

CORPORATE PROFILE



ABOUT US

COMPANY OVERVIEW

WE ARE THE LARGEST MANUFACTURER COMPANY

KROD ENERGY RESOURCES LTD: Is an indigenous company, was incorporated in Nigeria in 2012 with RC No. 1066563, with a vision to be a leading name in marketing and efficient service delivery in the oil and gas industry. Our main aim is to exploit technology as much as possible through well positioned and engineered time of incorporation. We invest our financial and technical resources in the development of high performance product and provide services that are of international standards, paying attention to the finest details of health, safety and environmental best practices.

Krod Energy Resources is wholly indigenous that focuses on excellence in the execution of projects. Our reputation is based on our capability to achieve or customer satisfaction, we invest much on training of employees and equipment maintenance and promoting a conducive work environment. Krod Energy Resources Ltd provides the platform for value addition to the Nigerian economy, through the deliberate utilization of Nigerian human and material resources and services. The vision of this company is in consonance with that of the Federal Government of Nigeria

WHAT WE OFFER

Krod Energy Resources Ltd, is an underwater training and engineering consultancy company, with proven competence in delivering results to client's satisfaction. Reflecting the finest standards of engineering solutions and education for years, Krod Energy Resources Limited has demonstrated its commitment to the Oil & Gas industry and its professionalism as well as impacting subsea knowledge. In our quest to be the leader in Oil & Gas based solutions training, we have specialized services to be rendered to serve and meet the needs of both private and government organization all through the federation. While Krod is designed to meet the performance requirement by providing standard services which is of a world class quality, we also provide consultancy to other forms of administrative needs. Krod Energy Resources Ltd also specialize in subsea oil & gas training and solutions, offering variety of training courses, reflecting the finest standards of oil & gas subsea education. In our quest to lead in engineering based training, we have specialized training modules to service the educational needs of schools, oil and gas companies nationwide. Krod Energy Resources Ltd, has as its core mandate to deliver qualitative and relevant subsea Engineering trainings to both government and private at all level with a strong practical base and core International standard. Our extensive experience with Floating Production Storage & Offloading (FPSO) Unit, Jack-up, Drilling Units, Drillship, Risers, Pipelines & Underwater Engineering services enable us to provide the clients with professional and cost effective solutions that stands out for their quality, enabling Oil Majors as well as marginal E&P hit their production objectives. Krod Energy Resources Ltd, is a relatively young company – but the sum of our experience is substantial. Our employees have an average of more than 20 years of experience from the oil & gas industry globally. We provide world class consulting services that stand out for their quality, enabling Oil Majors as well as marginal E&P hit their production objectives. Training: Offering of competency-based learning (online & offline) and On-the-job training programs for the Oil & Gas Industry.

Advance Technology

The development and application of advanced technology is vital to the modern industry task of finding and developing oil and gas resources. This technology has enabled the industry to improve its success rate, meaning that reserves are found with fewer wells, less waste and less surface disturbance.

On-time Delivery

We meet your local delivery needs 24 hours a day, 7 days a week. Our customers choose us for a variety of reasons. We offer competitive pricing, advanced dispatch technology and personalized service with a smile from our professional drivers and dedicated support team. This combination ensures your business needs and expectations aren't simply met, but are exceeded at every turn.

Expert Engineer

We oversee the various stages of product development and provide expert leadership during the process.

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WHY CHOOSE US



WE ARE PROFESSIONAL

Our team focuses on excellence, team spirit and a commitment to providing services and products that enable our clients to improve their performance in oil and gas industry,



WE ARE TRUSTED

" We are committed to providing cost-effective, innovative & practical solutions. With a high level of technical excellence and quality."



WE ARE EXPERTS

Industry experts in oil field engineering, man power supply, engineering procurement construction Management and haulage/ logistics in the oil and gas sphere in Nigeria and

OUR SERVICES

Engineering Procurement Construction Management (EPCM)

PIPELINE CONSTRUCTION

Nigeria being a country endowed with a lot of Oil & Gas resources, the management of Krod Energy Resources Limited, had a long term vision of setting up a department/unit solely responsible for Pipeline Construction. Unfortunately, due to the prevailing circumstances then, this unit could not take off for a long time.



In view of the Federal Government's policy plan and desire to expand the local gas infrastructure coupled with the Nigerian Content Act, which came into effect in 2010, Krod Energy Resources Limited diversified her activities by activating the Pipeline Construction Unit. Our vision and mission is to work strategically in order to place Krod Energy Resources Limited amongst one of the top six (6) indigenous EPC – Pipeline Construction companies of choice. After just a few years of diversification into the Pipeline construction business, we are proud to state that KERL is today a force to be reckoned with in this sector.

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Phased Array

Ultrasonic Phased Array Systems can be employed in almost any test where conventional ultrasonic flaw detectors have traditionally been used. Weld inspection and crack detection are the most important applications. Phased Array produces accurate, detailed cross-sectional pictures of internal structures at fast inspection speeds. The benefits of phased array technology over conventional UT comes from its ability to use multiple elements and electronic time delays to create beams that can be steered, scanned, swept and focused electronically for fast inspection, full data storage and multiple angle inspections, Weld Inspection, Flaw Detection.

SURVEYING

With our vast years of surveying and engineering knowledge and experience, we provide the following services but not limited to. Considering the importance of surveying as a technical profession in the engineering sector, we provide expert surveying in engineering, civil, hydrograph, GIS and Data base management.



