厉风能源

Xi'an Lifeng Energy Technology Co., Ltd.

History of Development

Xi'an Lifeng Energy Technology Co., Ltd. was established in 2017 which is located in the Bawan River Industrial Park, Jinxu Town, Meixian County. The production facility covers a total area of 21,000 square meters. As a professional manufacturer, we specialize in the R&D, production, sales, service, and logistics distribution of Drilling solids control equipment and integrated solid control systems,Oilfield environmental protection equipment and complete systems for drilling waste treatment.The factory primarily engages in Machining,Metal structure fabrication,Equipment assembly and Equipment spray painting. Additionally, the facility is equipped with a dedicated large-scale sandblasting and painting workshop.

We will consistently uphold our corporate philosophy of "Quality First, Reputation First" by continuously absorbing, learning, and innovating, striving to provide customers with top-tier products and premium services.

Core Business:

Manufacture of complete equipment systems including drilling mud solids control systems, mud recovery systems, mud-water separation systems, and drilling cuttings/oily sludge/sludge treatment systems. These products are widely used in oil & gas exploration drilling, coalbed methane drilling, and environmentally friendly drilling waste treatment.

The company has developed integrated hydraulic jet sand-blasting perforation and jetting sand removal technologies, as well as LW series two-phase decanter centrifuges, LWS series three-phase decanter centrifuges, filter press, belt filter press, and integrated wastewater treatment units. These products are widely applied in petroleum, petrochemical, metallurgy, mining, non-ferrous metals, chemical, and environmental protection industries, earning strong customer trust.

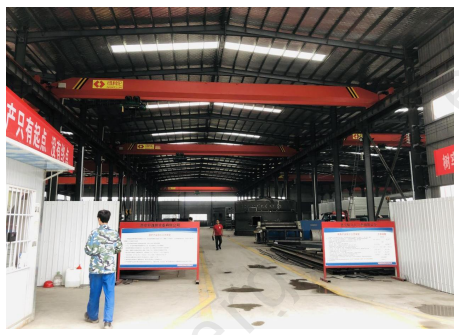
Human Resources

Lifeng Energy currently employs 90 staff members , including 15 technical personnel , 3 senior engineers, 4 engineers and 6 marketing personals. Our technical team possesses extensive design expertise, adhering to scientific rigor and a meticulous, responsible approach which provides robust support for new technology development, manufacturing, and on-site construction. The production workforce consists of a combination of middle-aged and young employees, enabling seamless execution of all production processes from material cutting, mechanical processing, sheet metal working, riveting, welding to installation. This ensures a solid foundation for production craftsmanship and product quality.

Manufacturing Equipments

15000W Laser Cutting Machine、3000W Laser Cutting Machine、CNC Flame Cutting Machine、CNC Plasma Profile Cutter、1000- ton Hydraulic Press、120×4000mm Large Plate Rolling Machine、30-Type 2500mm Plate Rolling Machine (30mm Thickness) 、20-Type 2200mm CNC Plate Rolling Machine (16mm Thickness) 、20-Type 2200mm Plate Rolling Machine (20mm Thickness)、6-Axis Robot Automatic Welding Machine、Cone Rolling Machine、Positioner、CNC Machine Tools、9m CNC Edge Milling Machine、New type of CNC Sawing Machine.

Factory Equipments












Inspection Equipments

Motor Balance Detector

X-ray Inspection Machine

Vibratory Stress Relief Machine

Dynamic Balancing Machine

Certification

统一社会信用代码

91610131MACQ2BDL8K

营业执照

(副 本)(1-1)

扫描二维码登录"国家企业信用信息公示系统"了解更多登记、备案、许可、监管信息

名　　称　西安厉风能源科技有限公司

类　　型　有限责任公司(自然人投资或控股)

法定代表人　林子君

注册资本　伍佰万元人民币

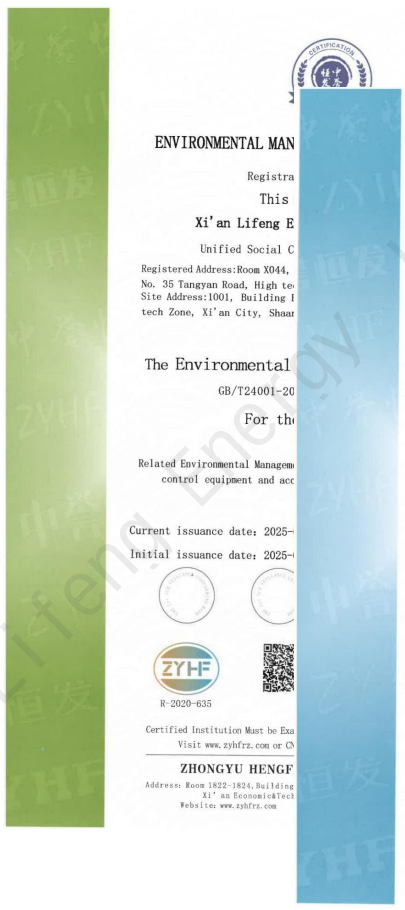
成立日期　2023 年 07 月 11 日

住　　所　陕西省西安市高新区高新路 8 号丽华科技大厦 20 楼 2010 室 Y130 号

经营范围　一般项目：新材料技术推广服务；新材料技术研发；科技中介服务；新兴能源技术研发；技术服务、技术开发、技术咨询、技术交流、技术转让、技术推广；深海石油钻探设备销售；节能管理服务；工程技术服务（规划管理、勘察、设计、监理除外）；特种设备销售；生态环境监测及检测仪器仪表销售；石油钻采专用设备销售；五金产品批发；电气设备销售；高品质合成橡胶销售；塑料制品销售；齿轮及齿轮减、变速箱销售；橡胶制品销售；高速精密齿轮传动装置销售；建筑装饰材料销售；轴承、齿轮和传动部件销售；电子专用设备销售；消防器材销售；有色金属合金销售；机械电气设备销售；矿山机械销售；特种设备出租；机械设备销售；专用设备修理；电气设备修理；五金产品零售；导航、测绘、气象及海洋专用仪器销售；机械零件、零部件销售；铸造用造型材料销售；安防设备销售；超材料销售；金属制品销售；建筑用金属配件销售；电力电子元器件销售；货物进出口；贸易经纪；技术进出口；机械设备研发；五金产品研发；深海石油钻探设备制造；污泥处理装备制造；石油钻采专用设备制造。(除依法须经批准的项目外，凭营业执照依法自主开展经营活动)

登记机关　2025 年 08 月 18 日

国家企业信用信息公示系统网址:http://www.gsxt.gov.cn　　市场主体应当于每年 1 月 1 日至 6 月 30 日通过国家信用公示系统报送公示年度报告。　　国家市场监督管理总局监制



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Site Address:1001, Building I
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Initial issuance date: 2025-

R-2020-635

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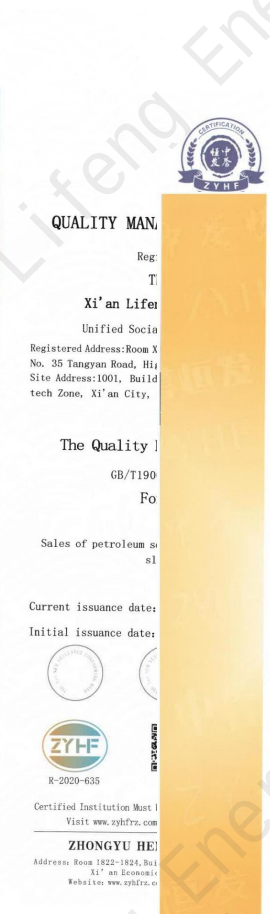
Address: Room 1822-1824, Building
Xi'an Economic&Tech
Website: www.zyhfrz.com



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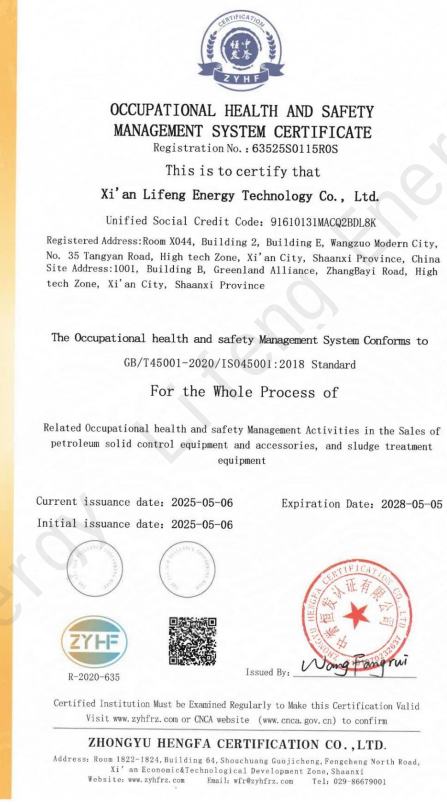

OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM CERTIFICATE

Registration No.: 63525S0115ROS

This is to certify that

Xi'an Lifeng Energy Technology Co., Ltd.

