

CAVERN SOLUTIONS, INC.

THE INNOVATIVE, CREATIVE, SAFETY CONSCIOUS
CAVERN ENGINEERING COMPANY

WE KNOW CAVERNS

IT'S WHAT WE DO

IT'S WHO WE ARE





DEFINING SUCCESS

ENGINEERING SMART SOLUTIONS

MISSION

Cavern Solutions, Inc. is the premier engineering and technical consulting services firm for the solution mining and underground storage industry by providing first in class service and personal attention to every customer on every job.

OUR VISION & VALUES

Cavern Solutions, Inc. achieves client objectives and industry recognition through our personal and corporate values. We are committed to continued excellence in safety, productivity, and driving while promoting and preserving the industry of underground mining and storage services.

KEY TO SUCCESS

The key to our success has been by earning the trust of our clients by providing personalized service and producing quality results no matter the size of the project.

- Upfront and honest
- Never compromising safety
- Systematic approach for pricing bids
- Clear, timely, and open communication
- Innovative approaches to solutions
- Hands on Knowledgeable Management

CAVERN SOLUTIONS IS A REGISTERED ENGINEERING FIRM IN LOUISIANA #EP-6629 AND TEXAS #F-20756 AS WELL AS A LICENSED CONTRACTOR IN LOUISIANA #61547

OUR MANAGEMENT TEAM

CSI IS A WOMAN-OWNED SMALL BUSINESS



Whitney Warneke
President

B.S. Geophysics

9 years of Mining, Logging,
Workover, and Project
Management Experience



John Kyle
Business Development
President Emeritus

B.S. Business Management

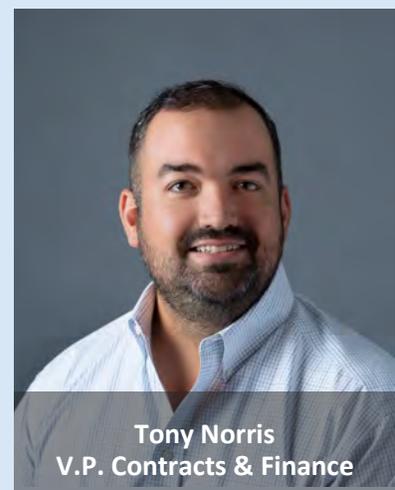
30+ years of Cavern Operating,
Drilling and Workover Experience



Joel Warneke
V.P. Science & Engineering

Ph.D. Mining Engineering, P.E.

18 years of Mining, Drilling,
Workover, Operating and
Research Experience



Tony Norris
V.P. Contracts & Finance

M.A. Applied Economics

10 years of Cavern Project
Management and Project
Controls Experience



CAVERN SOLUTIONS TEAM MEMBER PROFILES

Whitney Warneke — Ms. Warneke has nine years of experience in the salt cavern industry. She began working in the solution mining and salt storage industry in 2012, as an intern for a Texas Brine. The internship led to bigger roles as an Engineering Technician and then as a Regulations Specialist. In 2016, Whitney joined CSI where she quickly climbed through the roles to Manager of Workovers and Surveying. After being highly involved and demonstrating resilience managing field and office operations, Ms. Warneke became president of Cavern Solutions.

John Kyle — Mr. Kyle has 30 plus years of experience in operations, workovers, testing cavern wells, and 19 years of drilling experience. John has performed all aspects of drilling from site logistics to project manager. He has recently managed a two well drilling program at the Spindletop Salt Dome Budgeted for \$20MM and completed the project 3.6% under budget. He has drilled and/or supervised the drilling more than 15 salt cavern wells both 20-inch and 24-inch completions. Drilled three re-entries and more than a dozen saltwater disposal wells. Before establishing CSI, Mr. Kyle was 18 years with Dow Chemical and with Sabine Storage & Operations as the former VP of Drilling & Workover.

Joel Warneke, Ph.D., P.E. — Joel has 18 years of Cavern Drilling, Mining experience, and Operations Experience. As Texas Brine Manager of Science and Technology, he led detailed engineering projects involving 3D Seismic, VSP, & Rock Mechanics. As the leader of a multi-national team that monitored a salt dome for passive seismic activity with a surface and borehole geophone array. Joel has designed, permitted, and drilled a 3000 ft directional wellbore, and installed geophone instrumentation into the critical salt mass. From 2010-2017 he was the Engineer responsible for drilling 6 wells per year in Wyoming New York. In 2012 to the present time he has drilled a new cavern, a re-entry, 11 Geophone, 1 Cap Rock Core, & 150+ Gas Relief wells. He has also drilled 42 wells in bedded salt, five brine production wells, two liquid storage wells, re-entry into a failed cavern, 11 geophone wells, one Cap Rock Core well & 150+ gas relief wells into and around salt domes on the gulf coast.