Topographic survey

Using conventional survey method encompassing traversing, levelling and GPS control extension; we can provide 3-D topographic maps/ plans to meet our clients' requirement. We provide topographic maps depicting natural and made features in xyz format for all engineering and planning purpose.

Preliminary Investigation (P.I.) survey

We carry out preliminary investigation survey for routes, pipe line, power lines and blue peg establishment for oil well locations.

Full Preparation survey

Based on our experience in surveying, we undertake survey of full preparation survey for pipe line route, gas lines, delivery lines and oil blocks

As – built survey

This type of survey involves showing actual position of man – made features as against the original design. These features include buildings, engineering structures, tanks, piles foundation positions. As the name implies, we actually show objects as the built on the ground.

Cadastral survey

We specialize in cadastral survey for the purpose of land demarcation to show ownership, we also Undertake layout surveys, subdivision of parcel of land and additional acquisition survey of estate.

GPS

Using Global Positioning System GPS and DGPS, we can establish monuments for precise surveying, position-fixing, control establishment, navigation and detail surveying.

To attain this, we employ GPS signals satellite from the orbit in collaboration with user segment equipment consisting of an antenna and receiver. Depending on our customer's requirement, we have the capability of giving coordinates at any point on the earth's surface to an accuracy of 3meters to relative position of within a few millimetres.



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Setting out / Pipe Line Surveys

Using total station, we have the skill to set out any structure based on coordinates or alignment. We versed in setting out of curves, foundations and piles positions for piling purpose.

Based on client requirement, we offer setting out of civil structures, bridge piers, high precision positioning for heavy machineries, bolt positioning for equipment base and other pre- fabricated installations.



Calculation of earth work volume

Our company has the ability to calculate earth work volume for cuts, fills and earth haul works, and we employ elevation differences to arrive at the required volume of any earth work for costing and volume determination. We can also provide areas of any structure with irregular boundary. In sand filling projects, our surveyors can calculate to the nearest accuracy volume of earth.

Spirit Levelling for height determination and gradients

With modern heighten equipment such as automatic and digital levels heights of any position on the earth surface can be determined by our surveyors relative to a datum. These elevations can be used by our clients for various engineering purpose and the final result produced as a profile or in longitudinal format.

Intelligent Pig survey i.e. underground pipe detection

We have in our stock magnometer, i.e. pipe detector which can be employed to detect underground metals such as pipe route, buried cables and gas line. We provide the service for our clients to detect and map out underground features during construction and laying of new pipe lines. This service can be extended to depict existing pipe line routes, underground cables and buried metal debris.

Subsidence Monitoring Survey

This service covers subsidence monitoring of all structural settlement using geodetic precise level. We have the skill to show movement/ settlement of tanks, dams, pile foundations, bridges and existing civil structures. We also use this same technique in deformation survey of defective civil structures, verticality of erect structures and tilt determination in tanks etc.

Pile Foundation Positioning And Monitoring

In places where it is required to drive piles for foundation and other engineering purpose, we can position the piles to within a few millimetres accuracy. This feat can be achieved using total station with given coordinates to set out this position and we also monitor the piles for verticality during piling. We also provide survey service for shore protection piling and pile sheet monitoring.

Hydro graphic Surveying

This service conventionally covers survey work for projects in civil engineering, adjoining bays, harbours, lakes, creeks, rivers, ocean, rig move and positioning and platform height determination. Based on our skills and man power, we provide the following hydro graphic services;

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Pre and post dredging survey

In pre or post dredging operations, our company provides pre- dredging survey to determine the actual depth of the river/sea bed before dredging work commences. We also determine and carve out the area for spoil dump, position of water discharge box and direction of water flow. We also compute the volume of dredge spoils, post dredge water depth using modern equipments like Hydro track echo sounder in connection with GPS and DGPS. Using bathymetric sounding, we can produce charts showing river and sea beds depths for the purpose of volume computation and other works as our client may require.

Measurement of tides for coastal and shore protection works, jetties and dredging purposes.

With the aid of water flow meter, velocity of tides and river flow can be established by our hydrographic surveyors. This knowledge also covers measurement of quantity of water flow and flow rate of water body for the purpose of harbour works, shore protection and construction on jetties. We can also install self reducing tide gauge and monitor tides for navigational and bathymetric purpose.

Sea bed survey and sea bed pipe line route survey.

Using Side Scan Sonar (towing fish), magnometer and DGPS, we can carry out survey of seabed to show pipe line route, lost anchors, sea debris and wrecks on the sea floor. This advance and highly skilled survey is carried out on board a survey vessel..

Off shores positioning using DGPS for rig move, buoys, anchor, platforms and Rig positioning.

We carry out positioning of Rigs, buoys, anchors, moles, platforms, oil well jackets etc. using DGPS and intersection method. We can attain high positioning accuracy depending on our clients demand and purpose of the job.

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Geographic Information System (G.I.S.)

We have an information managing system that is computer based, for organizing spatial related data so that it can be analysed, displayed and stored in a digital format. We employ qualified personnel with training in the field of GIS and AUTOCAD and they are skilled in the use of modern GIS tools is data transformation, presentation and analysis.

We present our data in:

AUTOCAD format, pdf, dgm
Micro station
DTM (Digital Terrain Model)
WGS 84
National grid (MINNA grid)
Conversion of coordinates from WGS 84 to MINNA user grid
Data Base Management System.
Map projection and Transformation



Quality Control and Analysis.

We provide quality control surveying service for project supervision, making survey procedures are followed and quality adhered to during any project. We add value to client's requirement through analysis and strict supervision in compliance with clients' specification, from start to end of the project.