Unified Social Credit Code: 91610131MACQ2BDL8K

Registered Address:Room X044, Building 2, Building E, Wangzuo Modern City, No. 35 Tangyan Road, High tech Zone, Xi'an City, Shaanxi Province, China
Site Address:1001, Building B, Greenland Alliance, ZhangBayi Road, High tech Zone, Xi'an City, Shaanxi Province

The Occupational health and safety Management System Conforms to

GB/T45001-2020/ISO45001:2018 Standard

For the Whole Process of

Related Occupational health and safety Management Activities in the Sales of petroleum solid control equipment and accessories, and sludge treatment equipment

Current issuance date: 2025-05-06　　Expiration Date: 2028-05-05

Initial issuance date: 2025-05-06

R-2020-635

Issued By: Wong Fangrui

Certified Institution Must be Examined Regularly to Make this Certification Valid
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ZHONGYU HENGFA CERTIFICATION CO.,LTD.

Address: Room 1822-1824, Building 64, Shouchuang Guojicheng, Fengcheng North Road, Xi' an Economic&Technological Development Zone, Shaanxi
Website: www.zyhfrz.com　Email: wfr@zyhfrz.com　Tel: 029-86679001

Enterprise Qualifications

Business License of the People's Republic of China

统一社会信用代码
91610131MACQ2BDL8K

营业执照
(副本)(1-1)

扫描二维码登录"国家企业信用信息公示系统"了解更多登记、备案、许可、监管信息

名　　称　西安厉风能源科技有限公司
类　　型　有限责任公司(自然人投资或控股)
法定代表人　林子君
经营范围　一般项目：新材料技术推广服务；新材料技术研发；科技中介服务；新兴能源技术研发；技术服务、技术开发、技术咨询、技术交流、技术转让、技术推广；深海石油钻探设备销售；节能管理服务；工程技术服务（规划管理、勘察、设计、监理除外）；特种设备销售；生态环境监测及检测仪器仪表销售；石油钻采专用设备销售；五金产品批发；电气设备销售；高品质合成橡胶销售；塑料制品销售；齿轮及齿轮减、变速箱销售；橡胶制品销售；高速精密齿轮传动装置销售；建筑装饰材料销售；轴承、齿轮和传动部件销售；电子专用设备销售；消防器材销售；有色金属合金销售；机械电气设备销售；矿山机械销售；特种设备出租；机械设备销售；专用设备修理；电气设备修理；五金产品零售；导航、测绘、气象及海洋专用仪器销售；机械零件、零部件销售；铸造用造型材料销售；安防设备销售；超材料销售；金属制品销售；建筑用金属配件销售；电力电子元器件销售；货物进出口；贸易经纪；技术进出口；机械设备研发；五金产品研发；深海石油钻探设备制造；污泥处理装备制造；石油钻采专用设备制造。(除依法须经批准的项目外，凭营业执照依法自主开展经营活动)

注册资本　伍佰万元人民币
成立日期　2023 年 07 月 11 日
住　　所　陕西省西安市高新区高新路 8 号丽华科技大厦 20 楼 2010 室 Y130 号

登记机关　西安市市场监督管理局　2025 年 08 月 18 日

国家企业信用信息公示系统网址：http://www.gsxt.gov.cn　市场主体应当于每年 1 月 1 日至 6 月 30 日通过国家信用公示系统报送公示年度报告。　国家市场监督管理总局监制

ISO9001 Quality Management Syatem Certificate

QUALITY MANAGEMENT SYSTEM CERTIFICATE

Registration No.: 63525Q0122R0S

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The Quality Management System Conforms to

GB/T19001-2016/ISO9001:2015 Standard

For the Whole Process of

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Address: Room 1822-1824, Building 64, Shouchuang Guojicheng, Fengcheng North Road, Xi'an Economic&Technological Development Zone, Shaanxi
Website: www.zyhfrz.com　Email: wfr@zyhfrz.com　Tel: 029-86679001

Enterprise Qualifications

ISO14001 Environmental Management Syatem Certificate

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

Registration No.: 63525E0112R0S

This is to certify that

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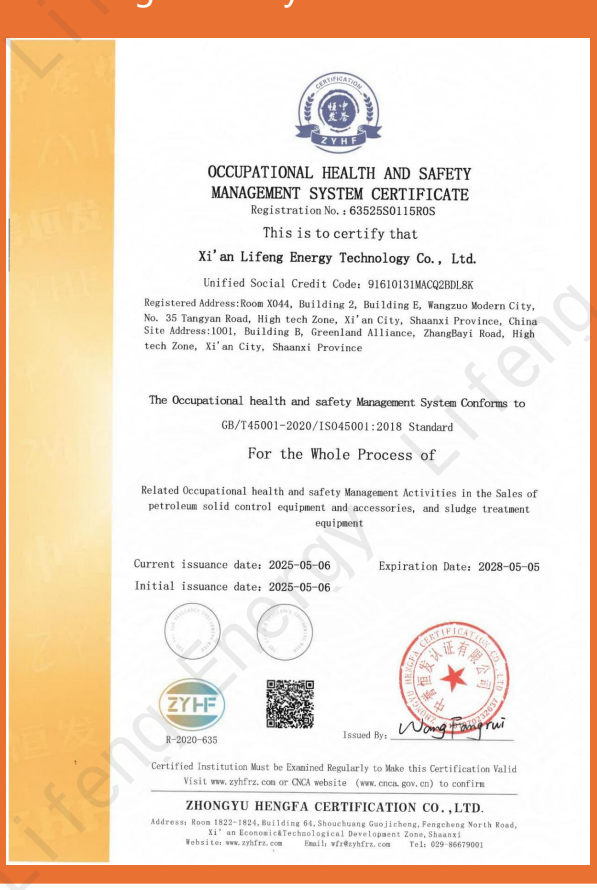
ISO45001 Occupational Health and Safety Management Syatem Certificate



OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM CERTIFICATE

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厉风能源

Products

Drilling Fluids Solids Control Systems

Drilling Centrifuge

Shale Shaker

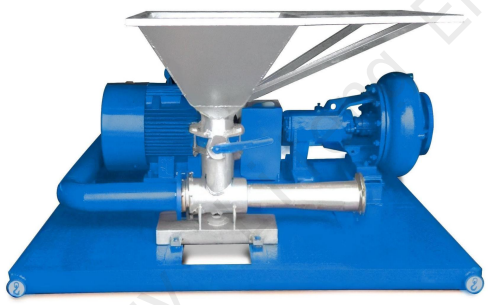
Centrifugal Sand Pump

Swirler (Whirlcone)

