/>	<input type="checkbox"/>
Pulley pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>
Bottom cable	<input type="checkbox"/>	<input type="checkbox"/>
Bottom Pulley frame pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>
Bottom Pulley axle pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>
Counterweight axle pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>
Counterweight frame pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>
Bottom pin + retainer	<input type="checkbox"/>	<input type="checkbox"/>



Efficiency

The implementation of safety tag or flag on the projects helped to achieve the following positive outcomes:

- Since then, no incident or pin loss has been observed;
- Efficiency improvements in:
 - detection of lifting equipment and gears failure before incident (elimination);
 - simplify day-to-day lifting equipment and gears check;
 - knowing of safety sensitive parts from workers.
- Improved morale of the crews;
- Client confidence in Spiecapag and also in the management team's commitment to safety improvement.



Additional Benefits

Team work with different departments in all the area (head office, workshop, projects) is a kind of team building and give Spiecapag personnel a glimpse to positively repeat it again with the same success. Client confidence in Spiecapag and also in the management team's commitment to safety improvement is also a plus.





2018 IPLOCA Health and Safety Award, sponsored by Chevron

The Safety Tag for lifting parts initiative was selected for the following reasons:

- it is a simple solution that could be applied to many things
- it is a visual control / indicator system
- there is no training required
- it has proven to be effective with low cost





OFF THE JOB SAFETY



TEKFEN CONSTRUCTION

LESSONS LEARNED

During a major pipeline project in Turkey 15 years ago, 3 children drowned while playing with the water in the trench.

Even though the area was barricaded and warning signs were installed, 3 children passed over the barricade and the existing precautions proved insufficient to prevent the tragic accident.

Tekfen Construction itself was not involved in the pipeline project, but in the construction of the onshore terminal at the end of pipeline. The incident was shared with all Contractors working on the project via the «lessons learned» document.



TRAINING

A training programme called “Akıllı Adımlar” (Smart Steps) was developed with the name of, apart from and in addition to the project requirements. TEKFEN’s management funded the entire the training programme.

TEKFEN conducted a series of trainings on the pipeline, to raise awareness about the possible hazards of pipeline construction. Trainings were also given in camp training facilities, schools, mosques, as well as private residences.

As many as 1,242 children received trained along the pipeline corridor in a period of 2.5 years.



During the course of the project, **no children were involved in any incident** related to pipeline construction activities.



OFF-THE-JOB SAFETY

As part of the training programme, TEKFEN decided to publish an **Off-the-job Safety Booklet** with the aim of increasing the safety awareness of its employees, their families and their close environment.

A publishing team formed at TEKFEN Headquarters was in charge of publishing the «Off-the-Job Safety» handbook, to be used at project sites as well as for general purposes. The bilingual handbook was launched with an awareness campaign and distributed to around 22.000 TEKFEN personnel and stakeholders worldwide.

Many of the employees requested extra copies to present them to their children's school, as the teachers interested and thought that it can be used as a reference for child-rearing.



TEKFEN CONSTRUCTION

OFF-THE-JOB SAFETY

Tekfen urges its employees and stakeholders to be aware of safety at all times, as it begins from waking-up in the morning and shall not be forgotten any minute during the day.

TEKFEN's «Off-the-Job-Safety» booklet is now available on its website as well as on mobile devices through the following link; <http://www.tekfeninsaat.com.tr/off-the-job-safety-book/index.html#20>

Or with the QR- Code on the right.



