

cutting edge

SPRING/SUMMER 2013 / Issue 3

WASTE MANAGEMENT NEWS
FOR THE OIL & GAS INDUSTRY
FROM **TWMA**



Regional Focus

Egypt skip and ship project
breaks new records

Feature

Assessing the impact
of zero discharge

Our People

New global support centre
for thermal processing

WELCOME

“Welcome to the spring/summer issue of Cutting Edge.

Every quarter we bring you TWMA's latest news from around the globe and exciting updates on our operations, solutions and people.

I hope you enjoy reading our OTC edition and if you are attending the exhibition in May, stop by **booth #2165** meet the team and collect your copy of Cutting Edge.”

Laura Iley, Editor

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GET INVOLVED

Your Feedback

We are always interested to hear your feedback, please send any comments or ideas for future issues to: sales@twma.co.uk

Welcome to the spring/summer issue of Cutting Edge



The first quarter of 2013 has been an active period for TWMA with the successful conclusion of major projects and the commencement of exciting operations in new regions, including our first offshore processing contract in Cameroon.

As regulatory frameworks continue to evolve worldwide, we are experiencing an increasing appetite for our integrated drilling waste management services in major oil and gas regions around the world. We are seeing an emerging trend for operators electing to use environmental best practices and optimum solutions as environmental performance continues to be a major focus for the industry.

In the UK, we have established a new 'global support centre' at Peterhead demonstrating TWMA's commitment to the advancement of thermal processing. This new facility will enable TWMA to develop enhanced solutions to benefit our client base worldwide, whilst providing a dedicated training centre for our equipment operators.

Elsewhere, the launch of our new training and competency scheme in Abu Dhabi represents a significant milestone in the establishment of our Middle East operations, confirming our commitment to the region and the ongoing development of our people. This comes as TWMA experiences a rapid growth phase in the Middle East as the ZADCO UZ 750 island project gets under way.

OTC is just around the corner and this year we will have our largest-ever trade show presence, reflecting TWMA's significant growth over the last 12 months. We hope that you will join us at **booth #2165** on the **Scottish Pavilion**.

Ronnie Garrick Managing Director

“ We are seeing an emerging trend for operators electing to use environmental best practices and optimum solutions as environmental performance continues to be a major focus for the industry ”

TWMA secures first offshore processing contract for West Africa

TWMA has been awarded a contract to supply its industry-leading offshore processing services to support Glencore Exploration Cameroon Ltd's (Glencore) drilling campaign offshore Cameroon.



The size of the rig, combined with deck loading restrictions and a very tight design cycle, made this a very interesting and challenging project from the outset

Atwood Aurora jack-up drilling rig

The 400-day contract, which commenced in March this year, is TWMA's first offshore thermal processing project in the region.

The scope of work includes the installation of a TWMA TCC RotoMill and cuttings collection and distribution system (CCDS), integrated to supply a total containment, treatment and disposal solution capturing drill cuttings and associated fluids on board the Atwood Aurora jack-up drilling rig. A team of experienced TWMA operators are managing the project on location.

Due to the rig's proximity to shore and shallow-water location, the operator was concerned about the potential environmental impact of its operations. The solution provided by TWMA treats all non-aqueous base fluid (NABF) drill cuttings by way of thermal desorption, recovering 99% of base oil for reuse by the operator. The inert rock powder and recovered water are disposed overboard for sea dispersal, in a process which is proven to have a near-zero impact on the environment.

Kyle Duncan, TWMA project engineer for the Glencore installation said, "The size of the rig, combined with deck loading restrictions and a very tight design cycle, made this a very interesting and challenging project from the outset. In order to meet the project

deadlines, TWMA's engineering team travelled to Houston to complete a fast-track FEED phase with the client. Upon completion of the preliminary design works, TWMA finalised and delivered the full engineering design package within a three-week time frame in order to obtain the client's approval prior to mobilisation."

This is just one of several opportunities in the pipeline for TWMA, as legislation continues to evolve in the West Africa region and operators become increasingly aware of the environmental impact of their drilling operations.

As a result, many are turning to experienced suppliers such as TWMA, to source the best environmental and operationally efficient solutions available.

Rob O'Neill, sales director for TWMA comments, "TWMA can provide operators with the optimum solutions for environmental performance, safety and operational efficiencies. Increasingly clients are turning to TWMA because we understand the challenges associated with operating in environments where the regulatory framework is constantly evolving. The challenge for operators is being prepared for these changes, and TWMA has a range of solutions to support that."

