



**HDDTHAILAND-ENIKKOM LIMITED**

Pioneering Excellence in Trenchless Technology.



# Company Profile

Pioneering. Innovative. Reliable

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Leading-edge trenchless pipeline solutions through innovative Horizontal Directional Drilling technology, delivering unparalleled expertise in challenging oil and gas infrastructure projects across Africa and beyond.

## ABOUT COMPANY

HDDThailand-Enikkom Ltd stands as the pinnacle of Horizontal Directional Drilling (HDD) expertise, combining unparalleled global experience with dominant local market presence. Our company represents the fusion of two industry titans, creating an unmatched force in trenchless technology for the oil and gas pipeline sector.

HDD Thailand brings to the table a wealth of international expertise, having successfully executed over 120 maxi-rig crossings worldwide. With a team of 150+ professionals, including veterans boasting 30+ years of experience, HDD Thailand has been at the forefront of groundbreaking HDD technologies. Our portfolio includes crossings spanning up to 3,000 meters and accommodating pipelines up to 48 inches in diameter, showcasing our capability to handle the most demanding projects across diverse geotechnical conditions.

Enikkom Construction, the undisputed leader in HDD operations in Nigeria, has revolutionized the local industry since pioneering HDD technology in the country with the historic River Niger crossing in 2003. Boasting the largest HDD asset base in Nigeria with ten state-of-the-art rigs, Enikkom has set numerous industry benchmarks, including the successful installation of over 100 kilometers of pipeline using HDD technology and executing the longest single HDD crossing in Africa (3.10 kilometers), ranking third globally.

The strategic merger of these two powerhouses in 2020 was driven by the vision to dominate the global HDD market, particularly in the complex realm of oil and gas pipeline construction. By combining HDD Thailand's international prowess with Enikkom's pioneering spirit and dominant market position in Nigeria, we've created a formidable entity capable of tackling the most challenging projects worldwide.

HDDThailand-Enikkom Ltd now offers an unparalleled combination of local expertise and international experience, backed by a formidable equipment arsenal and a track record of innovation. Our combined fleet includes a wide range of maxi-rigs capable of tackling projects of any scale, complemented by an extensive

inventory of specialized tooling for both hard rock and soft ground conditions. From custom-built soft ground tooling to high-performance TRANSCO hole openers and BICO mud motors, we possess the technical capabilities to overcome any geological challenge.

HDDThailand-Enikkom Ltd's comprehensive suite of services showcases our unrivaled expertise in the most challenging Horizontal Directional Drilling (HDD) operations. Our advanced capabilities enable us to execute complex HDD projects that others deem impossible, including:

- Continuous HDD for Extended Distances
- Shore Approach - Land to Shore Drilling
- Land to Land Drilling
- Deep Valley Drilling
- Land to Mid Stream/River Drilling
- Challenging Drills with Compound Curves to Bypass Obstacles
- Bundle Pull Installation - Installing Two or More Lines Simultaneously

Our mastery of these specialized techniques sets HDDThailand-Enikkom Ltd apart in the industry. We excel in executing intricate drilling operations with precision and efficiency, tackling projects that push the boundaries of conventional HDD. Whether navigating challenging terrains, overcoming environmental obstacles, or maximizing efficiency through innovative techniques, our team consistently delivers unparalleled results that exceed client expectations. Our ability to adapt to diverse geological conditions and project requirements ensures that we provide tailored solutions for even the most demanding HDD projects in the oil and gas pipeline sector.

Our commitment to excellence is reflected in our Implementation of ISO 9001-2015 Quality Management and ISO 14001-2015 Environmental Management. With our in-house design capability systems, flexible project delivery mentality, and unrivaled experience, we consistently deliver exceptional value to every client, regardless of the challenge.

As HDDThailand-Enikkom Ltd, we continue to

push the boundaries of what's possible in trenchless technology. Our combined expertise has allowed us to successfully execute landmark projects across multiple continents, including Asia, Africa, Australia, and the Middle East. From critical infrastructure in the energy sector to complex utilities and civil engineering projects, we consistently deliver solutions that exceed industry standards.

## Strategic Alliance

### **ACCOUSTIC-ULTRASONIC Integrity Energy Services Nigeria Limited:**

ACCOUSTIC-ULTRASONIC is a strategic partner for HDDThailand-Enikkom Limited and is the leader in Pipeline Security and Monitoring Systems. They are the Sole Representative for the internationally renowned Pipeline Monitoring system "PipeAngel II". This system allows clients to monitor their pipeline in real-time. It also monitors the integrity of the Pipeline.

## Vision and Mission

### OUR MISSION

To deliver innovative, sustainable, and reliable infrastructure solutions across diverse sectors, leveraging our expertise in trenchless technology and international partnerships, to empower communities and drive economic growth.



### OUR VISION

To be the premier provider of trenchless technology solutions globally, recognized for our commitments to excellence, integrity, and social responsibility.



# Core Values

Choose us for unmatched expertise, cutting-edge technology, and unwavering commitment to safety and efficiency in every horizontal directional drilling project. We guarantee cost-effective solutions that minimize environmental impact and ensure your project is completed on time and to the highest standard.

- » Expertise and Experience: With years of industry experience, our team has successfully completed numerous complex horizontal directional drilling (HDD) projects, ensuring precision and reliability.
- » State-of-the-Art Equipment: We utilize cutting-edge HDD technology and equipment, allowing us to tackle challenging terrains and deliver accurate results with minimal disruption.
- » Safety Commitment: Safety is our top priority. We adhere to strict safety protocols, ensuring the well-being of our crew, clients, and the surrounding environment.
- » Customized Solutions: We offer tailored drilling solutions to meet specific project requirements, ensuring efficiency and cost-effectiveness for our clients.
- » Environmentally Friendly Approach: Our HDD methods minimize surface disruption, reducing environmental impact and promoting sustainable project execution.
- » Timely and Efficient: We prioritize completing projects on schedule without compromising quality, ensuring timely delivery to meet project deadlines.
- » Comprehensive Service: From planning to execution, we provide a full range of services, including design, drilling, and post-project support, ensuring a seamless experience.
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- » Cost-Effective Solutions: We deliver high-quality services while maintaining competitive pricing, providing value to our clients without sacrificing performance.
- » Industry Compliance: We follow all industry regulations and standards, ensuring that each project is compliant with legal and technical requirements.

## SCOPE OF SERVICES

We are an Engineering Procurement Construction company specializing in energy and infrastructure services. Our offerings cover pipeline construction across diverse terrains, utilizing advanced techniques like Horizontal Directional Drilling. Additionally, we excel in steel fabrication, dredging operations, and civil construction, including piling and jetty bridge construction. With comprehensive project financing solutions, we ensure seamless execution from start to finish. Committed to excellence, innovation, and environmental sustainability.



### Trenchless Crossing

**Horizontal Directional Drilling (HDD):** Horizontal Directional Drilling (HDD) is a trenchless method for installing underground pipelines with minimal surface disruption. HDD Thailand-Enikkom Ltd excels in complex projects, including record-breaking crossings up to 3.10 kilometers.



**Guided Boring (Thrust Boring):** Guided boring, or thrust boring, is a trenchless method used in horizontal directional drilling (HDD) for installing underground pipes with precision. It uses a guided pilot tube system for accurate alignment, making it ideal for small-diameter and shorter-distance projects.