TEKFEN CONSTRUCTION



2018 IPLOCA Health and Safety Award, sponsored by Chevron

The “Off-the-job Safety” campaign was selected for the following reasons:

- it involves educating the community
- it demonstrates stakeholder engagement
- it is not only confined to pipeline fields
- it is a proactive approach





2018 IPLOCA Health and Safety Award, sponsored by Chevron

2 Runners-Up





Safety Tag for Lifting Parts

IPLOCA HEALTH AND SAFETY AWARD 2018



OFF THE JOB SAFETY



TEKFEN CONSTRUCTION



2018 IPLOCA Health and Safety Award, sponsored by Chevron

Winner



Side booms are the work horse of the pipeline industry. They are as indispensable as the men who operate them



T-REX & 

SAFETY REVOLUTION



2018 IPLOCA Environmental Award sponsored by Shell

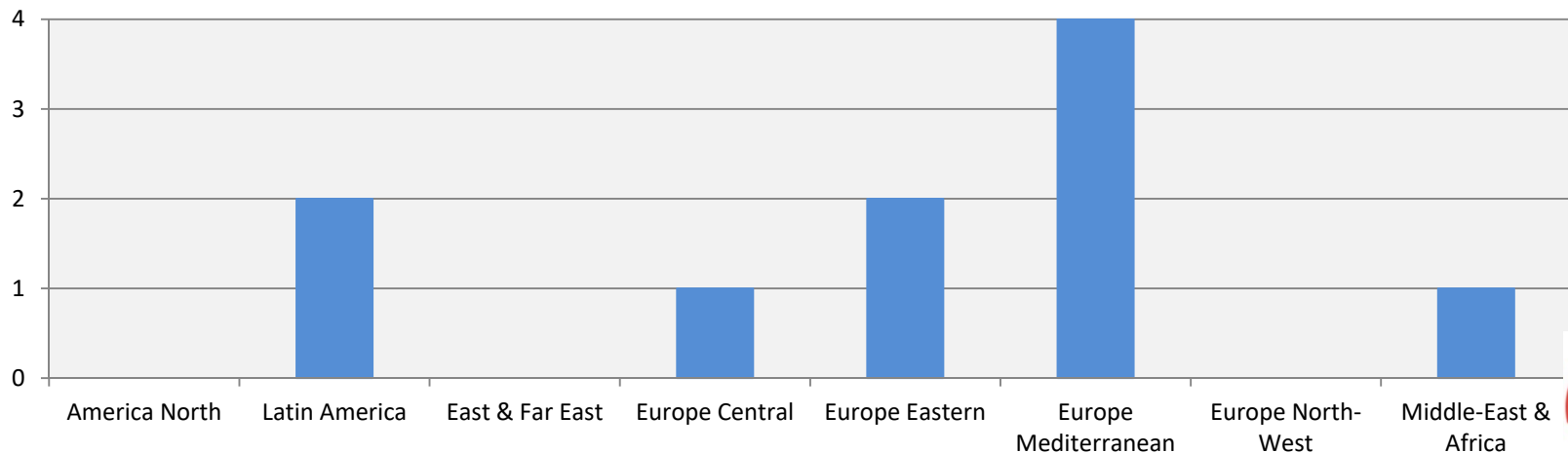
**Loek Vreenegoor
Manager Asset Support Europe**





2018 IPLOCA Environmental Award sponsored by Shell

13 entries received



TAP – EPC Onshore Pipeline
GREECE Lot 2 & 3



CULTURAL HERITAGE PROJECT



Construction and Protection of species with high conservation value.



- ✓ Bonatti-JP Avax s.r.l, assigns great importance to manage all aspects related to **Environment, Communities & Cultural Heritage**
- ✓ *'Our ambition is to avoid negative impacts, enhance positive effects and contribute to sustainable development'*
- HSE Policy of Bonatti - JP AVAX**
- ✓ During **ESIA** Study from 2016 and after **Pre Construction surveys** specific areas were recognized for their biodiversity value.

“A clean environment is a safe environment” The asbestos removal case

BONATTI J&P AVAX_TAP PROJECT

IPLOCA ENVIRONMENTAL AWARDS 2018

Sponsored by Shell

Consolidated Contractors Company

2018 IPLOCA Environmental Award

“CCC’s Go-Green 100 % Portable Power Cabin”





2018 IPLOCA Environmental Award

STREICHER's Drilling Fluid RECYCLE Plant – less Waste, less CO₂ with trenchless Pipeline laying!