Equipment and Personnel Hire

We supply, lease survey equipments and Personnel:
Total stations
Laser levels
Digital levels; Leica and Wild
Digital Theodolites
Electro- Magnetic Distance measurement (E.D.M.)
Echo sounder ; Raytheon and Hydrotrack
Global Positioning System (GPS.) Trimble, South Instrument and Leica
Surveyors; Registered, Survey Engineer, Hydrographers, Technologist and technicians

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We also specialize in civil engineering projects; we offer the following services;

- Civil Construction
- Sand Padding
- Renovation work
- Road design
- Project planning and supervision
- Schematic plan interpretation

Drilling & Production Enhancement Services (Drilling and Production)

For all the advances in Technology that have been made in Drilling and Completion of wells, Wellbore Integrity remains the single most important aspect of well construction and maintenance. Without it, there is no guarantee of Safety, Productivity or Return of Investment. The integrity of a well is essential for optimum performance of the well during its lifetime.

With the increasing drive to increase oil and gas reserves, Krod Energy Resources Limited has smart solutions that would enable Operators drill oil and gas wells without wellbore integrity challenges thereby avoiding formation damages, and greatly reducing the cost of drilling. We well engineered Wellbore Integrity program will not only ensure operational reliability and assurance during the drilling program but would also ensure that, post drilling, the well returns very economically on the investment. Our team of engineers and earth scientists backed with many years of successfully applying Wellbore Integrity Solutions to both Drilling and Production Well operations will bring our wealth of experience to bear on your projects.

Sl No.	Specification	Qty (Set/Pc)
A	Mud Cooler	1
	Make: Petrophat (Customized)	
	Volumetric Flow Rate: 1000 GPM	
	Heat Exchanger Duty: 13416 KW	
	Inlet Temperature: 102 degC	
	Outlet Temperature: 60 degC	
	Inlet Viscosity: 90 cP	
	Material of Construction: 0.6mm Ti-Gd 1	
	Unit Dimension: 4.4m*1.2m*2.3mH	
	Number of Plates: 301	
	Total Active Area: 100 m ²	
	Hot & Cold Side Inlet Connection: 6" ANSI Flange	
	Hot & Cold Side Outlet Connection: 6" ANSI Flange	
	Gasket Material: EPDM	
	Flow Characteristics: True Counter Current	
Remark	1. Approximate Shipping weight, empty: 4500 kg	
	2. Lift Certified	
	3. Leak Proof manifold fitted with Temperature and Pressure Gauges	
	4. Working Pressure: 12 bar	
	5. Colour Code: RAL 5012; Anti Corrosive Paint	
B	Water Cooling Tower	1
	Model: WTC3300TH	
	Capacity: 800 GPM	
	Type: Induced draft, Counter Flow, Evaporative, Square	
	Hot (Inlet) Temperature: 55 deg C	
	Cold (Outlet) Temperature: 40 deg C	
	Wet Bulb Temperature: 30 deg C	
	CT Heat Load: 23,40,000 Kcal/hr	
	Total Pump Head: 4.2 m	
	Drift Loss: 0.20%	
	Evaporation Loss: 1.2% of Circulating Flow	
	Other details	
	Number of Cell: Two	
	Fan Per Cell: One	
	Water Circulating Pump: 3.7 KW Flame Proof Motor	
Remark	1. Approximate Shipping weight, empty: 9400 kg	
	2. Operating weight capacity: 28 m ³ /ton	
	3. Inlet connection: 4" ANSI Flange	
	4. Material of tower structure: MSHDG structure (70-80 microns)	
	5. Colour Code: RAL 5012; Anti Corrosive Paint	
C	Strainer skid	1
	Skid mounted Dual Rod Strainer with Slings	
	Mud Circulation Pump - 75 HP (Flame proof)	
	Skid foot print: 8' X 10'	
	Pump make: Mison magnum or equivalent	
	Inlet line of manifold: 8"	
	Delivery line to mud cooler: 6"	

Benefits of Wellbore Stability Services

- Reduces Cost
- Eliminates Non Productive Time (NPT)
- Reduces/minimizes drilling mud lost to the formation Saves rig time
- Leads to improved Hydrocarbon Recovery from the Well hence greater return Investment
- Specialized and Proprietary Products for Wellbore Stability for Drilling and Production applications
- Multisqueeze As Fiber- Medium and Fine
- Bi-Center Beads



INSTRUMENTATION control &

INSTRUMENTATION

Krod Energy Resources Limited involvement in Instrumentation & Control Engineering covers installation, supplies, modification, service and repairs of Transmitters, controllers, control valves, sensors, design and installation of complex and computerized control panels and repairs, modification of electronics boards, and construction of electrical systems and electrical boards.

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With sophisticated automation requirements on one hand and budget & schedule constraints on the other, Project Management (PM) has become the Achilles' heel in the Oil & Gas sector. Our trained project management teams are there to help you achieve your project targets for applied automation systems.

PSV CALIBRATION

The major incident experiences in the industry are explosions mostly due to equipment failures or exceeding required pressure limits in facilities, hence PSV calibration is vital to ensure pressure limits are not exceed.

CORROSION MANAGEMENT

Krod Energy Resources Limited is one of the renowned Oil & Gas servicing company that works in conformity with approved standards to provide the best results at all levels of corrosion management for process and storage facilities.