ZADCO operations update

In the last issue of Cutting Edge, it was announced that TWMA had secured a major contract to supply its range of specialist drilling services for Zakum Development Company's (ZADCO) flagship UZ 750 artificial islands project at Abu Dhabi's Upper Zakum field.



TWMA drill cuttings storage on ZADCO's UZ 750 South Island

Since the announcement, TWMA's Middle East business unit has experienced rapid growth as it gears up to support this major project. In the latest development, TWMA has engaged over 45 personnel at its Abu Dhabi facility including new local employees, subcontractors and support staff from TWMA's UK head office. This number is expected to double over the coming months as the project gets under way.

These newly-created roles include a variety of offshore positions for rotation on ZADCO's South Island including project managers, engineers and equipment operators, as well as essential onshore support staff.

To accommodate this and other regional projects, TWMA has invested in a new office, warehouse and workshop facility at the centre of Abu Dhabi's offshore operations support base, in the city's

industrial zone. From this strategic location, TWMA will deliver its onshore support services, including equipment construction and maintenance.

The ZADCO UZ 750 development is now under way with drilling commenced on the South Island. TWMA has already mobilised a team of skilled operators offshore, where it is now operational in the provision of drilling waste handling, transfer and storage services. As the exciting five-year project progresses, TWMA will also supply its industry-leading TCC RotoMill to treat drill cuttings and associated materials from the development.

Chris Chambers, general manager for TWMA Middle East, said of the operation: "This is an exciting time for TWMA as this major development gets under way. As the project progresses, we are confident that TWMA will deliver the full scope of services to the highest standards of quality and safety."

TWMA showcase drilling waste solutions in Amsterdam

From the 5-7 March 2013, TWMA was among 120 service companies exhibiting as part of the SPE-IADC Drilling Conference & Exhibition at the Rai Conference Centre in Amsterdam, The Netherlands.

For TWMA, the event was an excellent opportunity to showcase its range of drilling waste management solutions to a variety of upstream professionals. This year's conference was the best-attended since 2007, with over 2,000 delegates participating in the three-day event. The conference gives SPE and IADC members an opportunity to share ideas and best practices, see the latest technological advancements and celebrate key successes in the drilling industry.



“ This year's conference was the best-attended since 2007, with over 2,000 delegates participating in the three-day event ”

Laura Iley and Robbie Pond at the TWMA booth

Assessing the impact of zero discharge

The environmental impact of offshore drilling is attracting more interest and attention than ever before. The issue is top of the agenda for governments globally and front-of-mind for the oil and gas industry at large.

There is a worldwide shift towards safer and more environmentally responsible offshore drilling practices, which is creating new challenges for those operating upstream, midstream and downstream.

It is in this setting that Angola, West Africa, has become one of the first countries to implement an absolute zero-discharge policy for its offshore drilling operations. The legislation, which comes into effect in 2014, stipulates that 100% of oil-contaminated wastes generated offshore, must be brought ashore for treatment and disposal.

In an effort to minimise sea pollution arising from offshore oil and gas activity, Angola has adopted one of the most stringent environmental policies in the world. With more countries in the region set to follow, oil companies are now facing the practical and financial implications of adjusting their drilling practices to meet the new standards.

Angola produces over 1.9 million barrels of oil per day and has recently overtaken Nigeria as Africa's largest producer of

hydrocarbons. With a growing rig count in Angolan waters and a target for over 30 offshore drilling rigs by 2014, this step-change in legislation is set to have a massive impact on the country's logistics operations as well as its current infrastructure both onshore and offshore.

Angola's existing legislation allows drill cuttings with an oil content of <5% to be discharged to sea – an achievable limit with the use of traditional solids control equipment. Under the new zero-discharge regulations, the offshore disposal of oil-contaminated wastes will no longer be permitted, resulting in the shipment of thousands of tons of drill cuttings from Angola's rigs to its main ports. Once ashore, the materials must then be transported to a suitable location for treatment and disposal; logistics which carry inherent safety risks and additional costs to operators.

These challenges are not unique to Angola and some may argue that in practice, the costs of implementing absolute zero discharge outweigh the benefits.

As an alternative, it may be possible for operators to reduce the environmental risks associated with offshore drilling by sharing best practices and lessons learned. In a setting where change is inevitable, environmental preparedness is key; instead of waiting for governments to act, operators can take a proactive approach to improving their environmental performance. By applying appropriate planning and best available solutions to their drilling operations now, operators can generate long-term cost savings and operational gains.