“SMART PIPELINE SYSTEM”, an innovative Fiber Optic Pipeline Structural Monitoring System

2018 IPLOCA Environmental Award sponsored by Shell





**ENVIRONMENTAL MANAGEMENT IN PIPELINE
CONSTRUCTION FOR PRESERVATION OF THE
BIODIVERSITY**

**SERPETBOL PERÚ CONSTRUCCIONES SEPCON
S.A.C**



2018 IPLOCA
Environmental Award



Let's share our ambitions



ISAC: Installation de Sablage à Aspiration
Contrôlée *or* Vacuum Sandblasting
Controlled System

IPLOCA

ENVIRONMENTAL AWARD 2018 SUBMISSION



Northern Gas Pipeline: Cultural Heritage

Penguins' nest monitoring in pipelines' construction areas

TECHINT Engineering and Construction

EROSION CONTROL ON TOPSOIL

TANAP NATURAL GAS PIPELINE,
COMPRESSOR AND METERING STATIONS
CONSTRUCTION, TURKEY



TEKFEN CONSTRUCTION

WATER ABSTRACTION FROM FRESHWATER CRITICAL HABITAT

TANAP NATURAL GAS PIPELINE LOT3 CONSTRUCTION TURKEY



TEKFEN CONSTRUCTION



2018 IPLOCA Environmental Award sponsored by Shell

3 entries selected



Consolidated Contractors Company

2018 IPLOCA Environmental Award

"CCC's Go-Green 100 % Portable Power Cabin"



INTRODUCTION

Protecting and minimizing the construction impacts on the environment is one of CCC's core values and utmost priorities. Over the years CCC has been striving to become a leader in sustainability in the engineering and construction business by adopting new technologies and sustainable work operations that can help in reducing the environmental footprint of CCC on the surrounding environment.

As a result CCC decided to initiate the use of sustainable green technologies on its projects allowing it to reduce its energy and water consumption.

With further top management commitment to reduce the company's impacts on the environment, additional CCC projects will hopefully embrace new approaches that rely on state of the art technologies which rely on renewable resources and aim at conserving precious resources.

A project's mobilization period varies from 1 to 3 months depending on the availability of the services at the remote area. At one of the CCC Projects in Oman we tried to find a solution to minimize the time by setting up a portable power unit fits for operation upon installation.

Traditionally remote construction areas and sites depend on generators to produce electricity. However, after investigation we realized that between PV modules and generators, the latter would in fact cause higher running costs to perform the same job. Considering our prior experience in solar systems and to promote an ecofriendly approach we wanted to avoid generators for the portable power units.



Description of the Initiative

The idea was to use solar technology and recyclable ecofriendly material to set up a conventional portable power cabin that will be fully equipped and furnished. After the generous support of the project management an initiative of making a "mobile green cabin" was started to power appliances that are required for offices and camps use with high availability, efficiently and dependability.

The Initiative was given a name of "CCC's Go-Green 100% portable power cabin" using an existing cabin as a basis where several modifications to transform it into a power cabin we performed, these modifications and adjustments included:

- Dismantle wood from original cabin to clean and reuse
- Remove chemical paint
- Weld battery boxes and PV module frame mounts
- Prepare and place cellulose insulation
- Paint
- Install PV modules
- Experiment with external design options
- Assemble office furniture

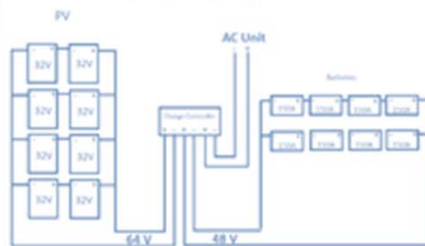


Content of the "CCC's Go-Green 100 % Portable Power Cabin"

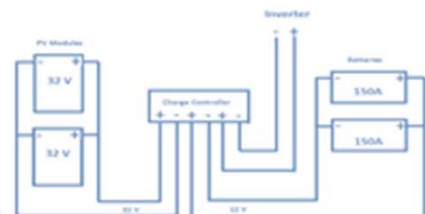
The information mentioned below refers to the initial calculation stage of this initiative and varies based on several factors e.g.: direct sunlight, angle and position of modules, shading design architecture, etc.