COATING REPAIRS

Krod Energy Resources Limited works in conformity to standards to ensure that surface corrosion protection is in place to extent the workable life span of its's clients' facilities. Our Procedures for Painting Services involves the application of high quality paints/coating agents to Oil & Gas facilities situated onshore and offshore and these procedures are also applicable to other structures.



TANK CALIBRATION

Krod Energy Resources Limited, ensuring that storage facilities are duly certified fit for whatsoever purpose in other to prevent failure of equipment and Safety Hazards. Calibration ensures that the exact volume of a tank corresponds to that of a standard device and id the key to ensuring that all tank measurements are accurate. Even the best gauging systems do no match up without accurate calibration. Each of our highly trained technicians has extensive experience in calibration and instrument repair. As a certified provider of physical, mechanical, electrical, and frequency calibration services, we are dedicated to providing the highest quality instrument support services available.

WELLHEAD SERVICES

Krod Energy Resources Limited offers specialized services in wellhead maintenance and valve leak detection/repairs. Our procedures involve Lubrication of Internal Reciprocating Components, Repair of broken parts, Inspection of Christmas Tree Valves, SCSSVs and Downhole safety valves.



HOT TAPPING / STOPPLE / FREEZING

Hot Taps can be performed on most any type of pipe, ranging from carbon steel to PVC. Taps are done on lines containing water, oil gases, fuels, steam and many other chemicals. Pressures up to 1440 psig at 1000 can be Hot Tapped safely with no interruption of service.

SLICKLINE / SWABBING

We have high-tech operations that offer different sizes for well head operations such as 0.092", 0.108", 0.125", 0.140", 0.150", and 0.160" in diameter, and is obtainable from the wire-drawing mills in one-piece standard lengths of 18,000, 20,000, 25,000 and 30,000 foot lengths.

HYDRAULIC PULLING UNITS

As operators respond to increased calls for mature well intervention and well abandonment, there is increased demand for safer, more efficient, cost-effective solutions. Krod's intervention and abandonment systems provide a reliable alternative to conventional rigs and workover units when re-entering mature assets.

INSPECTION SERVICES

We offer the services of a unique tool for detecting corrosion in pipelines and other structures in facilities that are sensitive/susceptible to higher corrosion rates for many reasons. Inspections historically has attracted time consumption and costly operations that involves cutting off the support, but currently this can be accomplished without delay, it is cost effective and very simple.

The operation has been successfully tested and has gained ultimate satisfaction from several major oil and gas companies around the globe. We offer all conventional types of inspection, non-destructive testing and verification services such as:

- Ultrasonic Flaw Testing (UT)
- Ultrasonic Thickness Measurement (UTM)
- Penetrant Testing (PT)
- Fluorescent Penetrant Testing (FPT)
- Magnetic Particle Testing (MPT)
- Fluorescent Magnetic Particle Testing (FMT)

INTELLIGENT PIGGING / INLINE INSPECTION (ILI)

There are techniques that may have higher through pipeline speed than ILI, but when it comes to inspection accuracy, the ILI tool can provide owner or operator with the best remaining thickness and data available.

Krod Energy Resources Limited, offer routine professional pipeline pigging advice which may involve design of a pigging program that is adapted to a particular pipeline.

STATUTORY INSPECTION

Krod Energy Resources Limited carries out full status inspection of process equipment such as vessels, heaters and Regeneration columns, and then certifies them fit for purpose in order to ensure continuous productivity.

MANUAL NDT

We offer the Long range ultrasonic testing (LRUT), an NDT technology designed primarily for detection of corrosion and other metal loss damage. The Tele-test technique has now been extensively used (in Europe and America) in the field for evaluating the condition of pipes in the diameter range 2 inches to 48 inches and has performed well in detecting corrosion. This technique provides versatility, real time data accuracy and cost effectiveness as its principle of operation is Ultrasonic.

PIPELINE PRE/DE-COMMISSIONING

Newly constructed or refurbished pipelines are pre-commissioned to ensure that the pipe meets the requirements of its Owners or operators. These will vary to some extent depending on the service for which the line is intended. As a minimum, operators will want to verify if the line has been laid without significant defects and is in a condition suitable to be filled with the intended product without rupturing.

Several tasks are included in getting the process done. They include:

- Pre-Cleaning
- Gauging
- Flooding

- Hydro-testing
- Dewatering
- Drying
- Air-Drying
- Vacuum Drying

Krod Energy Resources Limited pipeline commissioning gets quality product into your pipeline safely, quickly, and efficiently. Start production immediately and reduce economic risk.

Fabrication & construction



The considerable knowledge and expertise has laid the foundation for the quality and efficient company which prides in its reputation for supplying quality services that meets our clients' expectation. We have built up an expertise in managing different types of properties, constantly updating our management services to meet the changing demands in this field. We offer a scalable range of building management and intelligent building solutions and services - from individual subsystems to fully integrated intelligent buildings - that reduce risk while delivering world class operating and energy efficiency.

Risk Assessment

Sound risk management procedures are essential to assess and mitigate the risks associated with your industry. Our specialist risk management teams and laboratories operate worldwide, covering a wide range of industries. We identify and quantify specific risks and make decisions about how to manage and mitigate them in the future. Risk management from Krod - helping you identify and manage risks for your projects, operations and everyday business activities. Our comprehensive range of risk management services are in full compliance with international risk management standards and include:

- Risk management planning
- Risk identification
- Quantitative and qualitative risk analyses
- Risk handling
- Management of residual risk
- Project monitoring and management.