As an experienced global service provider, TWMA has already developed its industry-leading capabilities to operate to even the most stringent environmental standards: the TWMA TCC RotoMill offers operators a robust solution for handling and treating drilling wastes at source.

Operated offshore, the TCC RotoMill can thermally process drill cuttings at a rate of up to 10mt per hour depending on material consistency. The process recovers more than 99% of base oil which is

unaffected in quality and returned to the operator for reuse. After treatment, the initial volume of 'waste' has been significantly reduced, with the solids extracted and ground into a fine, inert powder (<1% oil by weight, typically <0.1%) ready for blowing into bulk containment or overboard dispersal. The recovered water, typically <20ppm, is disposed of.

This method of handling and treating drill cuttings at source could drastically reduce Angola's skip and ship requirements. Vessel logistics, truck transportation and crane and forklift movements are significantly reduced and onshore logistics are simplified because the treated powder can be sent directly to landfill. In an added economic benefit, operators can recover expensive base oil for reuse in the active mud system.

The TCC RotoMill reduces the environmental impact, costs and inherent safety risks associated with other methods of handling, treating and transporting drilling waste materials. In regions operating to >0% the logistics are eliminated altogether, making

offshore processing one of the safest methods for handling and treating drill cuttings at source.

In the UK, where the offshore discharge legislation is <1%, offshore processing with the TCC RotoMill is recognised as Best Available Technology (BAT) and Best Environmental Practice (BEP) for the offshore treatment of oil-based drill cuttings.

It remains to be seen how Angola's oil and gas industry will adjust to the new regulatory framework, however with environmental legislation continuing to evolve worldwide, operators can positively position themselves by adopting environmental best practices before the legislators take action.

With appropriate planning,

operators can ensure that their drilling waste strategy is appropriate for the specific project, budget and legislative framework to which they are operating. TWMA can offer companies a range of solutions to optimise their environmental performance without compromising the quality, safety or efficiency of their operations.

TWMA has already developed its industry-leading capabilities to operate to even the most stringent environmental standards; the TWMA TCC RotoMill offers operators a robust solution for handling and treating drilling wastes at source



Top and right: TWMA's solutions can be installed offshore to capture and handle all materials at the rig site. Above: Port Luanda, Angola

TWMA achieves record results for Egypt skip and ship project



Commencing in May 2012, TWMA Egypt was contracted by a major operator to supply an integrated solution to support its drilling operations in the Mediterranean Sea. The contract, which is currently ongoing, has a two-year duration plus a one-year extension option.

The scope of work includes the handling, storage and transfer of non-aqueous base fluid (NABF) drill cuttings and associated materials on board a jack-up drilling rig to TWMA's Alexandria base for onshore processing and final disposal.

With an ambitious drilling schedule, the challenge for TWMA was to develop a solution to handle large sections of NABF drill cuttings and transport the materials safely to shore, with minimum environmental impact. The project, which is still in its first phase, has already seen TWMA achieve a new record for the volume of skips turned around and processed from a single well section.

TWMA developed a complete waste management package for the project which included the installation of a skip-filling station and cuttings collection and distribution system (CCDS), together with skip hire, tank cleaning services, and the supply of operations and maintenance personnel. Once ashore the drill cuttings are thermally treated via the TWMA TCC RotoMill, which minimizes the environmental impact of drill cuttings by separating them into their constituent parts of oil, water and solids. The base oil is recovered and returned to the

operator for reuse, while the recovered water and final solids, containing <1% oil, can be recycled or safely disposed of.

TWMA engineered, manufactured, installed and commissioned a four-bay back-to-back skip-filling station to minimise the footprint on board the rig, incorporating five 12" screw conveyor systems to safely and efficiently handle and transfer materials at a capacity of up to 35mt per hour.

In December 2012, the operator commenced the use of NABF to drill the main well section. With a large hole size and a section length of over 1,100m, the main challenge would be handling the volume of drill cuttings and associated materials produced throughout this phase of the operation, which lasted for 25 days.

Paul Austin, TWMA Alexandria Base operations manager, said, "The TWMA team were able to fill and turn around up to 445 skips throughout this section and successfully complete over 201 trucking trips. Road transportation is considered to be the highest safety hazard in Egypt, and maintaining this level of operation without incident is a significant achievement. At the peak of the project, 120 skips

were turned around within 24 hours, which is a handling record for TWMA's Egypt onshore operations. In addition we performed a vessel tank cleaning job for off-hiring one of the supply vessels, which we completed well within the scheduled time frame during the largest well section."