- 12 polycrystalline PV modules (250 watts) with open circuit voltage of 32 Volts.
- The modules were used in previous systems and are reused in this portable cabin.
- 12 deep cycle maintenance free (sealed batteries) AGM (of 150 Amp)
- These batteries recharge and discharge faster than the normal flooded batteries used in cars and are most commonly used in PV setups.
- Solar Cables
- Special cables for the connection between: PV modules and charge controllers, battery storage, charge controller and the inverter.
- The selected cables are UV and temperature resistant in order to minimize energy losses from the heat.
- PV connectors to connect PV modules to Solar Cables (PV-SC01, PV-SC02, PV-SC03, PV-SC-06).
- 3 Charge controllers (2: 60A MPPT and 1: 45A PWM)
- Three controllers were selected to ensure that each system functions separately, simplifying testing and troubleshooting.
- Two inverters (1000 watts) that are used as mentioned below for lights, desktop computer and networking.
- The entire system is divided into 3 sub-systems:
 - Air-condition (12000 BTU "Cooling" 48 volts DC air-condition including: split unit, compressor and 45A PWM charge controller without the use of the inverter, directly connected)
 - IT (Consists of desktop computer, UPS battery to protect and stabilize the electricity voltage fed into the desktop, 3G modem and switch for local area network measures, a 1000 watts inverter, and a 60A MPPT charge controller)
 - Lighting (Consists of 6 LED AC lights, 1000 watts inverter and 60A MPPT charge controller).