TANK FABRICATION / SHELL REPAIRS



The expectations for tank repair and construction have changed throughout the last 100 years. Standard practices in the 1940s are not the same as today. Consequently, many of the welded steel and riveted storage tanks across the country are in need of shell modification, replacement, and repair. KROD offers the following tank shell repair and replacement services:

- Complete Shell plate or shell ring replacement
- Nozzle repair and replacement due to improper weld spacing
- Door sheet repair and replacement due to improper door sheet installation\

Access Services

At Krod Energy Resources Limited, we give easy access to difficult or confined spaces utilizing solutions like Rope Access, Scaffolding or Tension Netting.

Bolt Torquing and Tensioning

Krod provides bolting solutions and requirements including torquing, tensioning and stress analysis with the use of state of the art equipment which include Hydraulic Torque Wrenches, Bolt Tensioning Cylinders, Hydraulic Nuts and more. Bolt Tensioning is a controlled method of tightening which applies preload to a bolt while stretching it axially. As a result, inaccuracies created through friction are eliminated and massive mechanical effort to create torque is replaced with simple hydraulic pressure. We utilize the latest technology to ensure that high quality services are provided to our clients and offers you full guaranty on the following:

- Assurance of uniform bolt loading and gasket compression
- Quicker assembly, disassembly of the joint
- Safety, prevention of accidents
- Prevention of fastener damage
- Our bolting technology develops, produces and distributes hydraulic, electric and pneumatic bolting methods for Tightening and loosening a wide range of industrial bolt connections.

Our Rope Access Technician operates from two ropes, working rope and a back-up. Safety rope and is permanently attached to both, each rope has a separate anchorage point. In the unlikely event of the rope becoming damaged or unusable, the safety rope will prevent a fall.

Rope Access provides maximum safety and is considered a highly efficient and flexible system that allow multiple disciplines in one team. Rope Access operations have minimum equipment requirements assuring easy logistics and minimum impact to concurrent operations, processes and or work environments.

The nature of Rope Access reduces project time, lowering downtime and minimizing the impact on ongoing operations, significantly reducing the cost to clients in comparison to traditional access methods.

Technicians are not only trained in Rope Access, but are multi-disciplinary operatives. Some of the services offered are: ACFM, Ultrasonic – Flaw Detection and Thickness Gauging, Magnetic Particle, Dye Penetrant, Visual Inspection, B&C Scan, Phased Array, Radiography, TOFD, API 653, API 580, API 510, API 4G, Coating Inspection, Remote Controlled Inspection (CCTV), Anode Replacement, Bolt Torque Tensioning, Blasting, Composite Repairs, Confined Space Entry, Corrosion Under Insulation, Derricks and Masts Refurbishment and Rebuilds, Electrical Works, Fabrication, Grinding, Helideck Structural Works, Insulation, Leg Inspections, Painting, Pipe Work Inspection, Removable Insulation Jackets, Rig Maintenance and more.



Fabrication Services

At Krod Energy Resources Limited, we pride ourselves on our flexible and innovative approach, which allows us to offer a wide range of Fabrication, Welding services and Structural repair solutions in Nigeria. The skills of our workforce and with our proven track record ensures we deliver our clients requirements on time. Krod Energy Resources Limited understands that the total company or system, not just the 'Safety Department', affects and is responsible for the safety of all employees.

- Safety is an essential component of our culture.
- Walkways
- Handrails
- Pipe Racks
- Skids
- Riser Clamps
- Decking





DRILL WASTE MANAGEMENT



Our Drilling Waste Management team provides solutions that meet the highest level of regulatory compliance while keeping the most cost-effective disposal options in mind. The EDS is a combination of chemical and mechanical processes which allows to dehydrate the drilling waste directly at the rig site. The output from EDS consist of filtered clean water (normally used for the preparation of new drilling mud and as plant/rig washing water and very dry solid).

REFUSE DISPOSAL / ENVIRONMENTAL CLEANING



KROD offers a comprehensive analysis of waste stream for best recycling solutions. Our approach to materials recycling is firmly built on the principles of economic and environmental sustainability. We provide a collection bins, carts, and containers for recycling services. We play a key role with you in protecting and restoring the environment. The Treatment and Disposal Solutions division manages hazardous and industrial waste requiring specialised treatment and processing before disposal at a suitable landfill site.

Technical Manpower



In the Oil & Gas Industry, Krod Energy Resources Limited has vast experience in the area of technical manpower supply in Nigeria. Krod Energy Resources Limited provides both professional and consultancy services, both contract and permanent staff alike. We are driven by a commitment to excellence in meeting our client's requirements. Our network of offices and years of experience give us a competitive edge and unique capability to provide high quality reliable staffing services. From project conception to commissioning, KERL will staff and manage your project with high quality personnel thereby reducing your risk of exposure. We currently have a database of over 10,000 active CV's covering different disciplines in oil & gas operations for both topside and subsea activities.

Industry experts in oil field engineering, manpower supply, Engineering construction management, Haulage & Logistics Services and procurement in the oil and gas sphere in Nigeria.

Specialist Coating Services

Krod Energy Resources Limited provides various types of specialist coating services to the Oil and Gas Industry, including Ultra High Pressure (UHP), hydro, traditional grit and steel ball blasting, fire protection & insulation as well as joint coating.

Our Specialist Coating Services Include:

- Blasting and Painting
- Passive Fire Protection (PFP)
- Field Joint Coating (FJC)

When given the opportunity, Krod Energy Resources Limited Engineering chooses the coating solutions with the most to offer when dealing with the demands of an end user's 'mission critical' facilities. As an AIM services company, we can provide the required access and the correct surface preparation of surfaces prior to application of coating materials according to client specification.