Tony Norris — Responsible executive over vendor and client contracts, administration of services and confidentiality agreements, and corporate insurance policies. Oversight of RFP/RFI/RFQ preparation and submittals, back-office AP/AR, and internal Project Controls. Administration of company D&A and HS&E policies, as well as training, testing, and reporting. Served as Project Cost Controller on Bayou Choctaw 102B Drilling Project. Managed vendor compliance with all policies including Safety, Security, D&A, FAR, and DEAR. Has tracked and managed over 200 projects with budgets ranging from \$10M to \$20MM. Formalized and standardized project close-out procedures with internal field supervisors as well as external vendors; which entailed reconciliation of all field costs to invoices within ten (10) business days of completion of fieldwork. Mr. Norris holds a BS in Economics and a MA in Applied Economics from the University of Houston.



TEAM MEMBER PROFILES

Kyle Morris, P.E. — With 40 years of Engineering experience performing all aspects of Oil & Gas drilling, workovers, and production. Mr. Morris speaks English, Spanish, and Portuguese and holds a B.S. in Chemical Engineering from the University of Mississippi and an MBA from Southern Methodist University. He has 5 years of experience drilling, workover, snubbing, and testing underground storage caverns in the US and Brazil. Kyle has held leadership roles as Senior Drilling Engineer, Drilling Engineer, Production Engineer, Reservoir Engineer, Planning Engineer, Completions Engineer, Operations Engineer, Project Manager, Project Design Engineer, Drilling Manager. He has worked for Texaco, Shenandoah, Tenneco, Mesa, Aminoil, Tomlinson, McMoran, Brammer, Union Pacific, Corpoven, Quintana, BP, Total, El Paso, Pluspetrol, Repsol, Shell, Dow Chemical, Det Norske, PEMEX, Chevron, & Cavern Solutions. Has worked on and offshore in the US, Brazil, Venezuela, Bolivia, Mexico, Argentina, Bolivia, Peru, Egypt, South China Sea, Yemen, Algeria, and Indonesia.

Ray Mayet, P.E. — Mr. Mayet has 30+ years of experience as an integrity and maintenance engineer in underground storage. Ray holds a Mechanical Engineering degree from Louisiana State University and a Professional Engineer license in the state of Louisiana.

Robert Vetter — Robert has worked in the mining industry for over 13 years including, more than 10 years of underground mining. He is involved in drilling operations, MIT procedures, and workover operations in addition to providing support for field operations for Cavern Solutions. Robert has been a member of award-winning Mine Rescue Teams for over 5 years placing in Field and First Aid competitions. Robert holds a B.S. in Mining Engineering from Missouri University of Science and Technology, formerly known as the University of Missouri-Rolla, graduating in 2005

Johnny Blissitt — Mr. Blissitt is our Manager of Operations with over 42 years' experience overseeing drilling, workovers, budgeting, Construction of storage facilities with compressor stations and operations in oil and gas on both land and inland barge production from Texas to Louisiana along with Salt Dome properties in Texas, Louisiana, Oklahoma, Mississippi, Alabama, Utah, and Colorado. He is responsible for supervising, scheduling and coordinating well maintenance, workovers, drilling, logging and cavern testing activities, along with construction of various types of production facilities and site development. Mr. Blissitt joined our team after 16 years with Sabine Storage & Operations where he served as President of the company and his resume there included management of daily operations including all aspects of underground storage from conception through the life of the wells.

John Williams — Mr. Williams has over 16 years of experience in Safety as a Houston Firefighter, HAZMAT Technician, and HSE Director and has a B.A.A.S. in Safety Management. His experience includes overall project operations related to drilling and workover rig safety, corporate health and safety programs, case management for all incidents/issues, as well as site inspections. His responsibilities include developing and implementing HSE best practices, formulated policies, procedures, and work structures to ensure an incident free work environment.



TEAM MEMBER PROFILES

Dean Tumlinson — Mr. Tumlinson is graduate of Texas A&M University with a Bachelor of Science in Geology. Mr. Tumlinson has experience with The Infinity Group (Wood Company) a large construction and environmental company. Utilizing his degree and those past experiences he has served as our project cost controls specialist and is now a very competent Project Manager.

Kyle Davenport, P.E. — Is a graduate of Texas A&M University with a Bachelor of Science in Civil Engineering and a Masters in Geotechnical Engineering. Mr. Davenport a licensed Professional Engineer specializing in project management regarding geotechnical engineering. He is our current project cost control specialist. For Terracon Consultants he was the Lead Project Manager for more than a hundred projects during his 4 years. These private and public projects covered a wide focus ranging from commercial to industrial facilities, multi-family focused developments, energy transmission, and small to large scale transportation.