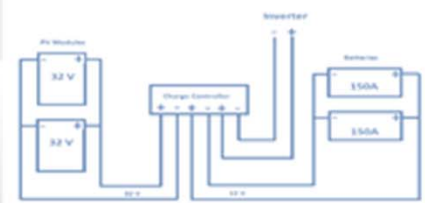
Air Condition Unit Diagram



Lights Diagram

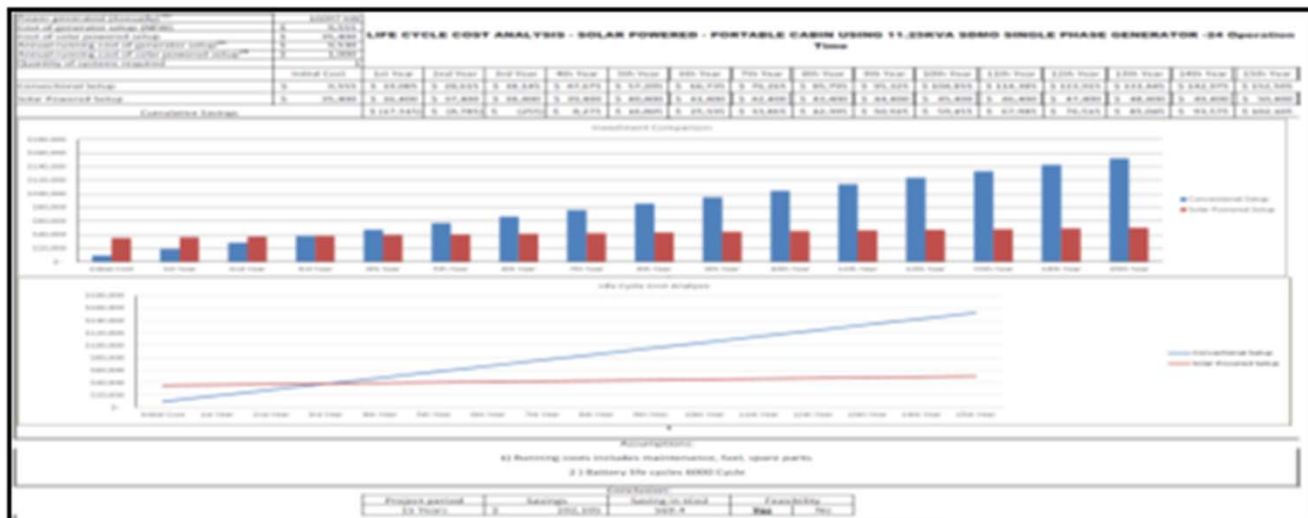


IT Diagram



ACHIEVEMENTS

Such a facility can completely cover the power needs of remote areas, especially in the gulf region which is exposed to optimal sunshine nearly all year round. Also, since it's a fully equipped mobile cabin it minimizes transportation expenses and CO2 emissions that does not depend on biofuel nor any source of electricity. In the future, further advancements can be made on the cabin such as: rainwater harvesting to clean the modules in addition to solar powered water pumps and heating water in toilet / shower units.



Assumptions:

- Running costs includes maintenance, fuel, spare parts.
- Battery life cycles 6000 Cycle

Project Period	Savings	Saving in CO ₂	Feasibility	
15 Years	\$ 102,105	569.4	Yes	No



CONCLUSION

The CCC HSE Group always endeavors to operate in diligent, professional and responsible manner consistent with world class companies and aligned with its stated HSE business goals and policy.

With the high reductions in energy and water consumption that resulted from the implementation of the above sustainability and environmental initiative, CCC's top management is committed to consider similar initiatives in its future projects. The long term plan of CCC for environmental sustainability and adequate use and conservation of resources includes:

- Expanding these initiatives to many other CCC projects and camps by integrating a variety of energy-efficient and conservation best practices into everyday operations.
- Working on continuously adopting new technologies and methods to reduce the emission of greenhouse gases.
- Utilizing CCC's online knowledge platform to share ideas, thoughts, and experiences from different projects.





2018 IPLOCA Environmental Award sponsored by Shell

The Go-Green 100% Portable Power Cabin was selected for the following reasons:

- it shows management commitment with a long term vision
- it is an innovative initiative in cost savings (fuel reduction)
- it solves problems that every contractor has and it is easy to adopt
- it is going beyond the pipeline business
- it is scalable and could easily be expanded and applied everywhere



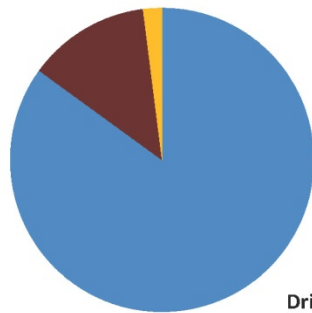


2018 IPLOCA Environmental Award

STREICHER's Drilling Fluid RECYCLE Plant – less Waste, less CO₂ with trenchless Pipeline laying!

Development and issues:

Horizontal drillings have a high environmental sustainability, as a trenchless laying of pipelines and cables is made possible. However, this technology also carries a **great problem**. The drilling mud produced at each drilling must be disposed of properly. In addition, liquids are **difficult to dispose of**. Our experts and management with their many years of experience and know-how have **responded** by building a **RECYCLE plant** that **reduces** the amount of **waste by 80 %** and thus significantly **decreases transportation volume**. Thus, the measure had **two problems** that arise in horizontal drilling eliminated. Landfills aren't available everywhere which means that there are **long transport routes**, which lead to a **high CO₂ pollution**.