**Micro Tunneling - Slurry Spoil Removal System :** Micro tunneling's slurry spoil removal system efficiently transports excavated material using a pressurized slurry mixture. This method ensures continuous removal, maintains ground stability, and allows for precise pipeline installation, even in challenging soil conditions or deep, long-distance projects.



**Horizontal Boring (Hole Hog):** Horizontal boring, or Hole Hog, is a trenchless method used to install underground utilities by boring a horizontal path. It's ideal for short-distance projects, minimizing surface disruption while providing a cost-effective solution for installing pipes, cables, or conduits.



**Pipe Ramming (Casing Installation):** Pipe ramming is a trenchless method for installing steel casing by driving it through the ground using a pneumatic hammer. It's ideal for crossing obstacles like roads or railways, providing a reliable solution for casing installation in challenging soil conditions.



**HDD Rescue x Pneumatic Pipe Bursting:** HDD Rescue and pneumatic pipe bursting are techniques used for trenchless pipe replacement. HDD Rescue repairs or retrieves stuck drills, while pneumatic pipe bursting fractures old pipes and installs new ones, offering efficient solutions for replacing damaged or outdated infrastructure.



**Pipeline Security and Monitoring:** Pipeline security and monitoring ensure the protection of pipelines from leaks, damage, or threats. Advanced systems use sensors, surveillance, and real-time data to detect issues and prevent disruptions or environmental harm.



## Technical Capabilities - Equipments

### Thrust Boring

HDDThailand-Enikkom Ltd boasts an unparalleled fleet of Thrust Boring machines, cementing our position as the industry leader in trenchless pipeline installation. Our arsenal includes six state-of-the-art Horizontal Earth Boring Machines, each tailored for specific project requirements and challenging geological conditions. Our equipment range demonstrates our commitment to versatility and power:

1. The veteran 24-100 machine, in service since 2000, offers reliable performance for smaller diameter projects.
2. Four machines acquired in 2010 showcase our rapid expansion and technological advancement:
  - The 36-340 model for medium-scale operations
  - The 36/42-600E, providing enhanced power and precision
  - The 42/48-600, offering increased diameter capabilities
  - The 48/54-G900, designed for larger pipeline installations
3. Our flagship 72-1200NG, added in 2013, represents the pinnacle of Thrust Boring technology, capable of handling the most demanding large-diameter projects.

This comprehensive fleet enables us to tackle projects ranging from 24" to 72" in diameter, adapting to various soil conditions and project specifications. Our machines' cutting-edge technology ensures precise, efficient, and environmentally friendly installations, minimizing surface disruption. With this robust equipment lineup, HDDThailand-Enikkom Ltd stands ready to overcome any trenchless pipeline challenge, from urban utility installations to major infrastructure projects. Our technical prowess in Thrust Boring, combined with our experienced team, guarantees successful project outcomes, reinforcing our status as the foremost trenchless technology provider in the region.

# Thrust Boring Machine



Thrust Boring Machine 1  
24 - 100 Horizontal Earth Boring Machine  
year of purchase: 2000

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Thrust Boring Machine 2  
36- 340 Horizontal Earth Boring Machine  
year of purchase: 2010

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Thrust Boring Machine 3  
36/42 -600E Horizontal Earth Boring Machine  
year of purchase: 2010

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Thrust Boring Machine 4  
42/48-600-600E Horizontal Earth Boring Machine  
year of purchase: 2010

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Thrust Boring Machine 5  
48/54G900 Horizontal Earth Boring Machine  
year of purchase: 2010

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Thrust Boring Machine 6  
72-1200NG Horizontal Earth Boring Machine  
year of purchase: 2013

# Technical Capabilities - Equipments

## Micro Tunneling & Pipe Jacking

As a leading provider of trenchless services, we are proud to introduce our micro tunneling and pipe jacking equipment, purpose-built to handle some of the most complex and demanding underground pipeline installations.

- **380 Ton Prime Thrusters Bi-Directional Operation - DOS 2015:** This thruster is a workhorse for medium to large-diameter pipe jacking operations. Capable of delivering 380 tons of thrust, its bi-directional operation allows for precise forward and reverse movements, which is crucial in tight, congested urban environments.
- **800 Ton MTS Thruster - 2021** With an impressive thrust capacity of 800 tons, this MTS Thruster stands out for its high power and efficiency in larger pipeline installations. Designed for heavy-duty applications, this equipment excels in high-pressure environments, including deep crossings beneath rivers and major infrastructure.
- **750 Ton Herrenknecht Thruster - 2024** Set to revolutionize the industry in 2024, the 750 Ton Herrenknecht Thruster offers next-generation tunneling performance. It features cutting-edge technology from Herrenknecht, a world leader in tunneling machines. Capable of managing complex soil conditions with ease, this machine provides unparalleled thrust and accuracy in large-scale pipeline jacking and installation projects.

Complementing Our Direct Pipe Capabilities, Our micro tunneling equipment perfectly complement our existing Direct Pipe solutions, providing clients with a comprehensive range of trenchless technology options.

- **48-Inch Diameter Micro Tunneling Equipment - TSG:** Specially designed for 48-inch diameter pipeline installations, the TSG micro tunneling equipment is known for its precision and ability to handle a wide range of ground conditions, including soft soils and rocky terrains. This system utilizes advanced laser-guided technology to ensure exact alignment and grade control, making it ideal for urban environments where accuracy is critical. Its compact design allows for operation in confined spaces, offering high flexibility and low disruption to surface activities.
- **48-Inch Diameter Micro Tunneling Equipment - MTS:** Like the TSG system, the MTS 48-inch micro tunneling equipment is optimized for precision and efficiency in large-diameter pipe installations. This system, however, is uniquely equipped to handle more challenging soil conditions thanks to its enhanced cutting head design and slurry management system.

At the core of our approach is a commitment to innovation, quality, and safety. With the equipment listed above, we continue to set the benchmark for excellence in trenchless pipeline installation across the industry. Whatever the project size or complexity, our state-of-the-art machinery and experienced teams are ready to tackle the challenge, ensuring efficient, safe, and reliable delivery.

# Micro Tunneling & Pipe Jacking Machine



Pipe Pusher PPP 400 RP Technical specifications Push-/ Pull Force: 380t- Diameter Range: 20" - 60 Torque: 90 -120kNm Weight:50t



Nominal Diameter: 48 inches (1220 mm) internal diameter Cutter Head Diameter: 48 inches (customizable to slightly larger diameters depending on overcut required for specific projects). Guidance System: Laser-guided, Gyroscopic system, or Navigation System for precision alignment of the tunnel bore. Pipe Jacking Equipment: Hydraulic jacks capable of applying thrust forces between 1,000 to 1,500 tons.



# Technical Capabilities - Equipments

## Dredgers / Vessels

HDDThailand-Enikkom Ltd boasts an impressive fleet of state-of-the-art dredgers and vessels, solidifying our position as a leader in marine construction and dredging operations. Our equipment roster showcases our commitment to excellence and technological advancement in the industry. Our dredging capabilities are exemplified by two cutting-edge Ellicott Dragon Dredgers:

1. Dredger No.1: Enikkom Ellicott Dragon Dredger, Series 1170-50
  - Cutter Suction: 16"/16"
  - Vessel Name: MV KENENNA
  - Year of Purchase: 2008
2. Dredger No.2: Enikkom Ellicott Dragon Dredger, Series 670-42
  - Cutter Suction: 14"/14"
  - Vessel Name: MV KECHIKEMDI
  - Year of Purchase: 2010

These powerful dredgers enable us to tackle a wide range of projects, from harbor maintenance to land reclamation, with unparalleled efficiency and precision.