Desander

Vacuum Degasser

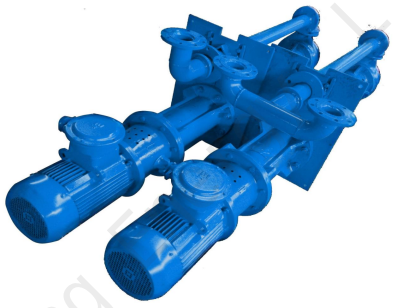
Jet Slurry Mixer



Shear Pump

Drilling Fluids Solids Control Systems

Submersible Slurry Pump



Slurry Underflow Valve

Mud Cleaner

Mud Agitator

The electronic ignition device

Liquid-Gas Separator

Screw Conveyor

Exciter Motor for Vibrating Screen

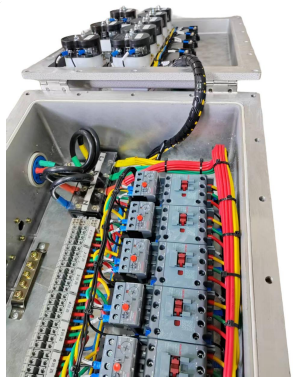
Drilling Fluids Solids Control Systems

Gravel Pump

Mud Gun

Electrical Control Cabinet

The inside of ECC



Shaker-replacement

Shaker Screen

Drilling Fluids Solids Control Systems

50 Solids Control System

Oilfield Drilling Mud Solids Control System

Drilling Fluids Solids Control Systems

Electrical Control System
Electric Control System Of Drilling Rig

Elevated Oil Tank

Slurry Tank

Diesel Fuel Tank

Elevated Oil Tank

Drilling Mud Station

Oilfield Environmental Drilling Waste Treatment Equipment

Vertical Compound Crusher

Oil Sludge Trommel Screen

Explosion-Proof Three-Chamber Dosing Device

Explosion-Proof Sludge Coil Type Drying

Plate-and-Frame Filter Press

Dissolved Air Flotation (DAF) Machine

Oilfield Environmental Drilling Waste Treatment Equipment

Explosion-Proof Skid-Mounted Horizontal Spiral Decanter Centrifuge System Equipment

Explosion-Proof Heating and Stirring Conditioning System

Workover Equipment & Well Cementing Unit

Cementing Unit

Workover Rig

Downhole Tools

Annular Milling Shoe

Tapered Milling Shoe

Watermelon Milling Shoe

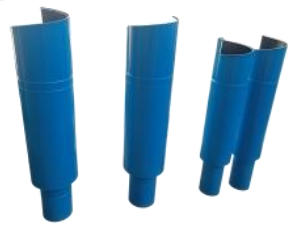
Retrievable Junk Basket

Box Tap (Female Tap)

Pin Tap (Male Tap)

Magnetic Fishing Tool

External Hook



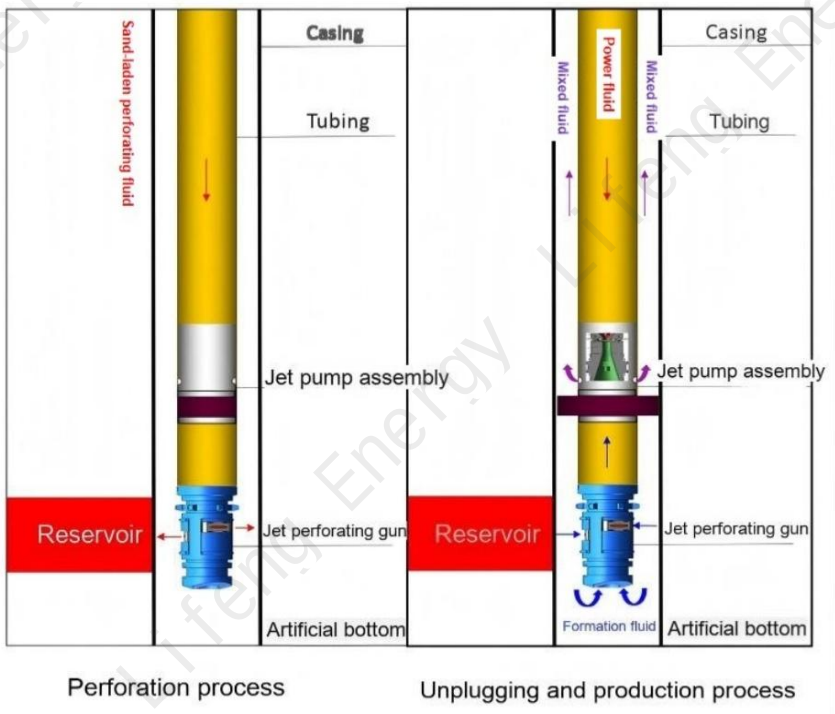
Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

Based on the advantages of jet pumps, such as no moving parts, strong anti-plugging capability, and high adaptability, and combined with the characteristics of hydraulic sand jet perforation, our company has developed an integrated technology of hydraulic sand jet perforation and jetting plug removal & sand cleanout.

This technology integrates two originally independent stimulation methods into a single operation, enabling perforation, plug removal, sand cleanout, and fluid flowback/production with one tubing run. It reduces operation steps, shortens operation time, lowers costs, and provides an efficient combined solution for various types of oil and gas wells.

Multiple operations—perforation, plug removal, sand cleanout, and fluid flowback for production—can be completed in a single tubing run, forming an efficient and practical integrated operation technology.

The integrated tubing string for hydraulic sand jet perforation, cleaning, plug removal, and flowback production consists of tubing, a pressure-controlled jet pump assembly, a hydraulic sand jet perforating gun, and a check valve.



Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

Process Features

High Efficiency – Two operations can be completed in a single downhole run, significantly shortening the operation period and reducing costs.

Low Formation Damage – Immediate plug removal minimizes secondary damage to the reservoir and provides better protection for sensitive formations.

Excellent Performance – Newly created perforations are cleaned instantly, enabling deeper communication with the reservoir and greatly improving perforation conductivity and production enhancement.

Strong Adaptability – Particularly effective in complex well conditions and special reservoirs such as low-pressure, low-permeability, and mature wells.

Safer and More Environmentally Friendly – Fewer operation steps, reduced use of chemical agents, and fewer tubing trips improve both environmental protection and operational safety.

Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

Key Advantages:

Key Advantages of Integrated Sand Jet Perforation & Jetting Plug Removal Technology

The Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout Technology combines multiple well stimulation operations into a single tubing run. Compared with conventional gun perforation, this technology offers significant advantages in perforation performance, reservoir protection, operational efficiency, and environmental safety.

Key benefits include:
Precise Perforation Control – Selective perforation with deeper penetration and larger hole diameter.
Minimal Formation Damage – Clean perforation channels without compaction or crushing zones.
Integrated Operations – Perforation, plug removal, sand cleanout, and flowback production completed in one run.
Improved Reservoir Connectivity – High-velocity abrasive jets create effective flow channels.
Enhanced Safety and Environmental Performance – Non-explosive operation reduces operational risks and environmental impact.

Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

Comparison with Explosive Perforation

Technology Comparison

Item	Integrated Sand Jet Perforation &Jetting Plug Removal	Conventional Gun Perforation
Perforation Performance	Penetration 1.0–1.5 m,hole diameter 20–22 mm,precise zone selection	Penetration 0.3–1.0 m,hole diameter 15–20 mm
Control Accuracy	High	Low
Adaptability	Strong adaptability to complex reservoirs	Widely used but less flexible
Safety	High safety,non-explosive operation	Lower safety due to explosive charges
Environmental Impact	Low	Higher
Wellbore Integrity	Protects casing and cement sheath	Possible casing and cement damage
Formation Protection	Minimal damage;negative-pressure jet pump assists plug removal	Possible compaction and rock crushing
Operational Efficiency	Multiple operations completed in one tubing run	Multiple post-perforation operations required
Equipment Cost	Higher	Lower
Operation &Maintenance	More technical requirements	Simpler

Applicable Reservoir Types and Well Patterns:

1. Oil and water wells where conventional bullet perforation fails to penetrate deeply or achieves insufficient penetration depth:

① Wells completed with double-layer casing;

② Wells repaired with small-casing patches after damage to the production casing (with double-layer casing in the pay zone);

③ Wells re-perforated after cement plugging;

④ Wells severely contaminated during drilling.

2.High-angle wells, horizontal wells, sidetracked wells, and oil/water wells with high dogleg severity, especially sidetracked wells.