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Field Joint Coating Services

Krod Energy Resources Limited provides advanced field joint coating systems and services to the offshore and onshore pipeline contractors and IOC's. Krod Energy Resources Limited aim is to be at the forefront of Coating, Insulation and Corrosion Protection Systems and understands the needs of the industry and it's positioned to provide innovative equipment and technology solutions that are required to meet the demands of today's challenging environment.

We also integrate the latest technologies to optimize performance on-site in terms of cycle time and quality whilst always respecting the environmental requirements. Our purpose-built coating systems and equipment are prepared, installed and operated by our highly skilled and experienced technicians and engineers. KERL offers a complete range of anti-corrosion protection and thermal insulation coatings, we apply most of the field joint coating systems in the field, by mobilizing specialized equipment and experienced operators to various onshore locations, spool-bases, fabrication yards, other permanent and temporary project sites, or offshore on pipe-laying vessels. We have international reputable certifications in ISO 9001:2015, 14001:2004 and OHSAS 18001:2007 reference standards

Blasting and Painting

Krod Energy Resources Limited provides various types of blasting and painting services to the Oil and Gas Industry, including Ultra High Pressure (UHP), Hydro Blasting and more traditional grit and steel ball blasting. At Krod Energy Resources Limited we understand that surface preparation is essential for satisfactory performance of any paint system. The most expensive and advanced painting systems will fail if surface preparation is inadequate either in cleanliness or profile.

Our highly skilled blasters and painters are committed to provide the best solutions, best methods, best quality and best value in areas such as: Shipyards, LNG Plants, Fabrication Facilities, Offshore and Onshore Projects and more. We also make use of our blasters and painters that are IRATA Certified Rope Access Technicians. This enables us to work in difficult to reach locations, for repair work or where there are time restraints in completing a project. Rope Access is a means to complete your projects Safely, on-time and within budget. All our coating systems are applied in accordance with the respective paint manufacturers specifications. This process is closely monitored throughout the coating application.



Passive Fire Protection (PFP)

Passive fire protection (PFP) coatings make structures more resistant to fire by insulating structural steel from high temperatures and as a result, buy time for the evacuation before structural collapse. Krod Energy Resources Limited utilizes her Graco XM™ PFP Plural-Component Sprayer which is state of the art and offers data reporting technology, so you can confirm that epoxy intumescent coatings are sprayed on-ratio, at requirements set by the manufacturer. The XM PFP is easy to use, maintains consistent temperature control and offers precise ratio control. Our Applicators are all trained and certified to apply PFP materials both Intumescent and Cementitious.

Some of our PFP methods include:

- PITT CHAR XP
- Surface preparation
- Degreasing
- Power tool cleaning
- Primers



NDT Inspection

Krod Energy Resources Limited Inspection Services focuses on conventional and specialized Inspection and Non Destructive Testing (NDT) coupled with efficient management and cost effective implementations. We provide a complete integrated service to a variety of industries and Clients. At Krod Energy Resources Limited we utilize state-of-the-art equipment and highly trained technicians.

Conventional and Specialised Non Destructive Testing (NDT)

ULTRASONIC TEST

A method in which a high frequency sound wave is sent through the part and changes in signal amplitude are observed. Typically the signal changes as the density of the part changes.

- DYE PENETRANT INSPECTION
- MAGNETIC PARTICLE INSPECTION
- VISUAL INSPECTION
- A, B & C SCAN

Inspection Services

Krod Energy Resources Limited Inspection Services focuses on conventional and specialized Inspection and Non Destructive Testing (NDT) coupled with efficient management and cost effective implementations. We provide a complete integrated service to a variety of industries and Clients. At Krod Energy Resources Limited we utilize state-of-the-art equipment and highly trained technicians.

All our technicians are IRATA certified Rope Access Technicians all with a multi-disciplined approach and with a vast selection of disciplines. This allows for multiple scopes to be carried out single source.

Our Inspection Services Include:

- General Inspection
- Risk Based Inspection
- Corrosion Monitoring and Mapping
- Coating Inspection
- Welding & Coating Inspection
- Remote Aerial Inspection
- Close Visual Inspection

At Krod Energy Resources Limited we understand the importance of NDT services to our clients. Not only can our clients improve Use Asset reliability, reduce operational and maintenance costs, enhance safety and extend plant life, they can monitor and improve their operations across the board. These findings are documented with photographic support and we subsequently provide corrective recommendations for their rectification. Most importantly, items that are considered high risk are repaired by the technicians, after all, most of these are inaccessible without Rope Access.



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LIFTING EQUIPMENTS



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Lifting Equipment Inspection

Krod Energy Resources Limited is a full member of LEEA, both training and operations in Nigeria that carries out Inspection and verification of all Lifting Equipment Inspection as per LOLER regulations in accordance with SI2307/2184 and DPR guidelines. They may include Non Destructive Testing / Evaluation (NDT/NDE) of all items where necessary as well as proof load testing. We are members of the Lifting Equipment Engineers Association (LEEA) in Nigeria.

We carry an extensive range of load test equipment including heavy-duty water bags for offshore crane inspections as well as Lifeboat testing equipment including Davit Testing.