Complementing our dredging fleet is the Enikkom Construction Limited MV OSPARR Offshore Work Barge, a versatile vessel designed for complex offshore operations. Key specifications include:

- Length Overall (LOA): 61m
- Beam: 25m
- Depth: 4.9m
- Draft (max): 3.0m
- Work Deck Area: 400m<sup>2</sup>
- Lloyds Register Class: +100 A1
- Flag: Panama

The barge is equipped with advanced deck equipment, including AMCON 1500 Double Drum Winches, Delta Flipper Anchors, and a DEMAG CC-2000 crane with a maximum lift capacity of 80t. This comprehensive setup allows us to undertake diverse offshore projects with confidence and precision. Our fleet's capabilities, combined with our experienced crew, position HDDThailand-Enikkom Ltd as the go-to partner for complex marine and dredging operations across various challenging environments.

# Dredger

## / Marine Equipment



Dredger No 1  
Enikkom Ellicott Dragon Dredger, Series 1170-50  
Year of Purchase: 2008

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Dredger No 2  
Enikkom Ellicott Dragon Dredger, Series 670-42  
Year of Purchase: 2010

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Enikkom Construction Limited MV Donaux offshore work Barge.



# Technical Capabilities

## HDD DRILLING Equipments



HDD Rig 1  
American Augers DD 580 Mud Cleaning System  
300 ton Pull Back Capacity HDD Rig  
Year of Purchase 2003

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HDD Rig 2  
ASTEC 3292 HDD & Mud Cleaning System  
15 ton Pull Back Capacity  
Year of Purchase 2008

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HDD Rig 3  
American Augers DD 440T HDD Rig &  
MPR Drilling Fluid Mixing, Pumping &  
Recycling System mud Cleaning System  
Year Purchase 2008

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HDD Rig 4  
American Augers DD 1100 HDD  
Fluid Cleaning Systems  
500 Ton Pull Back Capacity  
Year Purchase 2012

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HDD Rig 5  
American Augers DD 440T HDD Rig &  
MPR Drilling Fluid Mixing, Pumping &  
Recycling System mud Cleaning System  
Year Purchase 2012

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HDD Rig 6  
American Augers DD 625 HDD Rig &  
Mud Cleaning System 300 Ton Pull  
Back Capacity HDD Rig  
Year Purchase 2012

# Technical Capabilities

## HDD DRILLING Equipments



HDD Rig 7  
American Augers DD 220 HDD Rig & Mud  
Cleaning System 100 Ton Pull Back Capacity HDD Rig  
Year of Purchase 2012

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HDD Rig 8  
American Augers DD 1100 HDD Rig with  
MCR - 10000 Drilling Fluid Cleaning System  
500 Ton Pull Back Capacity  
Year Purchase 2013

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HDD Rig 9  
American Augers DD 155 HDD Rig &  
MUD Drilling Cleaning System  
70 Ton Pull Back Capacity HDD Rig  
Year Purchase 2017

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HDD Rig 10  
Vermer DT 80 HDD Rig  
50 Ton Pull Back Capacity HDD Rig  
Year Purchase 2024



# RELEVANT PROJECTS

## TECHNICAL CAPABILITIES - KEY PROJECTS EXPERIENCE

### PROJECT CATEGORY - CONTINUOUS HDD FOR EXTENDED DISTANCES

**PROJECT NAME:** 10-INCH X12KM UTOROGU UPS PIPELINE USING HORIZONTAL DIRECTIONAL DRILLING (HDD) IN OML34

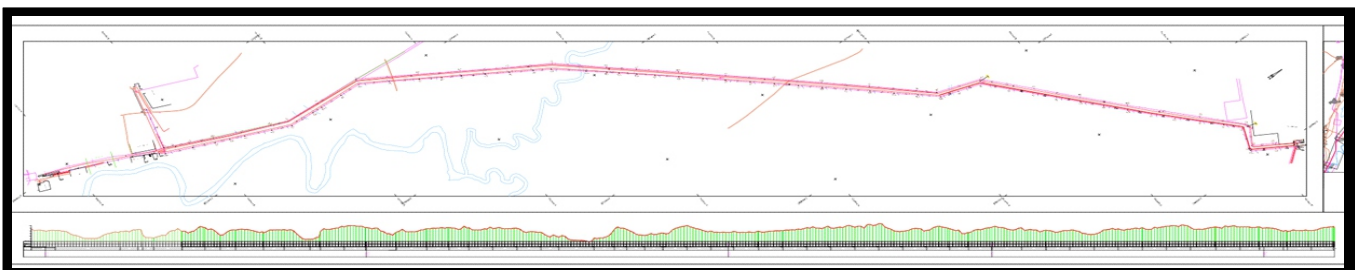
**CLIENT:** NIGERIAN PETROLEUM DEVELOPMENT COMPANY LTD (NPDC)

**SCOPE:**

- Engineering, Procurement & Construction Of 10-Inch X 12km Pipeline.
- Mobilization Of 5 rig Spread Equipment and Personnel.
- Welding Of 12" X 12km Pipeline in Different Sections
- NDT, FJC & Welding of P/L
- Tie in @ 10m depth.
- Pre-commissioning & commissioning
- Cathodic protection
- Mobilization & Demobilization of 5 rig spread.

This ambitious project aimed to combat illegal bunkering and secure production. The project involved mobilizing five rig spread and Two Tie in spread, with the pipeline being welded in different sections and tied in at a depth of 10 meters. Due to the extensive length, the installation was divided into six sections (DP0 to DP5), utilizing both intersect drills and a single shot drill to ensure a continuous pipeline. The execution faced challenges, including high community volatility and disturbances, which necessitated strategic planning. To address the seasonal fluctuations in the groundwater table, a robust dewatering system was implemented, featuring well points, jetting pumps, and electrical water pumps to maintain a dry, Health, Safety, and Environmental (HSE) compliant work area. The incorporation of sectional tie-in points allowed for a seamless transition in the construction of a single, continuous spool, marking the project as the longest functional Continuous Horizontal Directional Drilling (CHDD) pipeline project in Nigeria at the time of completion.

**STATUS:** COMPLETED MARCH 2022



## TECHNICAL CAPABILITIES-KEY PROJECTS EXPERIENCE

### PROJECT CATEGORY - LAND TO LAND & CHALLENGING DRILLS WITH COMPOUND CURVES TO BYPASS OBSTACLES

**PROJECT NAME:** CONSTRUCTION, INSTALLATION, TESTING 12-INCH X 1.8KM PIPELINE INSTALLATION BY HDD FROM NPC JETTY, APAPA TO GAS TERMINALLING STORAGE COMPANY LTD.