3. Water injection wells with poor injectivity or significant variations in injection profiles.

4. Unconventional reservoirs: Oil wells in shale oil, tight formations, and ultra-low permeability reservoirs.

5. Oil wells in sensitive reservoirs and high-permeability reservoirs with high clay content.

6. Coalbed methane (CBM) wells.

7. Geothermal wells.

Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

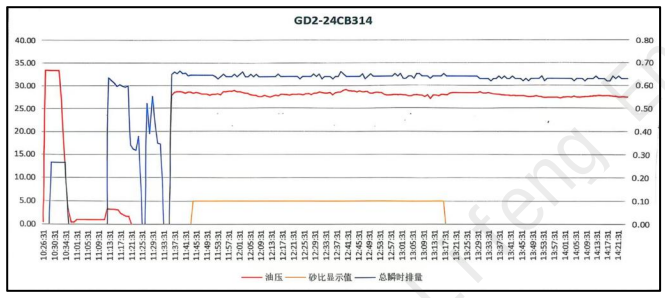
Application in Well GD2-24CB314

The well was completed in January 2022 with two producing zones (see table). On March 28, the Ngs43 layer was put into production using sand jet perforation completion, and it has since produced with high water cut.For this operation, cement was injected to 1267 m to isolate the lower zone and produce from the upper zone, sealing the Ngs43 layer. An integrated sand jet perforation and jetting plug removal technology was applied to perforate the Ngs34 layer and perform jetting plug removal, thereby clearing the near-wellbore flow channels and ensuring smooth fluid flow in the Ngs34 reservoir.The operation was carried out from June 24 to June 27, 2025. After implementation, the results were significant (see production curve), achieving daily liquid production of 32 m³/d and daily oil production of 7.5 t/d.

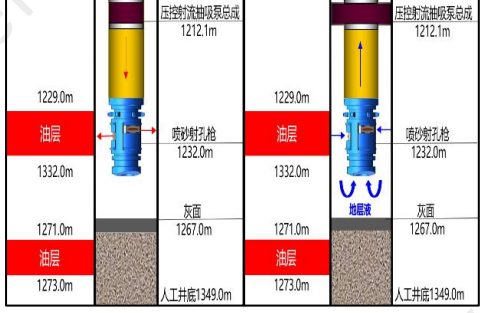
Reservoir Information Table

电测序号	层位	砂层组	小层号	射孔井段(m)	厚度(m)	射孔日期	枪型	孔密(孔/m)	相位角(°)	射孔情况
8	馆上段(Ngs)	3	4	1229.0-1232.0	3	2025.06	喷砂射孔(102喷枪5mm喷嘴×3)	6	120	本次射孔
14	馆上段(Ngs)	4	3	1271.0-1273.0	2	2022.03	喷砂射孔(108喷枪5mm喷嘴×3)	6	120	已射

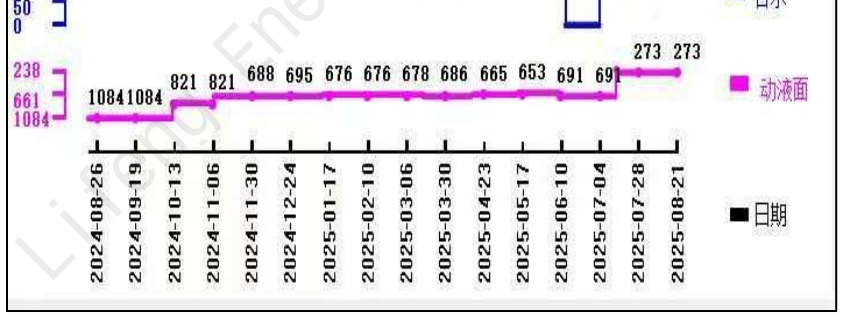
Operation Curve



Operation Tubing String Diagram



Production Performance After Implementation



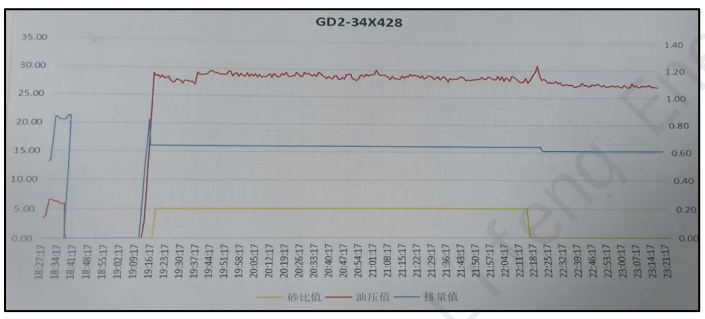
Application in Well GD2-34X428

The well is a long-shut-in oil well in Unit 3 of Zhonger Beiguan Block. It was completed in January 2004 with a 7″ casing set at 1424.87 m. The producing formation is the Ngs35 layer, with an interval of 1267.9–1278.3 m and a thickness of 10.4 m.In May 2025, a workover was conducted due to casing problems, and a 5½″ casing was installed from 906–1308.0 m. Since the reservoir section has a dual-casing completion, an integrated sand jet perforation and jetting plug removal process was applied. The perforation interval was 1272.0–1276.0 m with a thickness of 4.0 m, followed by jetting plug removal to clear the near-wellbore flow channels and ensure smooth flow in the Ngs35 reservoir.The operation was carried out from June 17–19, 2025. After implementation, the results were significant (see production curve), achieving daily liquid production of 17 m³/d and daily oil production of 0.1 t/d.

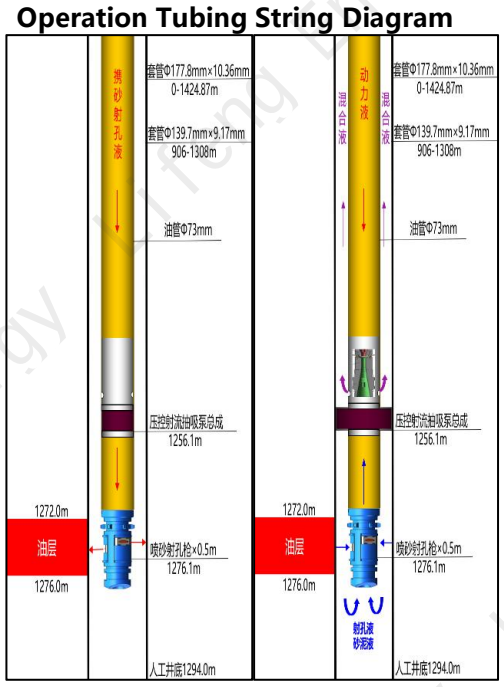
Reservoir Information Table

电测序号	层位	砂层组	小层号	射孔井段(m)	厚度(m)	射孔日期	枪型	孔密(孔/m)	相位角(°)	射孔情况
2	馆上段(Ngs)	3	5	1272.0-1276.0	4	2025.06	喷砂射孔(102喷枪5mm喷嘴×3)	9	120	本次射孔