Our Capabilities include the following:

- Loose lifting Gear Inspection
- Equipment Verification
- Mobile and Tower Crane Inspection and Testing
- Offshore Crane Inspection and Load Test
- Lorry Mounted Crane/HIAB Certification

The Lifting Equipment Engineers Association (LEEA) are established across the globe as the leading representative body for all those involved in the lifting industry worldwide. They are the respected and authoritative representative body for our Members who work in every aspect of the industry, from design, manufacture, refurbishment and repair, through to the hire, maintenance and use of lifting equipment.

The Association has played a key role in this specialised field for over half a century, from training and standards setting through to health and safety, the provision of technical and legal advice, and the development of examination and licensing systems.

We carry out our inspections/assessment on Lifting and Hoisting equipment as part of the client's risk assessment program or annual survey and these are aimed to meet all the legal and safety requirements for periodic inspections. Periodic inspection is intended to ensure that the equipment is safe and fit for use with all applicable standards and regulations. Following the thorough examination/Proof Load testing of your equipment with satisfactory result, documents of certifications and evaluation assessments can be issued to the client via our web portal with hard copies delivered within 48 hours.

A sound examination of lifting equipment and lifting accessories makes a decisive contribution towards functional safety when operating lifting equipment and lifting accessories.

All of our Inspection Engineers are fully LEEA qualified and in addition are qualified to current NDT standards through the ASNT.



CRUDE OIL TANK CLEANING

Krod Energy Resources Limited uses three methods of tank cleaning services; Manual method, Downhole nozzle application method and Sludge Master Solvent Extraction method.

The following information is based on Krod tank cleaning practices for downhole nozzle application method:

A) Process and Equipment:

1st) It is in the best interest of the customer to recover as much oil as possible without significant solids contamination. This oil can be economically processed as crude unit feed rather than as a slop stream which is usually a refinery bottleneck.

2nd) The crude remaining in the tank is diluted with an available hydrocarbon like diesel, kerosene or jet fuel and is pumped off until analysis shows that the crude available above the sludge is minimized. This is done in a bath process, and permits maximum economic oil recovery.

3rd) The next step is to introduce water and JPX into the tank to wash the sludge and float the dispersed oil to the surface for recovery. In order to contact the sludge with wash mix, the sludge must be agitated to facilitate wash penetration. This is accomplished in various ways like : side entry mixers, butter worth type mixers, and rotary nozzles inside man ways or the roof ports. Many different types of rotating nozzles are available to agitate the sludge and allow wash mix contact. The number and location of the nozzles as well as flow rates would depend on the tank's access port number and location.

4th) The wash sludge mix is pumped from the tank and decanted to recover the oil and settle the sludge.

5th) If sour odors are present, then an additized version of JPX, JPX-E , can be utilized to eliminate the problem.



KROD

SLUDGE MASTER TANK CLEANING TECHNOLOGY

Krod Energy Resources Limited uses the latest equipment in its tank cleaning operations. The Sludge Master Jet Nozzles is the latest technology for cleaning Crude Oil and other tanks containing heavy sludge. The Sludge Master Jet Nozzle can be mounted on tanks where the sludge levels are above the man ways using an adapter flange and cold tap and the customer wants to recover the oil. This method eliminates the need to hot tap. Generally, crude oil is 90% recoverable as a usable oil. The Sludge Master /Tank sweep jet Nozzles are designed to circulate, suspend and fluidize the sludge using the existing oil in the tank, although a better recovery rate can be achieved using a solvent that's made in the refinery such as light cycle oil or unfinished diesel.

SludgeMaster has a flow rate of 660m³/hour @ 10bar. One SludgeMaster has the capacity to clean up to a 31m diameter tank. For 90m diameter tanks at least 3 SludgeMaster are required. They can be mounted on the tank's existing man ways, regardless of the sludge/oil level, without having to hot tap the tank. Tanks with 1 meter or more of sludge can be circulated, fluidized, and pumped out in as little as 3-5 days depending on the sludge profile and the customer's needs.

Selective Solvent Extraction Method. This method liquefies the organic compounds in the sludge without using expensive chemicals, returning valuable hydrocarbons to the customer and significantly reducing waste disposal while cutting the cleaning time by almost 2/3.

Procedure:

- The SludgeMasters are mounted on the tank.
- The tank is emptied of all oil.
- The roof is then refloated with a solvent.
- Tank is then circulated and heated to suspend and dissolve the solids



What we can do for your company:

Cleaning crude oil and other heavy oil tanks have a history of being expensive, time consuming, and generate solid waste and it is a science that most companies have yet to master. We can offer your company the following benefits from using our system:

Significant reduction in tank cleaning costs.

- Cut your tank out of service time for cleaning.
- Return tanks to service faster.
- Decrease margin/debit loss from not having the tank available for product.
- Reduce your waste disposal by 90% in most cases.
- Reduce personnel exposure to hazardous materials.

Solvent Extraction is:

- Safe
- Effective
- Environmentally friendly
- Simple to execute

We also:

- Clean and Coat Tanks (Adisa Tank coating system)
- Pipeline Cleaning
- Perform sludge measurement
- Oil and Gas Safety
- Write step by step Tank Cleaning Procedures
- Teach Safe Tank Entry Procedures
- Pressure Vessel Cleaning.
- Petrochemical cleaning
- Opening /Blinding Permits
- Atmospheric Vessels
- Entry Permits, including vessel entry.