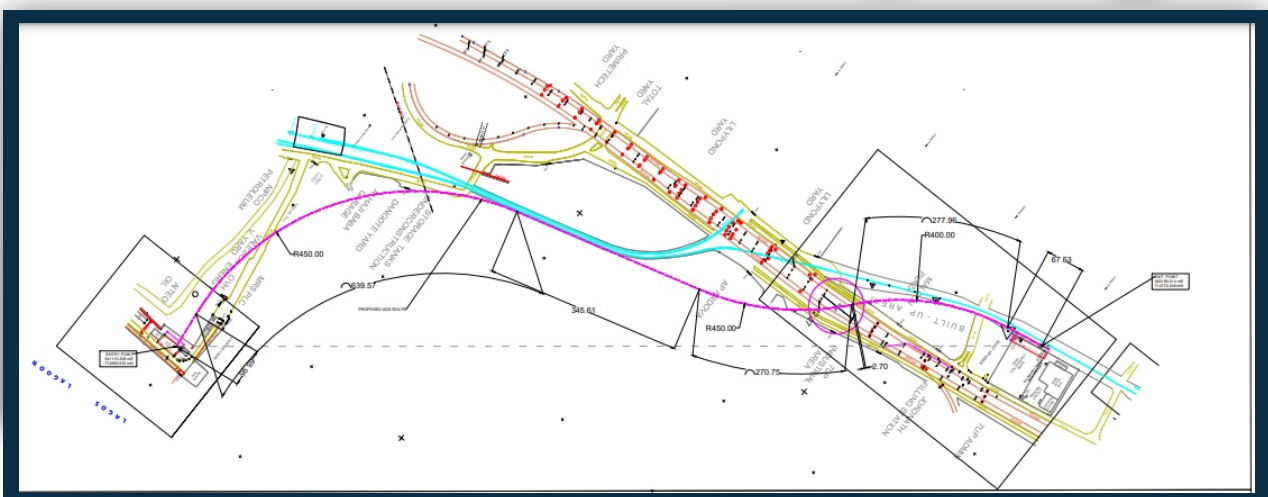
**CLIENT:** GAS-TERMINALLING STORAGE COMPANY / COMPACT MANIFOLD & ENERGY SERVICES LIMITED (CMES)

**SCOPE:**

- Engineering, Feasibility study & Design of 12" x 1.8km pipeline
- Site Preparation, including the establishment of entry and exit points.
- Deployment of 2nos Maxi Rig Spread (300tons and 500tons)
- Drilling of the 3km long x 16" by intersect method.

This project involved the installation of the 12-inch pipelines in a complex land-to-land crossing, requiring the drill path to navigate through multiple obstacles using compound curves. The HDD method was chosen to minimize surface disruption and maintain environmental integrity, particularly in sensitive and clustered Apapa areas where open trenching is not viable. The inclusion of compound curves introduces significant challenges, such as increased pulling tension, borehole stability, and precise navigation. To mitigate these challenges, advanced drilling and navigation technologies were used, ensuring the drill head follows the designed path and that the pipelines endured the stresses associated with curved pulls.

**STATUS:** COMPLETED OCTOBER 2023



## TECHNICAL CAPABILITIES - KEY PROJECTS EXPERIENCE

### PROJECT CATEGORY - DEEP VALLEY DRILLING

**PROJECT NAME:** ENGINEERING, CONSTRUCTION AND COMMISSIONING 36-INCH ESCRAVOS-LAGOS GAS PIPELINE SYSTEM PHASE 2 (ELGP2)

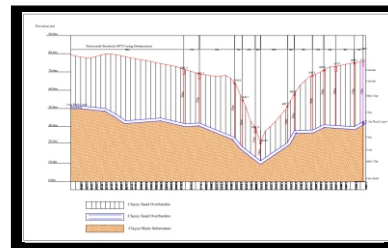
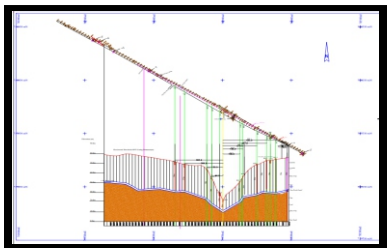
**CLIENT:** NIGERIAN NATIONAL PETROLEUM CORPORATION (NNPC)/ZAKHEM CONSTRUCTION LIMITED (ZCL).

**SCOPE:**

- Construction, Laying, and Commissioning of 36-inch x 1.3km Gas Transmission Pipeline by Horizontal Directional Drilling (HDD) across Ekiadolor Rock Valley in Benin City
- Welding and pre & post testing.
- Deployment of 2 Maxi Rig Spreads.

This project aimed to lay a 1.3km gas transmission pipeline across the challenging Ekiadolor Rock Valley in Benin City. The terrain presented numerous challenges, including a deep valley with a 40-meter elevation difference, very corrosive soil that caused significant wear on equipment, and no direct access between the entry and exit points. The project's complexity increased with heavy mud losses during drilling and the inability to pump at the proposed depth of 80 meters. To address these obstacles, further geophysical investigations were conducted using 2D and 3D Electrical Resistivity Imaging, leading to a re-engineered crossing profile 10 meters deeper than originally planned. A new mud program was designed, and bigger capacity mud mixing and recycling units were mobilized to both entry and exit points. Additionally, specialized tools like hybrid reamers, rock drilling tools, and mud motors were procured to ensure smooth drilling through the tough terrain. With these measures in place, the project successfully tackled the unique challenges of the Ekiadolor valley, ultimately achieving the construction, laying, and commissioning of the pipeline.

**STATUS:** COMPLETED March 2018



## TECHNICAL CAPABILITIES - KEY PROJECTS EXPERIENCE

### PROJECT CATEGORY - LAND TO MID STREAM/RIVER DRILLING & BUNDLE PULL INSTALLATION

**PROJECT NAME:** ENGINEERING, PROCUREMENT, CONSTRUCTION AND COMMISSIONING OF OFFSHORE PRODUCTS PIPELINES FROM ALAKPATA TO MARINA FLOATING JETTY OF THE APAPA OANDO JETTY PROJECT - PHASE 1

**CLIENT:** APAPA SPM LIMITED/OANDO PLC

**SCOPE:**

- Engineering, Procurement, Construction, and Installation of 16", 6", and 4" x 700m Products Pipelines using Horizontal Directional Drilling (HDD)
- Deployment of offshore HDD rig spread.
- HDD drilling by shore approach.
- Welding works and pre & post testing.

This Project was a landmark endeavor, led 700 meters beneath the river from Alakpata to Marina Floating Jetty, this project utilized Horizontal Directional Drilling (HDD) technology to install the pipelines while preserving the surface environment. As the longest bundled HDD crossing in Africa at the time, the project faced unique challenges, including geotechnical uncertainty, pipe stress from the bundled pullback, and complex logistics due to site access limitations. To mitigate these risks, the team conducted further geophysical investigations, deployed advanced steering technology, and re-engineered the drilling fluid program. Specialized logistics planning ensured efficient site setup, while precise alignment and tension control during pullback protected the pipelines. With detailed contingency plans in place, the project was successfully executed, marking a significant achievement in African pipeline installation.

**STATUS:** COMPLETED MARCH 2014



# TECHNICAL CAPABILITIES-KEY PROJECTS EXPERIENCE

## PROJECT CATEGORY - LAND TO LAND & BUNDLE PULL INSTALLATION

**PROJECT NAME:** CONSTRUCTION, INSTALLATION, TESTING 16" CS & 2.5" FOC  
CABLE INSTALLATION UNDER NUN RIVER BY HDD METHOD

**CLIENT:** SHELL PETROLEUM DEVELOPMENT COMPANY (SPDC)/MORPOL  
ENGINEERING

**SCOPE:**

- Engineering & Design
- Site Preparation, including the establishment of entry and exit points.
- Pilot hole drilling, reaming and continuous monitoring of borehole.
- Mobilization & demobilization of 2nos rig spread.

This Horizontal Directional Drilling (HDD) project involves the simultaneous installation of 16-inch and 2.5-inch pipelines using the bundled pull method over a 1000meter crossing. This bundled pull method allowed for the efficient installation of multiple pipelines within a single borehole, from the entry to the exit, reducing project costs and timeline while maintaining structural integrity. The project addresses challenges related to subsurface conditions, borehole stability, and pipeline alignment through a well-coordinated execution strategy.