Abdelrahman Amin, TWMA Egypt general manager added,

"TWMA executed this challenging phase of the project to the highest standards of quality and safety. With regards to our CCDS operations, this was the largest hole size we have handled offshore Egypt. Completing the project safely and with no lost time incidents, both onshore and offshore, is a major accomplishment for TWMA's Egypt operations."



TWMA skip-filling station and CCDS installed offshore

TWMA celebrates latest North Sea contract win

TWMA has landed a contract to supply offshore processing for a major operator's drilling campaign in the UK North Sea. This is the latest in a series of projects in which TWMA is providing its integrated drilling waste management solutions to support operators' UK operations.

Scheduled to commence in June 2013, the scope of work includes the installation and operation of a TWMA TCC RotoMill and cuttings collection and distribution system (CCDS) to handle and process drill cuttings on board a semi-submersible drilling rig. TWMA personnel will project manage

the entire operation from initial design, installation and commissioning through to equipment operation and maintenance.

TWMA first introduced its industry-leading offshore processing services to the UK in 2001 and since then has processed over 600,000 mt of

drill cuttings worldwide. TWMA has developed a complete range of onshore and offshore solutions offering operators a comprehensive package to handle and treat drilling fluids, drill cuttings, slops and general wastes at source. By integrating its specialist treatment solutions, TWMA is able to maximise reuse

and recycle options to minimise the environmental impact of drilling operations and achieve significant landfill avoidance.

On winning the work, TWMA UK operations manager Ally Parker said: "Our TCC RotoMill is a perfect fit for our client's drilling campaign and this latest contract is testament to the

quality and reliability of our offshore processing services."

"TWMA has established a successful track record for delivering projects safely, on time and on budget, cementing operators' confidence in our continued ability to support their drilling operations in the UK North Sea."



L-R: TWMA TCC RotoMill and CCDS installed offshore



Visit TWMA at this year's OTC

TWMA is exhibiting at Houston's SPE Offshore Technology Conference (OTC), 6-9 May 2013 ...

... where the team will be sharing some exciting updates on TWMA's services, as well as demonstrating its range of capabilities for supporting onshore and offshore projects.

Make an appointment to discuss your waste management requirements by emailing sales@twma.co.uk, or alternatively drop by the booth.

See you at stand #2165 on the Scottish Pavilion!



MENA training and competency system goes live

TWMA is pleased to announce the introduction of its personnel training and competency system at the company's newly-established Middle East base and existing North Africa operations facility. The system will go live in May 2013, as TWMA gears up to support a major contract for ZADCO's flagship UZ 750 islands project in Abu Dhabi.



“TWMA has appointed two experienced, operational trainers who will be onsite to guide and supervise the new recruits as they develop their skills and expertise.”

Left to right: Reynaldo Villazor, Ritchie Pasodas, Nazam Hussain, Ronald Paydayhag, Scott Hamilton (Project Island Supervisor), Vasathan Sivaraj

The implementation of the training and competency system represents a key milestone as TWMA establishes its Middle East operations and grows its existing operations in Alexandria, Egypt. Since its establishment in December 2012, TWMA's Middle East business unit has already recruited over 20 local staff, including equipment operators to deliver its industry-leading advanced solids control and fluid recovery services.

The purpose of the training and competency system is to develop and ensure the capabilities of employees across its range of disciplines as well as deliver and maintain a high quality of service to its clients.

The training and competency system is a five-stage programme designed to develop new, not-yet-competent employees into skilled, experienced and competent operators. The programme offers a combination of initial classroom training followed by practical experience, culminating in a formal competency assessment.

During stages 1 to 3 of the programme, employees receive the basic knowledge and training required for their discipline. Once this phase is completed, they then progress to practical, onsite experience under the supervision of dedicated trainers, where they will develop the majority of their

skills and expertise. The final stage of the programme, stage 5, is an assessment to evaluate the employees' capability to perform their roles safely and competently.

The majority of the six-month programme will be spent gaining hands-on experience operating TWMA equipment. To facilitate the delivery of the programme in Abu Dhabi and Egypt, TWMA has appointed two experienced, operational trainers who will be onsite to guide and supervise the new recruits as they develop their skills and expertise.

Steve Singer, TWMA training and competence manager said, "Our training programmes meet leading international standards

and are designed to offer valuable skills to support, maintain and enhance the competencies and skills of our personnel, across our international operations."