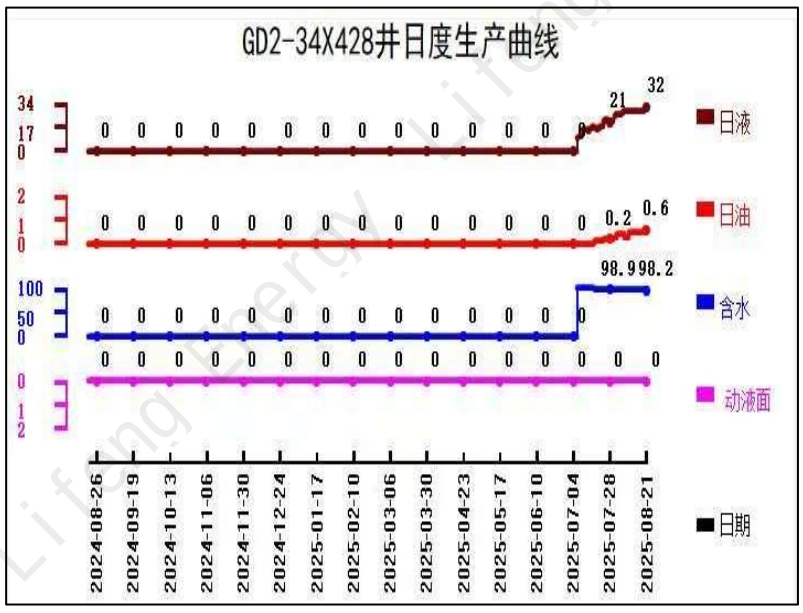
Operation Curve



Operation Tubing String Diagram



Production Performance After Implementation



Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

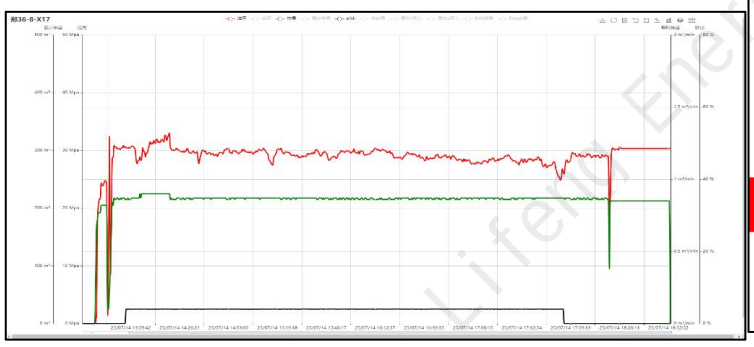
Application in Well WZ36-8X17

The well was completed in September 2013 with a 7″ casing set at a depth of 1282.6 m. The producing formation is the Sha-1 member, with perforated intervals of 1227.0–1230.6 m (3.6 m) and 1231.5–1235.0 m (3.5 m), totaling 7.1 m, originally perforated by 127 gun perforations.Due to casing damage in the upper reservoir section, a Φ140 mm casing patch (200 m) was installed from 1050–1250 m in July 2025 to repair the lower casing and restore production capacity. After the repair, the reservoir section became a dual-casing completion, which conventional gun perforation could not penetrate. Therefore, an integrated sand jet perforation and jetting plug removal process was applied to re-perforate the existing reservoir intervals and perform jetting plug removal, clearing the near-wellbore flow channels and ensuring smooth reservoir flow.The operation was carried out on July 14–15, 2025, followed by cyclic steam stimulation (CSS).

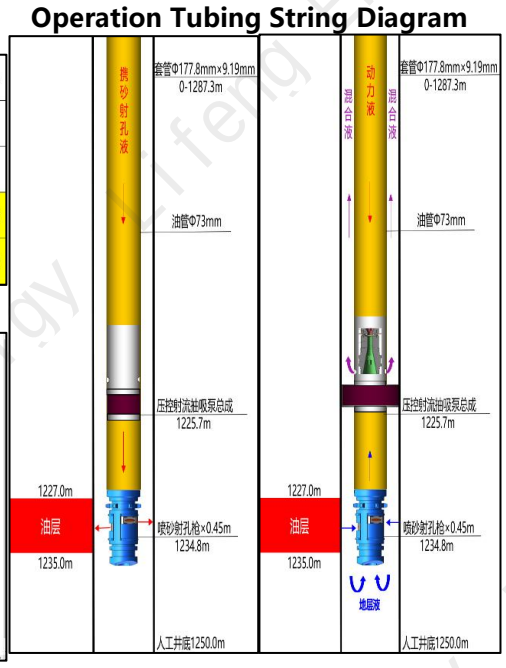
Reservoir Information Table

电测序号	层位	砂层组	小层号	射孔井段(m)	厚度(m)	射孔日期	枪型	孔密(孔/m)	相位角(°)	射孔情况
7	沙一段(Es1)	1	4-5	1227.0-1230.6	3.6	2013.5.6	127枪弹	16	90	已射
8	沙一段(Es1)	1	4-5	1231.5-1235.0	3.5	2013.5.6	127枪弹	16	90	已射
7	沙一段(Es1)	1	4-5	1227.0-1230.6	3.6	2025.7.13	喷砂射孔(102喷枪4.8mm喷嘴×3)	6	120	本次重射
8	沙一段(Es1)	1	4-5	1231.5-1235.0	3.5	2025.7.13	喷砂射孔(102喷枪4.8mm喷嘴×3)	6	120	本次重射

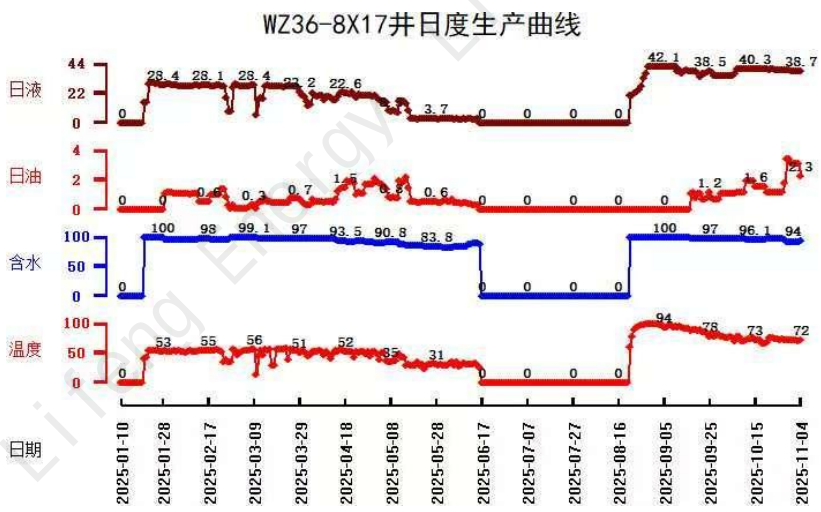
Operation Curve



Operation Tubing String Diagram



Production Performance After Implementation



Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

Application in Well WZ36-8X17


胜利日报

中国石化2025年中工作会议在京闭幕，侯启军强调，要以习近平新时代中国特色社会主义思想为指导

凝心聚力创新局 砥砺奋进谱新篇 为强国建设民族复兴伟业作出更大贡献

孙永壮在中国石化2025年中工作会议上作交流发言时表示

锚定高质量发展不动摇 勇当攻坚创效主力军

井场"避暑攻略"

方向盘餐桌 受欢迎

起下一趟管柱完成三道作业工序

油田首次"水力喷砂射孔+冲砂+负压返排"一体化作业施工顺利完成

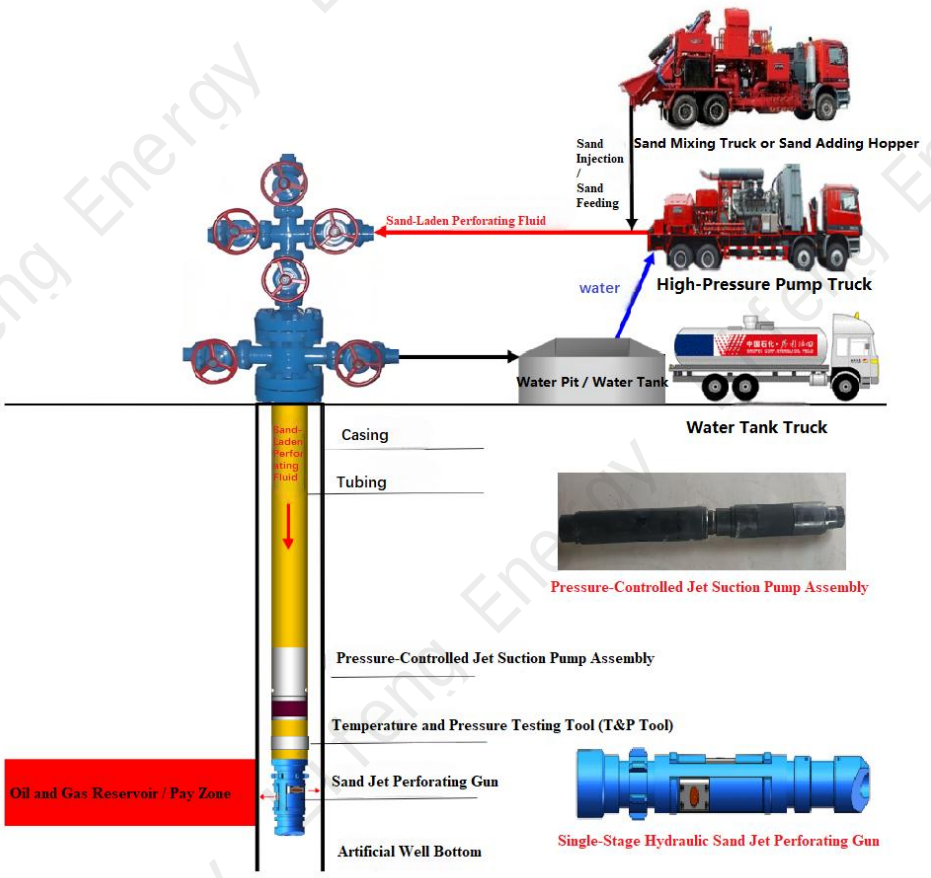
Featured on the Front Page of Shengli Daily on July 31