Drilling mud consistence

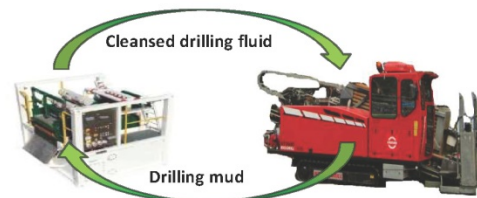
Less Waste, less CO₂
with trenchless Pipeline Laying!

Through the use of **STREICHER RECYCLE plant** we **reduced**:

- waste quantity
- CO₂ emissions

and **saved**:

- water
- fuel
- financial resources

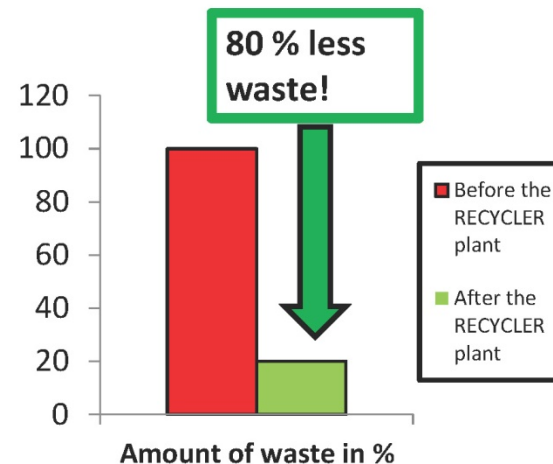


Untreated drilling fluid is pumped upwards.

Technical description:

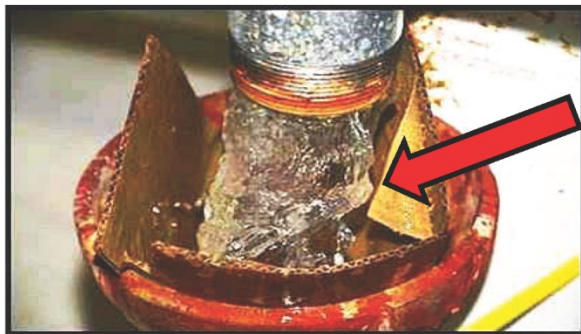
The **mobile plant** is designed for the treatment of used water-based drilling fluids, which are used for the application at **temporary construction sites**. The mobility of the plant allows for positioning it **directly or in the vicinity of the place where the waste is generated**. A permanent treatment of **10 m³ / h** is possible with appropriate preconditioning of the used drilling fluid.

- **Mobile plant**
- **Easy to transport**
- **Easy construction**



The STREICHER RECYCLE plant was able to reduce the waste by **80 %** and decrease the CO₂ emissions that occur during the transport!

Waste materials after treatment with the RECYCLE plant:



The clean water can be used again for the drilling fluid. The quality of the water is suitable for draining it into the canalization. This process requires a permission from the wastewater treatment plant operator.

The ejected solids from the centrifuge can be dumped into a landfill and **account for only 20 % of the initial amount!**

GOALS ACHIEVED:

- **80 % less waste!**
- **Energy-efficient** and **environmentally friendly.**
- **Less use is made of landfill areas**, as only **20 % of waste** is created!
- Drilling fluid is **cleaned** and **used several times!**
- **Polluted waste** can be separated into a solid and liquid matter and this leads to **reduced waste costs**, because the **amount of waste has decreased!**
- Transport **cost savings.**
- At least **50 % cheaper** than conventional way of disposal.
- **Decreased volume** for transportation.





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1. Does it add value?

Using the STREICHER RECYCLE plant **reduces the volume of waste to 20 %** and **saves the resources needed for transportation**. Drilling fluids can be cleansed and then disposed of in an environmental-friendly manner. In addition, the recycled drilling fluid can be reused and thus the environment can be protected.

2. Does the management show commitment?

The efficient use of resources, protection of people and the environment is of high priority at the STREICHER GROUP. The management provided the necessary resources and staff to develop and manufacture the RECYCLE plant. The **aim** is to **reduce the amount of waste** and to facilitate **the problem-free recycling** of the drilling fluid.

