



STIMULATION SERVICES

PROVEN EXPERIENCE. TRUSTED RESULTS.®



Customized Solutions To Achieve Your Production Goals.

Cudd Energy Services (CES) delivers custom stimulation services to help our customers achieve their production goals. Our extensive operational experience in conventional and unconventional oil and gas fields helps us understand the unique challenges that may arise, and design the optimal treatment plan for each application.

Many factors influence the type of stimulation service needed to improve production: expected hydrocarbon produced, formation characteristics, and wellbore construction. Armed with this information, we can design the appropriate treatment to maximize the production potential from the zone of interest.

Qualified, personnel with in-depth, first-hand operational experience in various types of oil and gas field operations implement each treatment. Our engineers work closely with our customers to understand their objectives, and deliver a plan that meets their requirements, safely and efficiently.

Benefits

- Solutions designed to improve the long-term production of the well
- Extensive experience in conventional and unconventional formations and specific producing areas
- Fluid systems custom-designed for each operation
- Environmentally-responsible fluid systems
- Assistance with chemical disclosure filings

► HYDRAULIC FRACTURING SERVICES

CES delivers custom designed hydraulic fracturing solutions, encompassing every condition from low-gravity crude oil to dry gas in conventional and unconventional reservoirs. Our high-performance equipment and extensive operational experience enable us to carry out a wide scale of operations, from single-stage vertical fracs to complex multi-stage, horizontal fracs.

With CES, our clients receive a customer-focused experience. Our engineering team performs a comprehensive pre-job analysis of each well, integrating testing results and fracturing models with tailored fluid systems. Throughout the operation, our team is on site to monitor and assess job progress, and ensure the objectives are met in a safe, efficient, and professional manner.

Applications

- Slickwater
- Linear Gel
- Crosslinked Gel
- CO₂ Foam
- Nitrogen Foam



ACIDIZING SERVICES

Cudd Energy Services designs custom-blended acidizing treatments to increase well productivity and facilitate various well cleanout applications. Our additive packages accommodate bottomhole temperatures ranging from 70°F to 400°F. Our experienced personnel test acid systems in our district laboratories prior to implementation in the field to ensure the ideal well treatment is used. Additionally, every acidizing job is carried out by highly trained personnel for a safer, more efficient operation.

Applications

- Matrix Acidizing
- Coiled Tubing Acidizing
- Remedial Acidizing
- Acid Fracturing





PLANNING, ANALYSIS and EVALUATION

Our engineers perform an extensive assessment of the well conditions, geological and geophysical conditions, and completion methods prior to each job to recommend the best plan to maximize production. Each plan integrates custom-engineered fluid systems and proppants tailored to the well's production zone, designed to impart minimal impact on the environment.

We load the data for the recommended treatment in our modeling software to determine the optimal design. Our engineers conduct pilot tests in our district laboratories and on-site frac vans to ensure the recommended fluid systems achieve the desired results. In addition, operational redundancies – from critical personnel to key equipment – are incorporated in each design plan to ensure each operation is implemented as planned, with minimal disruptions.

During the operation, our engineers continually monitor and compare the actual responses to the pre-job plan. The engineers are able to make the necessary adjustments based on the dynamics of the operation. Each operation concludes with a post-treatment evaluation by the customer to assess the job performance. The post-job evaluation and after-action review are used to improve performance and share lessons learned during the operation.



ENVIRONMENTALLY RESPONSIBLE OPERATIONS

Cudd Energy Services is committed to delivering services in a manner that minimize our impact on the environment. We continually seek new products and processes such as low-toxicity additives, alternative fuel sources, and silica sand dust control that help us operate in an environmentally responsible manner. In addition, our personnel receive continual training on procedures aimed at safeguarding the public, themselves and our environment.

One key additive in our suite of environmentally responsible products is the Petro-Flo™ Microbiocide. Petro-Flo™ Microbiocide offers a safer, more effective biocide alternative for fracturing applications. Its unique chemistry effectively controls bacteria that produce slime, sulfates and acid; it penetrates biofilm to aggressively break it down from within and prevents new biofilm from forming. This product is just one example of the products and processes used to deliver superior treatment results in an environmentally responsible manner.



Petro-Flo™ Microbiocide is a registered trademark of Bio-Cide International. Used with permission.



DEPENDABLE, HIGH PERFORMANCE EQUIPMENT

CES' high-performance equipment is custom engineered for stimulation applications. Our stringent inspection, maintenance and recertification standards help ensure the reliability of the equipment, significantly decreasing non-productive time and increasing job efficiency.

Our stimulation fleet is comprised of approximately 900,000 total HHP, with individual units delivering up to 2,250 HHP and capable of operating pressures up to 13,250 psi. Our fully automated blenders, liquid additive systems, mixing and chemical metering systems allow full control and precise delivery of all liquid and dry chemicals and proppants. Additionally, our nitrogen fleet is rated to operate up to 10,000 psi. The units are capable of delivering up to 10,000 scfm dependent on treating pressure. We are also upgrading selected equipment for dual-fuel capability, an enhancement designed to improve fuel usage and emissions performance.

We are currently implementing an iron management program that records and tracks the location, history, usage, and status of our high-pressure treating iron. This program will ensure all inspections and certifications are current, accurate, and readily accessible. This program, upon completion, will be one of the most comprehensive iron management programs in the industry.

SECURE, REMOTE MONITORING

FracLink provides a secure, real-time display of stimulation operations, anytime and anywhere. With its user-friendly navigational screens, FracLink delivers real-time status of stimulation treatments, improving communication between the customer and well site personnel. With data streaming, customers are able to monitor and evaluate the performance of the treatment with 3D software in the comfort of their office.





Cudd Energy Services
2828 Technology Forest Boulevard
The Woodlands, TX 77381
WWW.CUDD.COM