Binnan Website Page

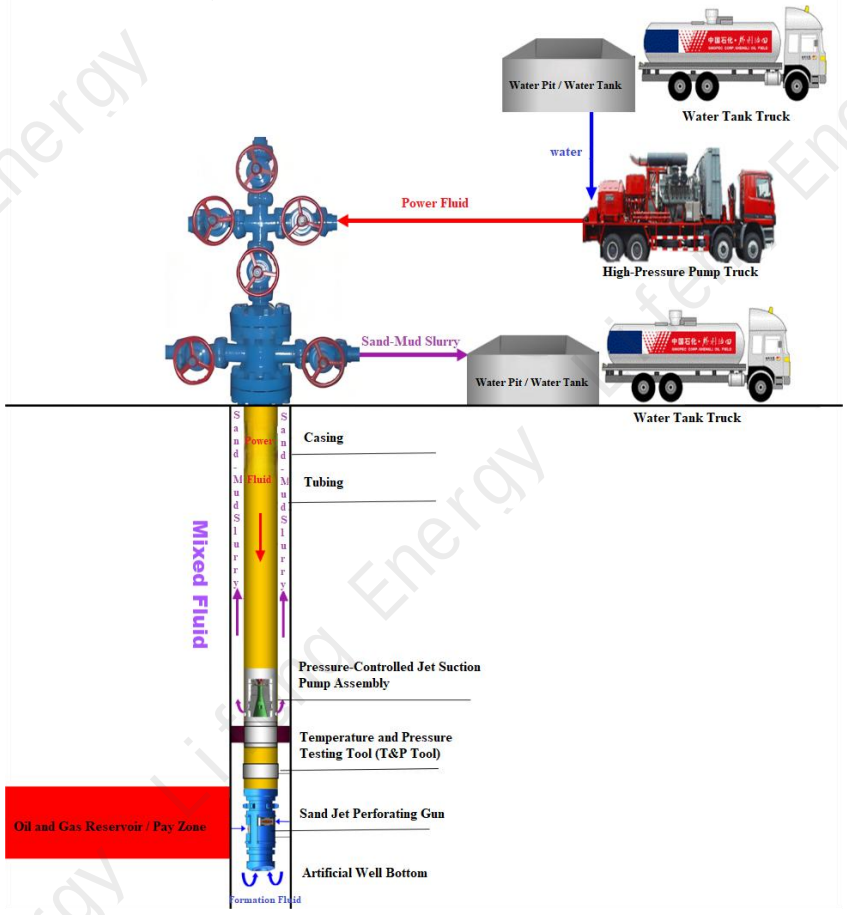
Integrated Hydraulic Sand Jet Perforation and Jetting Plug Removal & Sand Cleanout

(Invention patent granted.)

It mainly consists of a pressure-controlled jet suction pump, a temperature and pressure gauge, a hydraulic sand jet perforating gun, tubing, and a check valve.



Perforation and Cleaning Process



Plug Removal and Flowback Production Process

Application Scenarios

Core Applications & Customers

Oil sludge treatment equipment is used across the oil industry wherever sludge is generated. Key scenarios include:

Oil and Gas Field Production Areas

Application Scenarios:

Drilling Sites: Treatment of drill cuttings and waste oil-based mud.

Production Areas: Treatment of oil sludge from tanks and facilities.

Pipeline Leaks: Treatment of oil sludge from pipeline ruptures.

Primary Clients: Oilfield companies, production plants, and drilling service companies.

Petrochemical & Refining Plants

Applications:

Treatment of oil sludge from API separators, scum, and aged sludge from tank cleaning and maintenance.

Clients: Large refineries, petrochemical plants, chemical parks.

Oil and Gas Storage Hubs

Applications:

Treatment of tank bottom sediments and oily sludge from tank cleaning wastewater at crude oil transfer stations, oil depots, and port terminals.

Clients: National oil reserves, commercial oil depots, port operators.

Environmental Services & Hazardous Waste Disposal Centers

Application: Core equipment for centralized treatment of collected petroleum sludge, enabling large-scale, harmless, and resource-efficient processing.

Clients: Environmental engineering firms, hazardous waste treatment facilities, government-backed environmental projects.

Client Needs & Outlook

Future Market Trends

Oil sludge treatment has evolved from a secondary process into an emerging environmental industry, driven by strong policies and market demand. Its future lies in technological upgrades and innovative models, providing key support for the green, circular development of the petroleum industry, with broad market prospects.

Policy-Driven Expansion

Global environmental regulations, especially for soil and hazardous waste management, are becoming increasingly stringent. Soil and groundwater remediation, along with the ongoing pressure from newly generated oil sludge, will create a vast and enduring market for treatment systems. Compliant disposal is no longer an "option" but a "necessity for survival."

Tech Shift: Harmless to Resourceful

Technological leadership is reflected in high oil recovery, low energy consumption, and resource valorization. Pyrolysis, which enables complete detoxification and efficient resource recycling, will become the mainstream solution.

Model Innovation

Standalone equipment sales are losing ground. The market now favors integrated "Equipment + Engineering + Operation" (EPC+O) solutions. Mobile/skid-mounted systems for rapid response are emerging growth areas.

Market Growth

Oil sludge pyrolysis technology can be repurposed for treating other organic hazardous wastes like coal tar residue and chemical waste salts, unlocking new growth potential. Extending the industrial chain: Entering the broader hazardous waste recycling market.

Smart & Standardized

IoT, big data, and AI enable remote monitoring, intelligent optimization, and predictive maintenance to enhance operational efficiency. Evolving industry standards promote market standardization.

Global Opportunities: Belt & Road Focus

Countries in the Middle East, Central Asia, Russia, and other oil-producing nations along the Belt and Road face severe oil sludge pollution but have limited local treatment capacity. China’s mature, cost-effective technologies and equipment are their best choice—offering diverse cooperation models, from technology transfer to full EPC contracting.

Treatment of Aged Refinery Sludge

Conditioning & Cleaning Technology

Customized chemical dosing, combined with heating, steam washing, air flotation, mechanical dispersion, and viscosity reduction, to adjust particle properties, displace adsorbed oil, and break emulsions for efficient oil separation.

Centrifugal Separation Technology

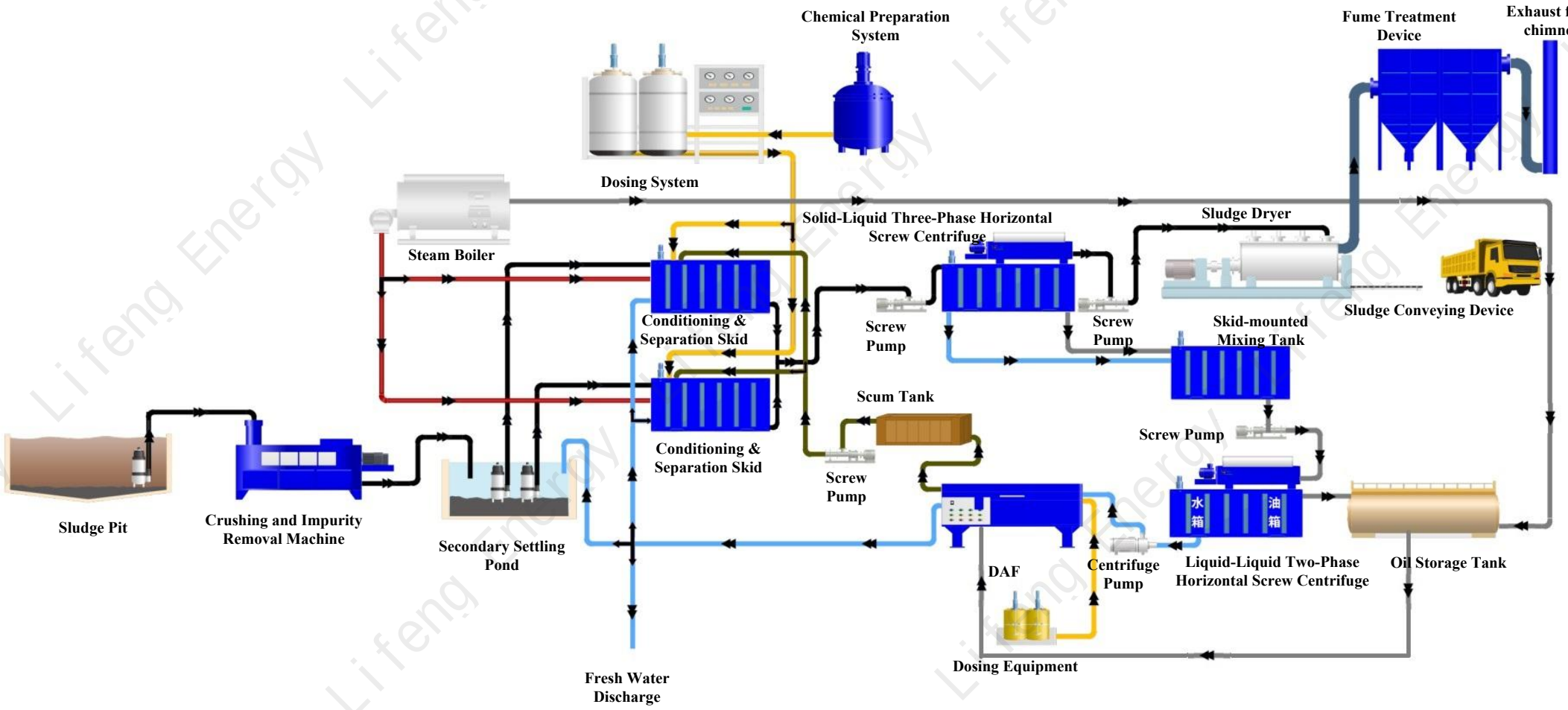
The Lifeng Special Decanter Centrifuge is a high-tech solution for separating sludge with high polymer and sulfide content in oilfields and refineries. It utilizes high-speed rotation to generate a powerful centrifugal force field, displacing lighter oil from sludge and water. The specially designed structure automatically collects and discharges the oil, while the wastewater proceeds to the next treatment stage.