Finally we can assure you that the dollars you will save from our oil recovery will be much more than what it cost to do the work. For example, you are going to recover around 90% of the sludge as a useable oil. For instance, if you recover 10,000 barrels of oil, multiply that by the current cost of a barrel of oil. You have also eliminated 90% of what it would cost for disposing of the sludge.





ed to satisfy a growing requirement for in-situ ocean data
p with CHEE SUBSEA Engineering. specializes in the design,
for the Environmental and Oil & Gas sectors using long-duration

sly in-situ information and can be used to inform / validate
vIRONMENTAL compliance monitoring requirements. Systems can
ntal assessment capabilities helping provide a high level of



Advantages

- Real-time information - to support decision making & inform/validate models in real-time
- Real-time control - can be re-tasked remotely to address changing situations and objectives
- Persistent data collection - able to operate 24 / 7 / 365, and in extreme conditions
- Safe - autonomously collect data without the need to have personnel in the field
- Cost effective - significant savings compared to traditional vessel based sampling
- Low logistics requirement - can be deployed from small boat or vessel of opportunity

Offshore and Subsea Support Services

KROD ENERGY RESOURCES Limited offers very competent offshore and subsea support services to deep water assets owners. With the growth of Deep-water developments in our industry, KROD ENERGY RESOURCES Limited and its Technical Partners are poised to provide world class subsea support services to operators in the industry.



LOGIS



TRUCKING SERVICES

We provide trucks services such as low bed, flat beds and all truck Resources Limited primary focus is customer service. The growth forwarding service by providing drop shipping points on both side planning, and customs clearance. We provide trucks and Cranes o which can be sand of chipping, hardcore etc. and we specialize in Foundation and Property Preparations, Sewer and Waterlines, Po Preparation.

and

TO-WORK (PTW) :

Intended to people in charge of divisional units to safe system of work is in place for maintenance short term projects where previously hazardous been identified. A permit to work system will be ure no worker is subjected to any significant fulfilling legal obligations under the Health and

FIRST AID & CPR :

been designed to recognize the benefits of t - aid and CPR, identify proper procedure for a al emergencies and to enable you to administer co-worker is injured.

in IADC RigPass program confirms that met basic requirements defined by safety and ionals in the drilling industry. Irrespective of the

ENT: General Safety, Intervention, Personal & Alcohol Testing, Preventing workplace d Control Methods, Lockout/Tagout, Job safety Analysis, Permitting, Personal Protective ard Communication and Materials Handling, g, Material Safety Data sheet, Marine debris, is and Falls, Accident Prevention Signs, t Responder's Role, Materials Handling, oring

IADC HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA)

The management of occupational HAZARDS is very important in reducing cost. HAZARDS and Risk of injury and damage are associated with every occupation. This training promotes a proactive approach towards effective HSE management leading to improved profit margins.

After Completion of this program the candidates will be able to:-
Conduct a Continuous Risk Assessment Initiate remedial action and follow up on continuous Risk Assessment

IADC BEHAVIOR BASED SAFETY:

Behavior- Based Safety (BBS), is often described as a bottom-up approach (front-line employees), with top-down support from safety leaders. A behavior-based safety approach promotes interventions that are people-focused and often incorporate one-to-one or group observations of employees performing routine work tasks, setting goals carefully and giving timely feedback on safety-related behavior, coaching and monitoring. After completing this course:-
Employees will be committed to achieving a Total Safety Culture through a positive attitude towards teamwork, training, and participation. Safety should be a core value, not simply a priority to be compromised by any business objective. This can be accomplished by utilizing communication and feedback to achieve a common goal.

ADC CONFINED SPACE AWARENESS & ENTRY

The purpose of the training is to ensure that the employees are familiar with safety precautions and procedures associated with confined spaces.

ESPCDD

Engineering of Subsea Pipelines from Conceptions to Detailed Design Level 2 & Level 3.

ESURF: Engineering of Subsea Umbilicals, Risers & Flowlines Level 2.

FDDOPJPAS Feed & Detailed Design Of Offshore Production Jacket Platforms & Analysis with SACS Level 1 & Level 3.



Oil and Gas

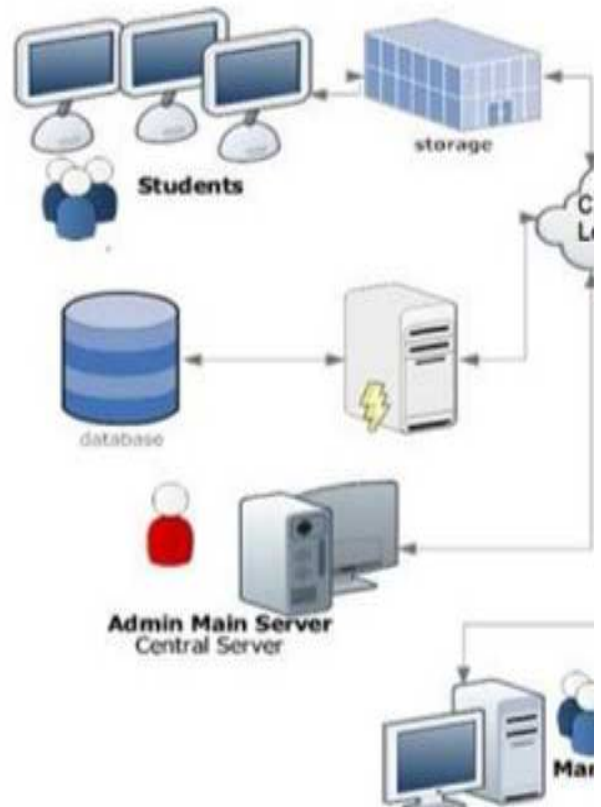


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