EMAS Energy Services (Thailand) Limited

P&A Integrated Services

- **Incident-free operations** for more than 610,329 man-hours
- Been performing Plug & Abandonment for **430 wells and still counting**!
- **2 days for Rigging up and 2 days for Rigging down** with the capability of skidding from well to well in 15 minutes
EMAS Energy Services (Thailand) Limited; Plug & Abandonment

“All you need in P&A”

- Pulling unit
- Modular crane
- Tubular running and handling
- BHA
- Slickline
- Cementing
- Cold cutting
- CGLF
- ROV
- Hot tapping
Why EMAS for Plug & Abandonment?

- Excellent Safety record
- In country/ regional assets and crews → Minimal mobilization/ demobilization costs
- In country/ regional support bases and offices
- New and Fit for purpose equipment
- Powerful and various lifting force to guarantee the conductor pulling activity
- In-house engineering support and design → Minimal use of third party equipment
- Noise attenuated equipment
## Plug & Abandonment; Rigless P&A unit

<table>
<thead>
<tr>
<th>Client</th>
<th>Period</th>
<th>Location</th>
<th>Scope of services</th>
<th>Highlights</th>
</tr>
</thead>
</table>
| Chevron Thailand E&P    | July 10 - Present | Gulf of Thailand | - Full slot well recovery  
- Cementing plug/ Balance Tubing/ Retainer  
- Bride plug Tubing  
- Tubing cut/ punch  
- Pull out Tubing  
- Wireline Fishing  
- Cold cutting services  
- BHA Fishing  
- Conductor retrieval  
- Storm retrieval packer  
- Continuous cement mixing unit | - Average operational lead time (YTD) of 1.5 days/ Slimhole, Monobore well type  
- No TRIR & LTI  
- On time dual string cutting & pulling  
- Successfully retrieved parted casing |

### Lewek Explorer 500; Operating on a Supply vessel

- **Unit specifications:**
  - 500,000 lbs. pulling force
  - Modular construction
  - 7,500 ft.Lb. rotary head
  - 14” thru bore Rotary
  - Vertical pipe rack
  - Integral stairway
  - Completed Fluids system with Shale shaker
  - 13-5/8” Well control package
  - Tubular handling range from 2-7/8” to 30”
  - Onshore & Offshore
Plug & Abandonment; Rigless P&A unit

**Lewek Explorer 502; Operating on a Barge**

<table>
<thead>
<tr>
<th>Client</th>
<th>Period</th>
<th>Location</th>
<th>Scope of services</th>
<th>Highlights</th>
</tr>
</thead>
</table>
| PTTEP  | May16 - Present | Gulf of Thailand | - Full slot well recovery  
- Cementing plug/ Balance Tubing/ Retainer  
- Bride plug Tubing  
- Tubing cut/ punch  
- Pull out Tubing  
- Wireline Fishing  
- Cold cutting services  
- BHA Fishing  
- Conductor retrieval  
- Storm retrieval packer  
- Continuous cement mixing unit | - Average operational lead time (YTD) of 3 days/ conventional well type  
- No TRIR & LTI  
- On time dual string cutting & pulling |

**Unit specifications:**
- 500,000 lbs. pulling force  
- Modular construction  
- 20,000 ft.Lb. rotary head  
- 11” thru bore Rotary  
- Vertical pipe rack  
- Integral stairway  
- Completed Fluids system with Shale shaker  
- 13-5/8” Well control package  
- Tubular handling range from 2-7/8” to 30”  
- Onshore & Offshore
Well Intervention Services; Hydraulic Workover Unit

Our HWO Experiences:
• Running/ change out ESP completions on remote platforms
• Well cleanouts/ Acid Jobs
• Casing Leaks: Run External & Internal Patches
• Fishing Operations
• Water disposal/ injection
• Hole deepening
• Pulling parted tubing
• Plug and Abandonments
• Chemical provision
• Well Intervention & Stimulation
• Cement Squeeze
**Lewek Explorer 340**

**Unit Specifications:**
- 340,000 lbs. pulling force & 170,000 snubbing force
- Design Code: API Specification 4F, 8C
- Modular Construction: Maximum Lift 10.5 Tons
- Self Supporting- No guy Wires required
- Zone 2 Compliant Detroit S60 Diesel Hydraulics Power Unit
- V-Door Slide
- Modular or Integral Stairway
- Completed Fluids system with Shale shaker and Gas Buster
- 13-5/8" 5K or 11" 5K Well Control Package
- Flexibilities Set Up on Small Footprint
- 10 MT SWL Gin Pole capability w/ 73 Ft Height Clearance for Long BHA
- 2 Auxiliary winches 3 MT S.W.L. Capacity
- Tubular Handling range 1.66" to 9-5/8"
- Completed with Zone-II lighting System
- Vertical Pipe Racking approximately 13,888 foot (4,200 meters) in Double Stands
- Adjustable Sub Structure Height
- Bi Directional X,Y Skidding System
- Enclosed Workbasket
- Reliable rotating capability with Continuous torque rating of 18,000 ft.-lbs.
- Laydown basket for completion string
Well Intervention Services; Hydraulic Workover Unit