Dissolved Air Flotation (DAF) for Sludge Removal

After decanter centrifuge separation, wastewater flows into the DAF unit. It uses micro-bubbles to separate oils and suspended solids. The treated water can be recycled to the secondary clarifier or discharged, while the float sludge goes to the conditioning tank.

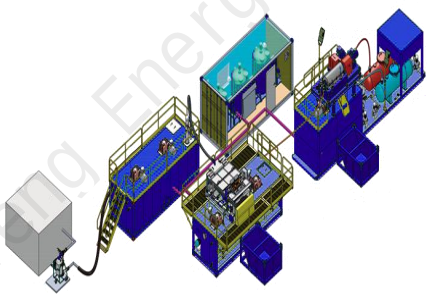
The sludge from the decanter centrifuge enters a dryer. With chemical assistance and high-temperature treatment, it is rendered harmless. The treated sludge can be used for brick-making, road construction, or landfill.

Skid-mounted Oil Sludge Treatment System



Introduction to the Process Flow Diagram

Pretreatment: Oil sludge is processed through a crusher and a two-stage settling tank to remove large particles and impurities.

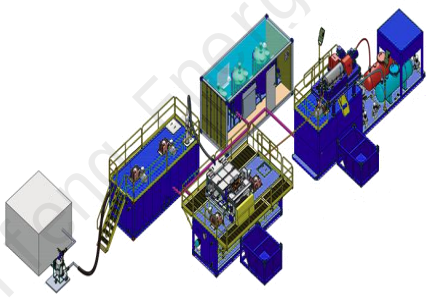


Feeding: Submersible slurry pumps transfer the material to a heating conditioning tank.

Chemical Preparation: Chemicals are mixed in a preparation system, stored, and then dosed into the conditioning tank.

Conditioning: The material is treated in the tank with chemicals and steam heating (from an oil-fired boiler).

Introduction to the Process Flow Diagram



Solid-Liquid Separation: The conditioned material is fed via screw pumps into a three-phase decanter centrifuge for separation into oil, water, and sludge.

Oil-Water Separation: The separated oil and water are further conditioned and then processed in a two-phase decanter centrifuge to minimize water content in the oil. The separated oil is stored, while wastewater undergoes further treatment.

Sludge Drying: The separated sludge is transferred via screw pumps to a dryer for resource recovery or disposal.

Wastewater from the centrifuge is treated in a dissolved air flotation unit before discharge or recirculation to the secondary settling tank.

Components of the Lifeng Skid-Mounted Oil SludgeTreatment System

The Lifeng Skid-Mounted Oil Sludge Treatment System consists of seven modular units: sludge pretreatment, solid-liquid separation, liquid-liquid separation, chemical dosing, sludge drying, dissolved air flotation, and steam boiler. It features flexible configuration, low energy consumption, full automation, and high efficiency.

Oil Sludge Pretreatment Unit

1.Oil Sludge Pretreatment Unit:

Composed of a sludge pit, crusher, secondary sedimentation tank, vibrating screen, and submersible slurry pump. It collects oily wastewater and separates large particles.

Item No.	Skid/Unit Name	Main Components	Qty	Unit	Remarks
1	Oil Sludge Pretreatment Unit	Sludge Pit	1	Unit	
		Crushing and Impurity Removal Machine	1	Unit	Vertical
		Secondary Settling Pond	1	Unit	
		Vibrating Screen	1	Unit	
		Submersible Slurry Pump	2	Unit	
		Supporting Instruments, Pipelines, Valves, etc.	1	Set	

Chemical Preparation and Dosing Unit

2.Chemical Preparation and Dosing Unit:

This unit consists of a chemical preparation system, storage tank, and dosing equipment, responsible for preparing and adding chemicals required for the conditioning process.

Item No.	Skid/Unit Name	Main Components	Qty	Unit	Remarks
2	Chemical Preparation and Dosing Unit	Chemical Preparation System	1	set	
		Chemical Storage Tank	1	set	
		Dosing System	1	set	
		Supporting Instruments, Pipelines, Valves, etc.	1	set	

Fuel Steam Boiler Unit

3.Fuel Steam Boiler Unit:

Comprising oil, gas, and electric steam boilers, this unit produces and supplies heated gas for the conditioning process in the conditioning tank.

Item No.	Skid/Unit Name	Main Components	Qty	Unit	Remarks
3	Steam Boiler Unit	Steam Boiler	1	set	
		Supporting instruments, pipelines, valves, etc.	1	set	

Conditioning &Solid-Liquid Separation Skid

4.Conditioning & Solid-Liquid Separation Skid:

An integrated, automated unit combining a conditioning tank, screw pump, and decanter centrifuge for material conditioning and sludge separation.

Item No.	Skid/Unit Name	Main Components	Qty	Unit	Remarks
4	Conditioning &Solid-Liquid Separation Skid	Conditioning Tank	1	set	
		Screw Pump	1	unit	
		Solid-Liquid Three-Phase Horizontal Screw Centrifuge	1	unit	Solid, Water, Oil
		Skid Platform	1	set	
		Supporting Instruments, Pipelines, Valves, etc.	1	set	

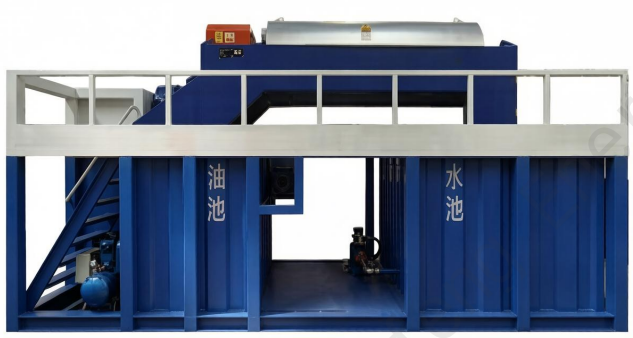
Sludge Drying Unit

5. Sludge Drying Unit:

Comprises a screw pump, sludge dryer, and conveyor belt for drying solids after three-phase decanter centrifugation.