**STATUS:** COMPLETED JULY 2024



## TECHNICAL CAPABILITIES - KEY PROJECTS EXPERIENCE

### PROJECT CATEGORY - LAND TO LAND / SWAMP TO SWAMP

**PROJECT NAME:** LAGOS GAS PIPELINE PROJECT (LGPP) - 36" X 2KM PIPELINE CROSSING FOR DANGOTE FERTILIZER

**CLIENT:** DANGOTE FERTILIZER/ZAKHEM CONSTRUCTION LIMITED (ZCL).

#### SCOPE:

- Engineering, Procurement, Construction, and Installation of 36-inch (Schedule 22.225) x 1.5km Gas Pipeline Across Swamp and River Using Horizontal Directional Drilling (HDD) Method
- Dredging of creeks, canals, and access channels to provide access for drilling rigs and associated marine equipment.
- Deployment of 2 Maxi Rig Spreads.
- Welding works and pre & post testing.

Due to the challenging environment, extensive dredging of creeks, canals, and access channels was required to stabilize the area and create access route before drilling could begin. The team deployed two Maxi Rig spreads, including an American Auger 300-ton & 500-ton rig. However, during drilling, the HDD drill pipe decoupled 50 meters from the entry pit, submerged between 10 and 15 meters beneath the riverbed. Using advanced metal detection technology, the team located the decoupled pipe at a depth of 13 meters. To retrieve it, a cofferdam was installed around the area, mud was removed, and divers equipped with specialized tools successfully reconnected to the drill string. The rigs and support equipment were stationed on barges, reinforced with piles and beams for added stability. Despite the challenges, the project was executed efficiently, ensuring the successful installation of the pipeline critical to Dangote Fertilizer's operations.

**STATUS:** COMPLETED OCT 2018



## TECHNICAL CAPABILITIES - KEY PROJECTS EXPERIENCE

### PROJECT CATEGORY - SHORE APPROACH - LAND TO OFFSHORE DRILLING

**PROJECT NAME:** INSTALLATION OF 12 INCH X 4 KM PIPELINE CROSSING FROM ANGO FIELD TO OFFSHORE SECTION GOING TO AUNTIE JULIE PLATFORM (12" X 1.8 KM SWAMP SECTION BY HDD AND 12" X 2.2 KM SHORE APPROACH BY HDD).

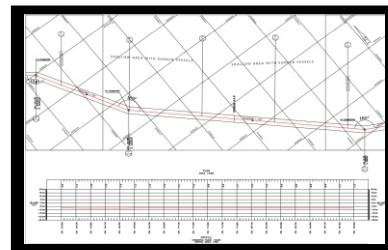
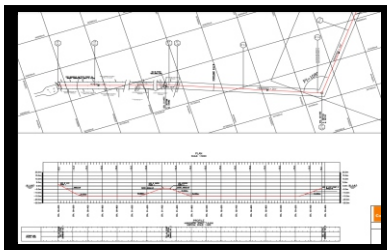
**CLIENT:** OANDO PLC

**SCOPE:**

- Engineering & Construction Of 10-Inch X 12km Pipeline.
- Mobilization Of 2rig Spread (land & marine) Equipment and Personnel.
- NDT, FJC & Welding of P/L
- Hook up to existing line

This Shore Approach Project involved the Engineering, Construction, and Installation of the pipeline to navigate the complex transition from land to offshore terrain. Extensive planning was required to address the unique challenges of the shore approach, where the pipeline would transition beneath the shoreline and out to sea. Using a Maxi Rig, the drill advanced with precision, ensuring minimal environmental impact on the coastal area. During the pullback process, careful attention was given to pipeline alignment and tension control to avoid stress on the pipeline. However, once the pipeline reached the offshore side, divers were deployed to hook up the pipeline underwater, connecting it securely to the offshore infrastructure. Specialized diving teams worked at depth, utilizing advanced tools to ensure a safe and precise connection. Advanced mud engineering was also employed to maintain borehole stability, preventing fluid loss and ensuring smooth operations. Despite the challenging coastal conditions and underwater complexities, the project was completed successfully, delivering a seamless installation while preserving the marine and coastal environments.

**STATUS:** COMPLETED MAY 2016



## TECHNICAL CAPABILITIES - ENIKKOM PROJECTS LISTING

HORIZONTAL DIRECTIONAL DRILLING (HDD) WORK EXPERIENCE							
S/N	CLIENT	GENERAL DESCRIPTION PROJECT	DESCRIPTION OF ROLE PLAYED	STATUS / COMPLETION DATE	PIPELINE SIZE	TYPE OF PIPELINE / LENGTH OF PIPELINE	INSTALLATION TYPE
1	MORPOL / SPDC	Construction, Installation, testing 16" CS & 2.5" FOC Cable Installation Under Nun River By HDD Method	HDD Contractor	Completed (Jul 2024)	16-inch + 2.5-inch	Gas PL (1km)	Land to Land & Bundle Pull Installation
2	GAS-TERMINAL LING / CMES	Construction, Installation, Testing & Commissioning Of 12-inch x 1.7km Gas Pipeline by HDD in Apapa	HDD Contractor	Completed (Nov 2023)	18-inch	Gas PL (1.5km)	Land to Land & Challenging Drills with Compound Curves to Bypass Obstacles
3	NIPCO	Construction, Installation, Testing & Commissioning Of Carbon Steel Pipeline. 8km x 18inch and Approx. 2km x 12Inch Pipeline (4nos HDD Crossings – 1.1km)	HDD Contractor	Completed (Oct 2023)	12-inch & 18-inch	Gas PL (8km x 18": 3km x 12": 4.5km x 8")	Land to Land
4	CMES / NDPHC	Replacement of 18" x 1.5km Gbaran Pipeline - HDD	HDD Contractor	Completed (Feb 2023)	18-inch	Gas PL (1.8km)	Land to Land
5	NPDC/ND WESTERN	Engineering, Procurement, Construction, Installation and Commissioning of 10" x 12km Product Transmission Pipeline from Utorogun – UPS by Continous Horizontal Directional Drilling Technique (CHDD) including Line Pipes Procurement, Welding Works and tie-ins at 10m Depth in OML34	HDD Contractor	Completed (March 2022)	10-inch	Gas PL (12km)	Continuous HDD for Extended Distances

## TECHNICAL CAPABILITIES - ENIKKOM PROJECTS LISTING

6	MORPOL / SPDC	Redrill of 900m X 6" Steel casing for FOC Across Orashi River by HDD	HDD Contractor	Completed (June 2022)	6-Inch	FOC (900m)	Land to Land
7	MORPOL / SPDC	INSTALLATION of 900m X 12" Steel Pipeline And 900m X 6" Steel casing for FOC Across Orashi River - HDD AND 400m X 12" Steel Pipeline And 400m X 6" Steel Casing Pipe for FOC Across Mbiama - Yenagoa Road and Epie Creek.	HDD Contractor	Completed (Aug 2021)	12-Inch	Gas PL & FOC (900m x2 400m x2)	Land to Land
8	ZAKHEM CONSTRUCTION NIERIA LIMITED / DANGOTE FERTILIZERS LIMITED	LEKKI GAS PIPELINE PROJECT (LGPP): Engineering, Procurement, Construction and Installation of 36inch (schedule 22.225) x 1.4km Gas Pipeline Across Swamp and River Using Horizontal Directional Drilling (HDD) Method at Ejinrin, Epe, Lagos State. EPC CONTRACTOR.	HDD Contractor	Completed (Oct-2018)	36-Inch	Gas PL (1.5km)	Land to Land
9	GRAMEN PETROSERVE LIMITED / CHEVRON NIGERIA LIMITED	Escravos Export System Project; Design and Installation of 30" X 540m Pipeline Section At Escravos Creek Using Horizontal Directional Drilling (HDD) Method. EPC CONTRACTOR.	HDD Contractor	Completed (Jan-2018)	30-Inch	Gas PL (540m)	Land to Land
10	KAZTEC ENGINEERING LIMITED / PIPELINES AND PRODUCTS MARKETING	Emergency Reconstruction Of Atlas Cove – Mosimi 16" X 1800m Pipeline Section At Ijeododo Swamp Using Horizontal Directional Drilling	HDD Contractor	Completed (Mar-17)	16-inch	16-Inch (1.8km)	Land to Land