Singer continued: "Ensuring the competence of our people is especially important in regions where we are establishing new operations and the majority of our workforce is new to TWMA's service offering. Investing in employee training is the essential link between personnel development and our organisation's achievements. The skills, knowledge and experience of our employees contribute significantly to the growth and ongoing success of TWMA."



TWMA establishes 'global support centre' for thermal processing

TWMA has invested a significant sum in its North East Scotland central processing facility, with a programme of works now under way. The project involves a major refurbishment of the company's existing base in Peterhead, including its maintenance, storage and treatment facilities and office buildings.

Development of the 10,000m² site is aimed at significantly increasing operational efficiencies for TWMA's range of integrated drilling waste management services, leading to more productive use of available space and extending the life span of the operation.

The project has already seen maintenance and fabrication of TWMA's TCC RotoMill units moved to Peterhead from Tullos, Aberdeen, generating substantial efficiency gains with the manufacturing, commissioning and maintenance of units now taking place from this location.

In addition, the exciting development will see TWMA establish a global process support facility for its industry-leading TCC RotoMill thermal desorption technology. The unique process – first used at Peterhead in 1999 – now handles tens of thousands of tonnes of drill cuttings associated with oil and gas operations worldwide.

The facility at Peterhead will become TWMA's first 'global support centre' delivering training, technical support and research and development for the company's thermal processing capabilities. The

project demonstrates TWMA's ongoing commitment to the advancement of thermal processing including the development of smaller, more powerful units with a higher throughput capacity, whilst supporting research and development into sustainable uses for recovered materials.

Currently overseeing the development of the new operation is TWMA engineering manager Allan Smith. With over 12 years' experience in managing the manufacturing and maintenance of TWMA's TCC RotoMill units, Smith's proprietary expertise and

know-how will be extremely valuable in establishing the new centre.

TWMA operations director Davie Garrick said: "Our new process support facility represents a significant investment by TWMA in Peterhead, where we have a long-established track record for delivering thermal processing projects.

"While TWMA is experiencing significant international growth and success, our North East Scotland operations remain an absolute priority. The establishment of the process

support facility can be viewed as a strong statement of intent that we will continue to support the local oil and gas industry, while making technology advancements to benefit our client base worldwide."

TWMA designs, manufactures, commissions and operates its range of integrated drilling waste management solutions to support oil and gas operations on a global basis. In addition to the Peterhead facility, TWMA has a network of onshore sites located in Mongstad, Norway; Texas, USA; and Alexandria, Egypt.

Raising money for a worthy cause



Back row: Kyle Duncan, James Parker, Lukasz Malyska, Bill Bennie
Seated: Lisa McGregor and Tyler Garrick

TWMA sponsors Angola rugby team

TWMA is providing sponsorship for a local Luanda rugby team, The Palancas, to participate in an amateur rugby tournament in Pointe Noire, Congo, from 18-20 May.

Six amateur teams are scheduled to participate in the 2013 RUGBY XV tournament, including teams from Congo, Democratic Republic of Congo and Angola. The sponsorship provided by TWMA will go towards funding accommodation for the rugby team and coaches. We wish The Palancas the best of luck!

Supporting our local sports club

TWMA is proud to be a sponsor of Buchan Off-Road Motorcycle Club's 2013 racing season. The club was established in 2003 to provide a safe and legal facility for off-road motorcycles and quad bikes in the North East of Scotland and every year invites members to participate in a series of competitions at the club's extensive race track.

TWMA will once again be taking part in the City of Aberdeen Baker Hughes 10k, on Sunday 19 May 2013. This year TWMA's team of eight athletes will be raising money for our chosen charity – the ARCHIE Foundation.

Organised by Sport Aberdeen, this event is the largest 10k road race in the North East of Scotland. The course follows Aberdeen's Beach and Harbour area and has some spectacular views of the North Sea and the iconic Beach Ballroom.

The City of Aberdeen Baker Hughes 10k attracts all types of entries, from serious runners to amateurs, who enter to raise money for charity or simply to get fit.

Last year, TWMA donated over £1,000 to the ARCHIE Foundation and this year, with your help, we hope to raise even more.

The ARCHIE Foundation is a vibrant, exciting charity that is making a real difference to the lives of sick children in the North of Scotland and the Islands who need medical care in the Royal Aberdeen Children's Hospital, in children's wards in Inverness and Elgin, or in their own community.

To support TWMA's team by making a donation to this worthy cause, please visit:

<http://www.justgiving.com/Total-Waste-Management-Alliance>

Any contribution large or small is sure to go a long way. Thank you for your support and good luck to the team!



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