Item No.	Skid/Unit Name	Main Components	Qty	Unit	Remarks
5	Sludge Drying Unit	Screw Pump	1	unit	
		Sludge Dryer	1	unit	
		Sludge Conveying Device	1	set	
		Fume Treatment Device	1	set	
		Supporting Instruments, Pipelines, Valves, etc.	1	set	

Conditioning & Liquid-Liquid Separation Skid

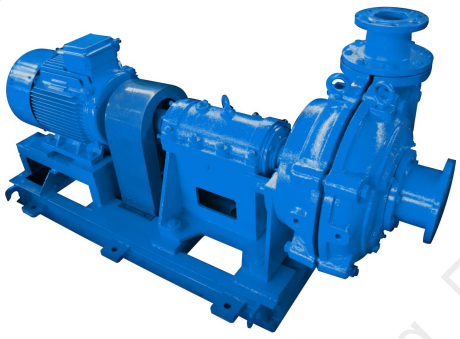


6.Conditioning & Liquid-Liquid Separation Skid:

An integrated, automated unit combining a conditioning tank, screw pump, liquid-liquid decanter centrifuge, water tank, and oil storage tank for material conditioning and oil sludge separation.

Item No.	Skid/Unit Name	Main Components	Qty	Unit	Remarks
6	Conditioning & Liquid-Liquid Separation Skid	Conditioning Tank	1	set	
		Screw Pump	1	unit	
		Liquid-Liquid Two-Phase Horizontal Screw Centrifuge	1	unit	
		Skid-mounted Platform	1	set	
		Oil Storage Tank	1	set	
		Water Storage Tank	1	set	
		Supporting Instruments, Pipelines, Valves, etc.	1	set	

Liquid-Liquid Separation Skid



7.Dissolved Air Flotation (DAF) Unit:

This unit, consisting of a centrifugal pump and DAF system, handles the subsequent treatment of wastewater produced after oil-water separation by the decanter centrifuge.

Item No.	Skid/Unit Name	Main Components	Qty	Unit	Remarks
7	Dissolved Air Flotation Unit	Centrifugal Pump	1	unit	
		Dissolved Air Flotation Machine	1	unit	
		Supporting Instruments, Pipelines, Valves, etc.	1	set	

Analysis of Operating Costs for Petroleum Sludge and Aged Petroleum Treatment

Wastewater Chemical Costs （Actual dosage determined by on-site experimental data）：
Oil sludge treatment requires chemicals，The amount of chemicals added can be adjusted according to the actual operating conditions. The estimated chemical costs are as follows:
E2（Conditioning Chemical Cost）= 160.00 yuan per cubic meter
E2（Dissolved Air Flotation Machine Agent Cost）= 4.00 yuan per cubic meter
E2=E2（Conditioning Agent Cost）+E2（Dissolved Air Flotation Machine Agent Cost）=164.00 yuan

Labor Costs:

During operation,each shift requires 2 operators and 1 safety officer(holding an electrician certificate)，for a total of 3 people.
E3（Operator Cost）：Based on domestic rates（80 yuan per hour, averaging 5.2 x 2 = 10.4 yuan per cubic meter）.
E3（Safety Officer Cost）：Based on domestic rates（80 yuan per hour, averaging 5.2 yuan per cubic meter）
E3=E3（Operator Cost）+E3（Safety Officer Cost）=15.6 yuan per cubic meter

Direct Operating Costs

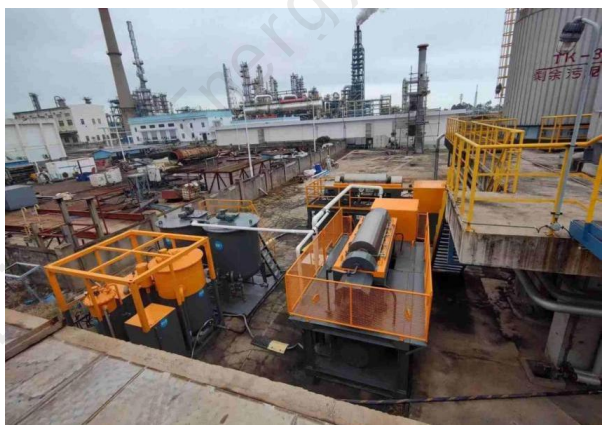
Item No.	Description	Cost (Yuan/Cubic Meter)
E1	Power Costs	260 KWh (Domestic electricity price 1.0 Yuan/KWh) 17.33 Yuan/Cubic Meter
E2	Chemical Costs	164.00 Yuan/Cubic Meter (This price varies slightly in different regions)
E3	Labor Costs	15.6 Yuan/Cubic Meter
E4	Total Operating Costs	196.93 Yuan/Cubic Meter

Company Performance Information

Item No.	Customer	Capacity	Qty	Remarks
1	Daqing Huana Technology Co., Ltd.	5 ton/hour	1 set	Equipment Sales
2	Shandong Jinweili Petroleum Equipment Co., Ltd.	5 ton/hour	1 set	Equipment Sales
3	Daqing Oil Production No. 2 Plant Nan Si Lian (South Fourth Joint)	5 ton/hour	1 set	Service
4	Daqing Oil Production No. 8 Plant Song Yi Lian (Song First Joint)	5 ton/hour	1 set	Service
5	Jinling Petrochemical	5 ton/hour	1 set	Service
6	Da Xuan Environmental Protection	5 ton/hour	1 set	Equipment Sales
7	Daqing Kunlun	20 ton/hour	1 set	Equipment Sales
8	Qingyang Xinrui New Energy	5 ton/hour	1 set	Service
9	Veolia Qingyang Factory (France)	10 ton/hour	1 set	Service
10	Shaanxi Jingbian Honghao Petroleum	10 ton/hour	1 set	Service
11	Jiaxing Hehui Environmental Protection	10 ton/hour	1 set	Service
12	Veolia Huizhou Factory (France)	5 ton/hour	1 set	Equipment Sales
13	Shandong Dongying Zhongxuan Environmental Protection	5 ton/hour	1 set	Equipment Sales
14	Shandong Dongying Zhongxuan Environmental Protection	10 ton/hour	1 set	Equipment Sales
15	Daqing Oil Production No. 3 Plant	5 ton/hour	1 set	Service
16	Daqing Hai Youqing	20 ton/hour	1 set	Service
17	Daqing Longfeng Refinery	10 ton/hour	1 set	Service
18	Beijing Baoda Environment	5 ton/hour	1 set	Equipment Sales
19	CITIC Group Xinjiang Oil Sludge Disposal Center	10 ton/hour	1 set	Equipment Sales
20	Tianjin Borunda Petroleum Technology Service Co., Ltd.	5 ton/hour	1 set	Equipment Sales
21	Sichuan Saifuweiye Petroleum Technology Service Co., Ltd.	5 ton/hour	1 set	Equipment Sales
22	North China Oilfield Xinda Oilfield Service Co., Ltd.	10 ton/hour	1 set	Service
23	Dagang Petroleum Refining	10 ton/hour	1 set	Service
24	Dagang Oilfield Oil Production No. 2 Plant	5 ton/hour	1 set	Service
25	Everbright Environment	5 ton/hour	1 set	Service
26	Yumen Oilfield Changqing Branch	5 ton/hour	1 set	Service

Project Cases

Case 1: Oil Sludge Reduction Project in Dongying, Shandong



Case 2: Oil Sludge Reduction Project in Shaanxi

Case 3:
Oil Sludge Reduction Project in Daqing

Case 4:
Oil Sludge Reduction Project in Daqing

Cooperative Partner

中国海油 CNOOC
ANTON 安東
中国石油宝鸡石油机械有限责任公司 CNPC BAOJI OILFIELD MACHINERY CO.,LTD
西安西炉特种电炉有限公司 XI'AN XILU SPECIAL ELECTRIC FURNACE CO. LTD.
CH NAGAS 中國燃氣
BOMAV 西安宝美电气工业有限公司 BOMAV ELECTRIC INDUSTRIES CO.,LTD.
合力(天津)能源科技股份有限公司 Heli Tech Energy Co.,Ltd.
西安航天源动力工程有限公司 Xi' an Aerospace Yuan Dongli Engineering Co.,Ltd
中国中化集团公司 SINOCHEM GROUP
中国交建 CHINA COMMUNICATIONS CONSTRUCTION
新疆鑫泰天然气股份有限公司 XINJIANG XINTAI NATURAL GAS CO.,LTD.
ZPEC 中曼电气
恒力集团 HENGLI GROUP
RG 南阳二机集团
LANDA 澜达石油
中国石化 SINOPEC
中石化石油机械股份有限公司 SINOPEC OILFIELD EQUIPMENT CORPORATION
1905 延长石油
中国核电 CNNP
JS DFXK 东方先科
海华集团 HAIHUA INDUSTRY GROUP

厉风能源

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