Lewek Explorer 460

**Unit specifications:**
- 460,000 lbs. pulling force & 230,000 lbs. snubbing force
- Modular construction
- Onshore & Offshore
- Sound attenuated power pack
- Vertical pipe racking capability (up to 10,000ft 3-1/2” 13.3 ppf Drill pipe
- Four directional skidding substructure
- Zone II lighting package
- 4 Ton SWL Gin pole
- 20,000 ft.lb rotary head
- Completed Fluids system with Shale shaker
- Guy wire free
- Integral stairways
- Tubular handling range from 1.66” to 13-5/8”

Lewek Explorer 600

**Unit specifications:**
- 600,000 lbs. pulling force & 300,000 lbs. snubbing force
- Modular construction
- 12,000 ft.lb. Rotary head
- Hydro Electric Digital Control
- Hydraulically controlled Pipe rack & V-door
- Modular or Integral stairway
- Complete fluids system with shale shaker
- 11” Well control package
- 5MT SWL Gin pole capability
- Tubular handling range from 1.66” to 9-5/8”
Lewek Explorer 202

Unit specifications:
- 202,000 lbs. hook load
- Detroit S60 Diesel Power engine power unit
- Sand line
- Triple rod racking DP/ TBG
- Comes with 2.5” Bowen power swivel
- Completed Well Control Package
- Circulating pump
- Completed Fluid tank & Shale shaker
- Adjustable work platform
- Trailer Mounted mud pump
- Completed Zone II lighting system

Lewek Explorer 250

Unit specifications:
- 250,000 lbs. hook load
- Detroit S60 Diesel Power engine power unit
- Sand line
- Triple rod racking DP/ TBG
- Comes with 2.5” Bowen power swivel
- Completed Well Control Package
- Circulating pump
- Completed Fluid tank & Shale shaker
- Adjustable work platform
- Trailer Mounted mud pump
- Completed Zone II lighting system
MODULAR CRANE PEDESTAL SYSTEM

- The lifting capacity (90 tonnes) allows the installation of modules and components outside the reach of the platform crane. Alternatively offshore contractors used expensive crane vessels to install these modules.

- With such a lift, the first few meters are critical. The waves move the vessel up and down, a movement which is independent from the lifting configuration on the platform.

- The winches are operated by diesel hydraulic power pack, making the lifting configuration independent from the offshore platform utilities. The footprint of the lifting configuration is flexible.

- The loads during the lifting operation can be introduced into the strong points of the platform by altering the base frame or directed to master skid beam. The EMAS engineers have standardized the footprint arrangement for quick mobilization.

- With state of art EMAS Energy designed extension deck able to install on top main modular crane beam which provides usable are for maximize platform space while working with the Rigless unit.
EMAS Energy TRS Services began operations in 2010 providing tubular running service, sub-assembly making up and pressure test services and tubular handling tool rental to the major oil firms in Southeast Asia, Middle east and Northeast Asia. EMAS Energy exclusively uses certified, best-in-class equipment in all operations and has an excellent safety record running 1,370,000 man-hours incident free, without Lost Time Incident (LTI).

These are the scope of services we have been providing:

- Casing and Tubing Power Tongs
- Hydraulic & Electric Power Units
- Completion Rental Tools
- Pickup & Laydown technology
- Wide range of conventional handling equipment for all sizes
- Drill Pipe Power Tongs
- Dual Completion Handling Equipment
- Torque Monitoring
- Remotely Operated Tong Cart
- Tong Positioning Arm
- Casing Stabbing Arm
Well Intervention Services; Slickline operations

**Our Slickline operations highlights**

- Current Slickline services provider to PTTEP at Bongkot North & South and Arthit field (Offshore), Sinphuhom field (Onshore) and recently awarded to work at PTTEP S1 field (Onshore)
- Also providing the Slickline operations supporting P&A for Chevron Thailand and PTTEP in Pumping vessel, Rigless unit and Pulling unit at the present
- Total 7 units of Slickline and 1 Braided line unit and still growing

**Our Slickline expertise**

- Tubing drift run, Obstruction clearing, Plug pulling/ setting, Zonal isolation, Logging, Gas-lift change out, Tubing cutting/ punching, Fishing, Cement Bailing and etc.
- Equipment and Tools maintenance workshop are locating in Sattahip, Songkla and Pitsanulok – Thailand; ready to mobilize globally
The CMU mixing system is EMAS’ latest offering in recirculating mixer technology. Its robust design provides a combination of capabilities that deliver desirable cement-slurry properties, make accurate mixing possible over a broad range of operating conditions, and help to ensure trouble-free operations on even the largest jobs.