## TECHNICAL CAPABILITIES - ENIKKOM PROJECTS LISTING

	COMPANY LIMITED (PPMC)	(HDD) Method. EPC CONTRACTOR.					
11	GREEN GAS LIMITED / NIPCO PLC	CONSTRUCTION, INSTALLATION AND TESTING OF 12" x 11.6km PIPELINE (Phase - 1) including 5.6km of installation using HDD (12" x 1.7km; 12" x 900m; 12" x 1.25km; 12" x 700m; 12" x 580m; 12" x 470m) ALONG IBADAN EXPRESS WAY	HDD Contractor	Completed (Jun- 16)	12-Inch	Gas PL (5.6Km)	Land to Land
12	ZAKHEM CONSTRUCTION NERIA LIMITED	Expansion Of Escravos-Lagos Gas Pipeline Project – Phase II For The Construction, Installation And Testing Of <b>36inch X 15km</b> Pipeline By Horizontal Directional Drilling (HDD) with 5.33km of Continous HDD Section - 2.78km; 550m and 2km sections.	HDD Contractor	Completed (Dec-15)	36-Inch	Gas PL (15Km BY HDD Of Which 5.33km is by CHDD)	Land to Land & Continous HDD for Extended Distances
13	PIPELINES AND PRODUCTS MARKETING COMPANY LIMITED (PPMC)	Emergency Reconstruction Of Atlas Cove – Mosimi 16" X 3000m Pipeline Section At Arepo Swamp Using Horizontal Directional Drilling (HDD) Method. EPC CONTRACTOR.	HDD Contractor	Completed (Dec-14)	16-inch	16-Inch (3km)	Land to Land & Challenging Drills with Compound Curves to Bypass Obstacles

## TECHNICAL CAPABILITIES - ENIKKOM PROJECTS LISTING

14	ZAKHEM CONSTRUCTION NIERIA LIMITED	Expansion of Escravos-Lagos Gas Pipeline Project-Phase I. Construction, Installation and Testing of 30inch x 395m Gas Pipeline across the Benin-Warri Expressway Using the Horizontal Directional Drilling (HDD) Technology for ZAKHEM. Main Client is NIGERIAN GAS COMPANY LIMITED (NGC). EPC CONTRACTOR.	HDD Contractor	Completed (Apr-12)	30-Inch	Gas PL (395m)	Land to Land
15	APAPA SPM LIMITED / OANDO PLC	Engineering, Procurement, Construction and Commissioning of (16", 6" and 4" x 700m single Bundle Pull) Products Pipelines from Alakpata Facility to Marina Floating Jetty of the Phase I Apapa Oando Jetty Project : Offshore Pipeline Construction From New Jetty To Alapata Facilities Using The Horizontal Directional Drilling (Hdd) Method. EPCC CONTRACTOR.	HDD Contractor	Completed (Mar-14)	16-Inch + 6-Inch + 4-Inch	Product Line (700m)	Land to Mid Stream/River Drilling & Bundle Pull Installation
16	COMPACT MANIFOLD AND ENERGY SERVICES LIMITED (CMES)	Construction / Laying and Commissioning of 5 River Crossings on the 54km by 24inch Gas Transmission Pipeline from Adanga to Calabar in Cross River State (Onshore Part of the Lot3) by Horizontal Directional Drilling	HDD Contractor	Completed (Dec-13)	24-Inch	Gas PL (5km)	Land to Land

## TECHNICAL CAPABILITIES - ENIKKOM PROJECTS LISTING

		viz; Calabar River - 680m, Uruan River - 739m, Akwua River - 897m, Qua River - 759m and Oron River - 1862m. EPCC CONTRACTOR.					
17	OILSERV LIMITED	Construction and Installation of 12" x 300m Gas Pipeline by Horizontal Directional Drilling across the Liverpool River for the Entire Pipeline Crossing of liverpool River for the OANDO Pipeline Works. EPC CONTRACTOR.	HDD Contractor	Completed (Oct-11)	12-Inch	Gas PL (300m)	Land to Land
18	NIGER DELTA PETROLEUM RESOURCES	Construction and Installation of 12" x 300m Gas Pipeline by Horizontal Directional Drilling across the Sambreiro River at Rumuji for the Ogbele-Rumuji Pipeline Project. EPC CONTRACTOR.	HDD Contractor	Completed (Jul- 10)	12-Inch	Gas PL (300m)	Land to Land
19	OILSERV LIMITED	Complete Installation of 7 No River Crossings using the Horizontal Directional Drilling Method HDD on the 18inch by 130km Calabar Pipeline Project.(12" x 1.302km; 12" x 485m; 12" x 472m; 12" x 875m; 12" x 363m; 12" x 704m; 12" x 760m)	HDD Contractor	Completed (Dec-10)	18-inch	Gas PL (4.9km)	Land to Land
20	OILSERV LIMITED	Construction and Installation of 12"x 195m Gas Pipeline across the Coconut River in Lagos for the 12inch Gas Pipeline Construction that	HDD Contractor	Completed (Mar-09)	12-Inch	Gas PL (195m)	Land to Land



## TECHNICAL CAPABILITIES - HDDTHAILAND (INTERNATIONAL) PROJECTS LISTING

HDDTHAILAND INTERNATIONAL							
S/N	CLIENT	GENERAL DESCRIPTION PROJECT	DESCRIPTION OF ROLE PLAYED	STATUS / COMPLETION DATE	PIPELINE SIZE	TYPE OF PIPELINE / LENGTH OF PIPELINE	INSTALLATION TYPE
1	China Petroleum Pipeline Bureau (Thailand) Co. Ltd.	5TP2 42" Gas Pipeline – PTT - Thailand 6 x 42", 6" Recovery crossings to 925 metres	HDD Contractor		42 - inch	42" Gas Pipeline (925m)	Land to Land
2	KSS-IBCI Joint Venture	5TP3 42" Gas Pipeline – PTT - Thailand 4 x 42", 6" Granite rock crossings to 1,023 metres	HDD Contractor		42 - inch	42" Gas Pipeline (1023m)	Land to Land & Challenging Drills with Compound Curves to Bypass Obstacles
3	Triton Engineering and Construction	NFPT2 - 12" NFPT Project - FPT – Thailand. 14 x 12" crossings to 2,014m in hard rock	HDD Contractor	Jul-19	12 - inch	12" (2014m)	Land to Land
4	Strega Public Co. Ltd	14" NFPT Project - Fuel Pipeline Transport Limited 12 x 14" crossings to 2,030m	HDD Contractor	Jan-18	14 - inch	14" (2030m)	Land to Land
5	Thai Development Public Company Limited	PTT-1st Transmission Pipeline Life Extension Project (PLLEP) 18" Reroute Section (RC-670) 14 x 18" Rhyolite rock crossings to 1,040 metres Italian	HDD Contractor	Jan-18	18 - inch	18" (1040m)	Land to Land
6	WREP SRP Project – Georgia / Azerbaijan 21" and 36" crossings to 1,290 metres	WREP SRP Project – Georgia / Azerbaijan 21" and 36" crossings to 1,290 metres	HDD Technical Representative	Jul-18	36 - inch	36" Gas Pipeline (1290m)	Land to Land