3. Does it constitute an identifiable step forward in environment for the Industry?

The **recycled drilling fluid can be used multiple times** and disposed of properly after its lifetime. The separation into the solid and liquid matters allows for the solid waste to be disposed of at a landfill and the water to be transferred to the local sewage treatment plant. The STREICHER RECYCLE plant promotes careful disposal and **decrease of high quantities of waste**.

4. How efficient is it?

Since the introduction of the STREICHER RECYCLE plant, **the amount of waste in horizontal drilling has been reduced to 20 %**. This significantly **reduced CO₂ emissions** and **transport volume**. After the separation process, the centrifuge water can be disposed of at the local wastewater treatment plant and the solid waste can be deposited at the landfill. After treatment with the STREICHER RECYCLE plant the drilling fluid can also be reused.

5. Does it have additional benefits?

Landfills are the last waste management option if waste can't be recycled. The **capacities of landfills are limited and soon exhausted**. With the new technology, the STREICHER GROUP **relieves the landfills, as less storage space is needed**. Furthermore, **drilling muds can be reduced by 80% of their initial volume** and **stored in landfills cost-effectively**.



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The Streicher's drilling fluid RECYCLE plant was selected for the following reasons:

- it shows management commitment to design and manufacture a solution for small & medium size operations
- it reduces the water consumption in HDD operations
- it reduces the waste, CO2 emissions, and the land field required
- it is easy to transport and flexible





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Environmental Award



FINDINGS:

SICIM has an impressive fleet of machines that are property of the Company and can be shipped anywhere around the globe. This includes pipe-layers, paywelders, excavators, dumpers and boring machines that are used to tackle the many challenges the company faces to equip its projects around the world.

Unfortunately each year many accidental releases of oils and lubricants happen during construction sites activities provoking a large number of pollution incidents.

Any spill could cause:

- waste of oils/lubricants with consequent environmental impact,
- reduction of the equipment system pressure and efficiency.





SOLUTIONS:

Therefore ensuring that there is no danger of toxicity in case of accidental release becomes a **priority for SICIM that wants to adopt an eco-friendly approach**. That is the reason why SICIM has chosen a «pilot» project in which all equipment are fitted up with a fully synthetic high-performance hydraulic fluid, zinc-free and environment-friendly:

PANOLIN HLP SYNTH 46

PANOLIN HLP SYNTH 46 properties:



Biodegradability:

This product is readily biodegradable (OECD 301 B; > 60%) and various Ecolabels and tests confirm its biodegradability and/or low aquatic toxicity.



Longevity:

The use of synthetic PANOLIN oil assures extremely long oil-change intervals (lifetime filling), a more extended period compared to corresponding mineral oil products.



CO₂ reduction:

It guarantees CO₂ saving, thanks to extended service interval (indirect CO₂ reduction) and due to smooth-running properties (direct CO₂ reduction). These factors contribute to save resources and to increase efficiency.





CONVERSION PROCESS FOR COMPANY EQUIPMENT

1 step

Drain

- Drain hydraulic oil from the entire system: tank, cylinder, coolers, tubes and hoses

2 step

Flushing

- Once the system has the flushing fluid installed with PANOLIN HYDROFLUSH 32, we operate the system a few times before draining - This will help release contaminants and help get any residual fluid out

3 step

Filter

- Replace hydraulic filter cartridges

4 step

Filling

- Fill with the PANOLIN HLP SYNTH 46

NO 

draining and top up
should be done to meet
fluid cleanliness

5 step

Filtration

- Oil cleaning from impurities with specific machine

6 step

Control

- Contaminates check

END



Oil sample
consignment
form

YES 

Equipment operative



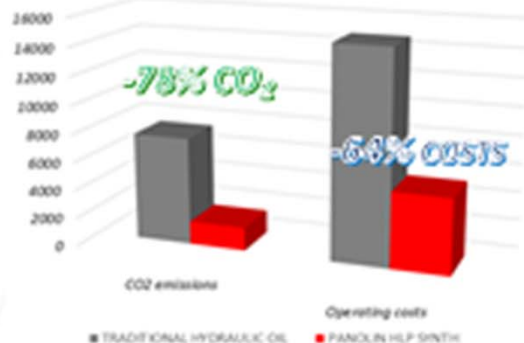
ACHIEVEMENTS:

Lubricants conversion savings

Launching pilot lubricants conversion process involves approx one hundred heavy equipment.