A bulk cement delivery sleeve directs the cement powder to the point where high velocity water jets combine with high slurry recirculation rates to provide excellent wetting efficiency at the point of initial water cement contact. Further mixing and averaging occurs in the two-compartment mixing tank, which supplies homogeneous de-aerated slurry of the correct density to the downhole pumps.
Plug & Abandonment; Cold cutting equipment

- **Dual Pin Drill** is designed to drill holes up to 4-1/2" in diameter. Drilling depth is limited to the feed travel of the drill and length of tooling. After the Dual Pin Drill is properly mounted on the tubular member, the drills can be operated one at a time or jointly. Each pin drill spindle motor and feed motor is operated separately to provide for individual and precise cutting tool loads.

**Features:**
- Large hole diameter
- Variable speed hydraulic drive (250 RPM max)
- Max 15 GPM @ 1500 PSI (spindle drive)
- 5 GPM @ 1500 PSI (auto feed)
- Hydraulic auto feed (0 - 0.56"/min)
- Corrosion resistant materials
- Sealed for use in up to 350 feet of seawater
- Versatile mounting configurations

- **Wachs Goliath Guillotine** has been designed to cold cut 16" to 32" (406-813mm) pipe of all materials, as well as solids, and multi-stranded casing strings. Along with its durable sub-sea design, Goliath provides easy set up and fast accurate cuts.
Plug & Abandonment;
Conductor Cutting & Laydown Frame (CCLF)

The CCLF will work in conjunction with a casing jack and hydraulic cutter so that when the conductor gets pulled from a depleted well, the conductor can be suspended from the CCLF which will securely hold the conductor while it is being cut into a manageable length. Once cut, the conductor is safely placed in the horizontal position to allow for slings to be fitted and for a crane to remove the cut section, safely.

Features:
- It hydraulically folds to a smaller footprint for shipping.
- It hydraulically rigged up.
- It has a hydraulic gripper/centralizer
- It has a set of hydraulic slips to set the cut section in
- It has a tension table to prevent the cut section dropping on top of the cut blade and breaking it.
- It has a safe working load rating to be able to handle long cut lengths
<table>
<thead>
<tr>
<th></th>
<th>Triton XLS</th>
<th>Triton XLX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth Rating</td>
<td>3000/4000 MSW</td>
<td>3000/4000 MSW</td>
</tr>
<tr>
<td>Power</td>
<td>150 HP</td>
<td>150-250 HP</td>
</tr>
<tr>
<td>Through Frame Lift</td>
<td>3000 kg</td>
<td>3000 kg</td>
</tr>
<tr>
<td>Control System &amp; Mode</td>
<td>Single mode, Fiber optic PC based</td>
<td>ICE IM Real Time Control System with Gb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telemetry and Graphical Diagnostics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heading, Depth, Altitude and Auto Position IM</td>
</tr>
<tr>
<td>Payload capacity</td>
<td>300 kg</td>
<td>250-550kg</td>
</tr>
</tbody>
</table>
Multi Services;  
Remotely Operated Vehicle (ROV) – Inspection class ROV

The Inspection Class ROV system incorporates an enhanced propulsion system allowing it to continue working in high current conditions when other systems have to return to surface, providing a customer benefit of reduced vessel time and costs. Now fitted with sub-CAN control software the Inspection ROV features a small diameter tether and high output brushless DC thrusters operating on Sub-Atlantic’s ‘Dynamic Vector-ing™’ system.

- Comes with three or six simultaneous video channels transmitted through a fiber-optic telemetry system
- Equipped with additional power sources for attachment of manipulator and tools
- Uses a 3000 Volt, 400 Hz power transmission system from surface to ROV resulting in a small tether, main lift cable and launch & recovery system.
Plug & Abandonment;
Hot tap services

This service provides a safe process of controllable drill into a pressure-containing equipment. Examples of such event would be:

- Stuck valves in Xmas tree, drilling out the valves to run and set BPV (Back pressure valve) to allow the tree to be changed
- Drilling Drill pipe or Completion tubular that has trapped pressure between plug or sand bridges
- Drilling Annular valves which are seized to allow the pressure to be bled off and install a new valve
- Drilling into flowlines to change out a damaged section without the need to stop the flow

**Required Equipment:**

- Hot Tap
- Pressure pump
- Gauge
- Chart Recorder (optional)
- Drill bit
- ‘T’ piece
- Valves
- Power pack or Compressor (for large units)
- A mean of attaching the unit to the valves or pipe to be drilled
Contact details:

Further specifications and product details are available upon request and at your service

We can be contacted at any of these following emails:

Bob.Davidson@emas.com
Teeranun.c@emas.com
Rinyapat.c@emas.com
Wisanu.t@emas.com
Chucheep.k@emas.com