## TECHNICAL CAPABILITIES - HDDTHAILAND (INTERNATIONAL) PROJECTS LISTING

7	McConnell Dowell Constructors Thai Ltd.	PTPNM2 – 28" Gas Pipeline – PTT - Thailand 11 x 28" Sandstone rock crossings - 6", 28" crossings to 1,225m	HDD Contractor	May-18	28 - inch	28" Gas Pipeline (1225m)	Land to Land
9	Enikkom Construction Limited Zakhem / Nigerian Gas Company	36" x 1,900 metres Agbor Rd crossing	HDD Contractor	Sep-15	36 - inch	36" Gas Pipeline (1900m)	Land to Land
10	Strega Public Co. Ltd.	FTP2 – 42" Gas Pipeline – PTT - Thailand 9 x 42", 6" Granite rock crossings to 1,470 metres	HDD Contractor	Jun-15	42 - inch	42" Gas Pipeline (1470m)	Land to Land & Challenging Drills with Compound Curves to Bypass Obstacles
11	World Multilink Co. Ltd.	FTP2 – 42" Gas Pipeline – PTT - Thailand 7 x 42", 6" Granite rock crossings to 1,040 metres	HDD Contractor	Jun-15	42 - inch	42" Gas Pipeline (10400)	Land to Land & Challenging Drills with Compound Curves to Bypass Obstacles
12	Strega Public Co. Ltd	28" Gas Pipeline – PTT - Thailand 31 x 28", 6" crossings to 2,000 metres	HDD Contractor	Jun-15	28 - inch	28" Gas Pipeline (2000m)	Land to Land

## TECHNICAL CAPABILITIES - SPECIALIZED EQUIPMENT & TOOLS LISTING

S/N	DESCRIPTION	MAKE	CAPACITY	YR OFPURC.	QTTY
<b>• HDD DRILLING RIGS</b>					
1	DD 580 HDD RIG	American Augers	300 Tons Pullback	2000	1-Nos
2	DD 440 HDD RIG	American Augers	200 Tons Pullback	2008	1-Nos
3	DD 440T HDD RIG	American Augers	200 Tons Pullback	2008	1-Nos
4	DD 1100 HDD RIG	American Augers	500 Tons Pullback	2012	1-Nos
5	DD 1100 HDD RIG	American Augers	500 Tons Pullback	2012	1-Nos
6	DD 625 HDD RIG	American Augers	300 Tons Pullback	2012	1-Nos
7	DD 220T HDD RIG	American Augers	100 Tons Pullback	2012	1-Nos
8	DD1100R HDD RIG	American Augers	500 Tons Pullback	2013	1-Nos
9	DD 100 HDD RIG	American Augers	50 Tons Pullback	2013	1-Nos
<b>• THRUST BORING MACHINES &amp; ACCESSORIE</b>					
1	72–1200 NG Thrust Boring Machine	American Augers	1.2m Pound	2013	1-No
2	48/54–G900 Thrust Boring Machine	American Augers	900,000 Pound	2010	1-No
3	42"/48" – G600 THRUST BORING MACHINE	American Augers	600,000 Pound	2010	1 No
4	36"/42" - 600 Pounds Push Capacity	American Augers	600,000 Pound	2009	1 No
5	36 "– 340 Pounds Thrust Boring Machine	American Augers	340,000 Pound	2008	1-No
6	24 - 100 Thrust Boring Machine	American Augers	100,000 Pound	2004	1-No
<b>• MICRO TUNNELING &amp; PIPE PUSHER EQUIPMENT</b>					
1	48" Micro Tunneling Equipment and accessories	MTS	48"	2021	1 - No
2	800 Ton Pipe Pusher - MTS	MTS	800t	2021	1-Nos
3	380 Ton Pipe Pusher – Prime Drilling	Prime Drilling	36"– 60"x380Tons	2015	1-Nos
<b>• DRILL PIPES</b>					
1	5" DRILL PIPES	JAPAN		2010	Various
2	6-5/8" DRILL PIPES-25lb/ft	AMERICAN	S-135	2013	6km
3	6-5/8" DRILL PIPES - 27lb/ft	JAPAN	S-135	2013	7km
4	6-5/8" DRILL PIPES-35lb/ft	China	S-135	2021	12km
<b>• SPECIALIZED EQUIPMENT</b>					
1	THUMPER	TT TECHNOLOGIES	24"	2013	1-Nos
2	THRUSTER 24"-48"	PRIME	24-48"	2013	1-Nos
3	MOBILE BREAKOUT UNIT	HERENKENETT	4-1/2 TO 6-5/8	1013	1-Nos
<b>• MUD MIXING, CLEANING &amp; RECYLING SYSTEMS</b>					
1	Mud Mixing Unit	Juesco	MMU	2016	5-Nos
2	Mud Cleaning & Recycling System (MCR-10000)	A/Augers	MCR10000	2014	2 Nos
3	Mud Processing and Recycling (MPR 6000)	A/Augers	MPR6000	2014	2 Nos
4	Mud Cleaning & Mixing Unit (MCM 4000)	A/Auger	MCM 4000	2013	2 Nos
5	Mud Cleaning Technology (MCT 2000)	A/Auger	MCT2000	2013	1 Nos
6	Mud Cleaning System (MCS 750)	A/Auger	MCS750		1Nos
<b>• MUD PUMPS</b>					

## TECHNICAL CAPABILITIES - SPECIALIZED EQUIPMENT & TOOLS LISTING

1	Mud Pump (P-600)	A/Auger	Tri-plex 600GPM	2013	2Nos
2	Mud Pump (P-750)	A/Auger	Quintiplex, 750GPM	2013	1Nos
3	Mud Pump	A/Auger (Kerr Pump)			1 Nos
4	Hydraulic Mud Pump	Herrenknecht		2015	1 Nos
5	Mud Pump	John Deere		2013	1 Nos
2	FRAC TANKS	MUD TECHNOLOGIES	500 BARREL	2012	4 Nos
<b>• REAMERS AND SUBS</b>					
1	BR 6 5/8" FH (18", 24", 30",36", 42",48" & 54")	INROCK	18" - 54"	2010	Various
2	FC 6 5/8" FH (18", 24", 30", 36", 42",48" & 54")	INROCK	18" - 54"	2013	Various
3	BR 4-1/2" IF (18", 24", 30", 36", 42",48" & 54")	INROCK	18" - 54"	2009	Various
4	FC 4-1/2" IF (18", 24", 30", 36", 42",48" & 54")	INROCK	18" - 54"	2010	Various
5	XO SUBS	INROCK	4-1/2" & 6-5/8"	2010-13	Various
6	SAVER SUBS	INROCK	4-1/2" & 6-5/8"	2010-13	Various
7	WEEPER SUBS	INROCK	4-1/2" & 6-5/8"	2010-13	Various
8	ORIENTATION SUBS	INROCK	4-1/2" & 6-5/8"	2010-13	Various
9	BENT SUB	INROCK	1 DEG TO 2DEG	2010-13	Various
<b>• PIPE ROLLERS</b>					
1	20 Ton 12" to 48" Pipe Rollers	TRENCHLESS	10T	2013	Various
2	15 Ton 12" - 48" Pipe Rollers	TRENCHLESS	15T	2011	Various
3	10 Ton 12" - 48" Pipe Rollers	LJ WELDING	20T	2010	Various
<b>• ROLLER CRADDLES</b>					
1	24" ROLLER CRADDLES	LJ WELDING	24"	2012	Various
2	36" ROLLER CRADDLES	LJ WELDING	36"	2013	Various
3	48" ROLLER CRADDLES	LJ WELDING	48"	2010	Various
<b>• OTHER DOWNHOLE TOOLS</b>					
1	8" MONEL C/W DOWN HOLE ASSEMBLY	INROCK	8"	2012	Owned
2	6" MONEL C/W DOWN HOLE ASSEMBLY	INROCK	6"	2012	Owned
3	6" MONEL C/W DOWN HOLE ASSEMBLY	INROCK	6"	2021	8 Nos