The evaluation and quantification of the economic cost and the reduction of CO₂ emissions between the use of a traditional product and PANOLIN ECLs product has been developed using the software Panolin GREENMACHINE.

The result highlights that there is a 78% CO₂ reduction and a 64% cost saving.



PERFORMANCE IMPROVEMENT AND TECHNICAL ADVANTAGE

- Prolonged lubricant life;
- Lower fuel consumption;
- Greater protection and reduced wear of components

IMPACT REDUCTION AND PROTECTED RESOURCES

- Lower CO₂ emissions linked to the reduction in consumption and lower consumption of lubricant;
- Less exploitation of energy sources and non-renewable raw materials;
- Reduction of the impacts due to lubricant spillages;
- Quantity reduction and quality improvement of waste lubricant to be disposed

SAVINGS AND ECONOMIC ADVANTAGE

- Purchase of minor quantities of lubricants;
- Reduction of machine downtime for oil changes and consequent labor costs involved;
- Reduction of environmental restoration costs in case of spillages;
- Decrease mechanical failures and increase the life-span of components

LONG TERM PLANNING:

A periodical monitoring activity will allow to certify the lubricant biodegradability characteristics over time.

SICIM has already planned to extend this solution for Hydraulic Oil also for Motor Oil and Gear Oil. This will be applied in other projects, ensuring the continuous improvement of the Company performances.



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The use of Biologically Degradable Lubricants was selected for the following reasons:

- it shows management commitment to invest in the protection of the environment
- it constitute a last barrier in case of spills
- it reduces CO2 emissions and hazardous waste





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2 Runners-Up





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Winner



Consolidated Contractors Company

2018 IPLOCA Environmental Award

“CCC’s Go-Green 100 % Portable Power Cabin”





IPLOCA Awards

Details on winning entries
available online at

www.iploca.com



- > 2017 H&S Award
- > 2016 H&S Award
- > 2015 H&S Award
- > 2014 H&S Award
- > 2013 H&S Award
- > 2012 H&S Award
- > 2011 H&S Award
- > 2009 H&S Award
- > 2008 H&S Award
- > 2007 H&S Award
- > 2006 Safety Award
- > 2005 Safety Award
- > 2004 Safety Award
- > 2003 Safety Award
- > 2002 Safety Award
- > 2001 Safety Award

2017 Health & Safety Award winners

The 2017 IPLOCA Health and Safety Award sponsored by Chevron was presented during the Annual Convention held in Mexico, in recognition of a significant achievement in this field.

Bruno Maerten, IPLOCA HSE Committee Chairman, made a presentation on the work of the HSE Committee and on the 2017 Health and Safety Award sponsored by Chevron, in presence of Rubén Kurt, 2016-2017 IPLOCA President.

To review his presentation, including the list of submissions received, please click [here](#).

If you are interested in any specific submission, please contact [Sarah Junod](#).



The Adjudication Committee decided to present the Award to **DODSAL Engineering and Construction Pte. Ltd.**, represented by Ramadugu Devanandam and Anil Shivashankar, in recognition of their *Road Safety Initiative - Robot Road Safety Manager*.

The Adjudication Committee made this award for having a IVMS with a robot for drivers' self-evaluation, for providing a positive recognition for good behaviours, and for being an innovative solution where leadership fails.

To review their full entry, please click [here](#)