## TECHNICAL CAPABILITIES - SUPPORT EQUIPMENT & TOOLS LISTING

ITEM	DESCRIPTION & MAKE	CONDITION	OWNED / LEASED	QTY
• PILING EQUIPMENT				
1	ABI 90 -TON TRACK VIBRATORY PILING HAMMER	GOOD	OWNED	2
2	ICE 3117 VIBRO HAMMER & POWER PACK	GOOD	OWNED	1
• EXCAVATORS				
1	CAT 320CL EXCAVATOR	GOOD	OWNED	Various
2	CAT 330CL EXCAVATOR	GOOD	OWNED	Various
3	CAT 330DL EXCAVATOR	GOOD	OWNED	Various
4	CAT 325CL EXCAVATOR	GOOD	OWNED	Various
5	CAT 336 EXCAVATOR	GOOD	OWNED	1
6	HITACHI EXCAVATORS ZX220LC -GI	GOOD	OWNED	3
7	HITACHI EXCAVATORS ZX350LCH -5G	GOOD	OWNED	1
• SWAMP BUGGY				
1	WILCO SWAMP BUGGY	GOOD	OWNED	6
• BULLDOZER & PAIL LOADER				
1	DOZER D7R, D6H	GOOD	OWNED	3
2	PAIL LOADER 966 CAT	GOOD	OWNED	3
3	WHEEL LOADER 950 CAT	GOOD	OWNED	2
4	CAT 750 GRADER/ RIPPER	GOOD	OWNED	2
5	WHEEL LOADER 950 HITACHI	GOOD	OWNED	1
• SIDE BOOMS				
1	SIDE BOOMS - 40T	GOOD	OWNED	6
2	SIDE BOOMS - 35T	GOOD	OWNED	4
• COMPRESSOR				
1	COMPRESSORS - INGERSOLL RAND	GOOD	OWNED	10
2	Den Air Compressor - 13.5 bar, 350 Cfm	GOOD	OWNED	2
• GENERATOR				
1	GENERATORS (20KVA - 500KVA)	GOOD	OWNED	Various
2	JMG GENERATORS (250KVA)	GOOD	OWNED	1
3	JMG GENERATORS (150KVA)	GOOD	OWNED	1
• WELDING MACHINE & ACCESSORIES				
1	BENDING MACHINE - 16" TO 24" CRC EVANS	GOOD	OWNED	1
2	WELDING MACHINE - LINCOLN 450V (MANUAL AND ARC)	GOOD	OWNED	24
3	GRINDING MACHINE	GOOD	OWNED	6
4	ELECTRIC WELDING MACHINE	GOOD	OWNED	6
• CRANES				
1	CRANE (TELESCOPIC TYPE) - 10 TONS	GOOD	OWNED	2
2	CRANE (TELESCOPIC TYPE) - 25 TONS	GOOD	OWNED	2
3	CRANE (TELESCOPIC TYPE) - 30 TONS	GOOD	OWNED	3
4	XCMG - 120tons	GOOD	OWNED	1

## TECHNICAL CAPABILITIES - SUPPORT TOOLS & EQUIPMENT LISTING

ITEM	DESCRIPTION & MAKE	CONDITION	OWNED / LEASED	QTY
<b>5</b>	<b>NCK NOVA HC65</b>	GOOD	OWNED	1
	<b>• TRUCKS</b>			
<b>1</b>	FLAT BED TRAILERS (DOUBLE AXLE) – MACK	GOOD	OWNED	16
<b>2</b>	FLAT BED TRAILERS (4 X 4) – MECERDES BENZ	GOOD	OWNED	14
<b>3</b>	LOW BED TRAILER (4 X 4) – MECERDES BENZ – 45 TONS	GOOD	OWNED	2
<b>4</b>	LOW BED TRAILER (4 X 4) – 70-80 TONS	GOOD	OWNED	2
<b>5</b>	SALVAGE TRUCKS (MACK) – DOUBLE AXLE	GOOD	OWNED	1
<b>6</b>	OIL & LUBE TRUCK	GOOD	OWNED	2
<b>7</b>	DIESEL TRUCK	GOOD	OWNED	2
<b>8</b>	WATER TANKER – 3000 LITERS	GOOD	OWNED	2
<b>9</b>	SELF LOADER – 10 TON LIFTING CAPACITY (DOUBLE AXLE)	GOOD	OWNED	1
<b>10</b>	SELF LOADER – 7 TON LIFTING CAPACITY (DOUBLE AXLE)	GOOD	OWNED	1
<b>11</b>	DAF 1800, 4 X 4 WHEEL DRIVE BUS	GOOD	OWNED	4
<b>12</b>	UNIMOG 1300, 4 X 4 WHEEL DRIVE BUS	GOOD	OWNED	4
	<b>• LIGHT VEHICLES</b>			
<b>1</b>	TOYOTA HIACE BUS – 18-SEATER	GOOD	OWNED	12
<b>2</b>	TOYOTA HILUX PICK -UP – 4 X 4 WHEEL DRIVE	GOOD	OWNED	8
<b>3</b>	TOYOTA LAND CRUISER, HARD BACK 4 X 4 WHEEL DRIVE FIELD TRUCK (COVERED)	GOOD	OWNED	4
<b>4</b>	TOYOTA PRADO 4 X 4 WHEEL DRIVE	GOOD	OWNED	5
<b>5</b>	MEDIVAC VAN – MERCEDES G40	GOOD	OWNED	2
	<b>• DREDGING &amp; MARINE EQUIPMENT</b>			
<b>1</b>	MV Donaux	GOOD	OWNED	1
<b>2</b>	ENIKKOM ELLICOTT DRAGON DREDGER, SERIES 1170 -50 (CUTTER SUCTION) 16"/16" – MV KENENNA	GOOD	OWNED	1
<b>3</b>	ENIKKOM ELLICOTT DREDGER, SERIES 670 -42 (CUTTER SUCTION) 14"/14" – MV KECHIKEMDI	GOOD	OWNED	1
<b>4</b>	SWAMP BUGGY EXCAVATOR WITH CAT 320 BACKHOE	GOOD	OWNED	6



**HDDTHAILAND-ENIKKOM LIMITED**

Pioneering Excellence in Trenchless Technology.

## Get In Touch



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