Roger Rosales — Mr. Rosales has over 41 years of experience with oil and high-pressure gas wells, coil tubing units, squeeze jobs, snubbing, primary cementing, plug & abandons, fishing jobs, cavern storage wells, saltwater disposal wells and drilling. His experience includes daylight as well as 24hour drilling and workover rigs from Texas, Louisiana, Utah, Mississippi, and Brazil. He is responsible for supervising and coordinating drilling, well maintenance, workover, logging, cementing and cavern testing activities. And troubleshooting down hole problems.

Moe Jambon — Mr. Jambon has over 30 years of experience working in the Petroleum industry. He has a strong background as a directional driller; drilling horizontal, directional, and extended reach wells, as well as a Drilling Foreman and as an HSE Superintendent. He possesses additional experience and training with heavy work-over, completions, and HSE oversight. He has worked in; Oklahoma, Texas, Louisiana, GOM, Mexico, and Offshore. Offshore experience included drilling, workover, completions, and HSE.

Matthew Haynes — Mr. Haynes has over 21 years of experience with cavern wells, oil and gas wells, coil tubing units, squeeze jobs, snubbing, primary cementing, plug & abandons (P&A), fishing jobs, saltwater disposal wells and all aspects of well drilling. His experience includes daylight as well as 24 hour drilling and workover rigs in Texas and Louisiana. Matthew is a hands-on supervisor with proven capability coordinating drilling, workovers, well maintenance, wellbore services such as logging, cementing, and cavern testing.

Shane Newman — Mr. Newman has 20 years of experience in the Petroleum well drilling and Storage well industry as well as the workover, coiled tubing and wireline industry. Along with an extensive background in land rig top drive drilling, he has vast experience with conventional block assembly drilling. He is experienced in daily rig supervision, logistics, operational safety, rig maintenance and solids control.



CAVERN SOLUTIONS TEAM

Cavern Solutions has the experience, knowledge, and capability to staff and manage any size project. Our minimum overhead business structure permits us to respond quickly and fill additional roles with qualified personnel as needed.

Daily Operations Personnel include:

Whitney Warneke	President & General Manager
John Kyle	V.P. — Business Development
Joel Warneke, Ph.D., P.E.	V.P. — Science & Engineering
Tony Norris	V.P. — Contracts & Finance
Kyle Morris, P.E.	Cavern Engineer
Ray Mayet, P.E.	Cavern Engineer
Robby Vetter	Cavern Engineer
Johnny Blissitt	Operations Manager
Dean Tumlinson	Project Manager
Kyle Davenport, P.E.	Project Controls
John Williams	Health, Safety & Environment
Moe Jambon	Cavern Specialist
Roger Rosales	Cavern Specialist
Matthew Haynes	Cavern Specialist
Shane Newman	Cavern Specialist
Rae Haskins	Administrative Service Manager

DRILLING EXPERIENCE

Cavern Solutions' personnel have diverse backgrounds with years of combined drilling experience. They have accrued a wealth of drilling experience throughout their careers. Cumulatively our personnel has drilled hundreds of wells, including various multi-year, multi-well drilling, and construction projects.

DRILLING PROJECTS

- ◆ Spindletop — Drilled two new 20" completion wells, on time and under budget.
- ◆ Pierce Junction – Drilled four 24" completion re-entry wells, on schedule and on budget.

Recent drilling activities include Mont Belvieu, Texas and Bogota, Colombia.

Our Team has conducted multiple salt drilling projects at the following locations:

- ◆ Hackberry, LA
- ◆ Stratton Ridge, TX
- ◆ Dow Brazil
- ◆ Grand Bayou, LA
- ◆ Pine Prairie, LA
- ◆ Bond, MS
- ◆ McIntosh, AL
- ◆ Sulphur Mines, LA
- ◆ Clemens, TX
- ◆ Napoleonville, LA
- ◆ Bayou Choctaw, LA
- ◆ Moss Bluff, TX
- ◆ Borger, TX
- ◆ Petal, MS
- ◆ White Castle, LA
- ◆ Port Barre, LA
- ◆ Spindletop, TX
- ◆ Sarnia, ON
- ◆ Barbers Hill, TX
- ◆ Markham, TX
- ◆ Wyoming, NY
- ◆ Saltville, VA
- ◆ Tallulah, LA
- ◆ Brush, CO
- ◆ Bryan Mound, TX
- ◆ Manahan, TX

Special Project Experience:

- Drilled 12 Geophone wells
- Drilled 200+ Gas relief wells
- 10+ Salt and Caprock Core Wells
- 20+ Saltwater disposal wells
- Drilled Directional wells in gallery
- Drilled 40+ wells in Tabular Salt
- Processing 3D Seismic & Mapping of Salt Dome
- INSAR Subsidence Project Design
- Large casing snubbing
- Multiple reservoir storage workover projects



DRILLING OPERATIONS

Cavern Solutions is continuously improving its salt mining and underground storage wells operations. CSI embraces new technology and techniques and utilizes them in site-specific procedures developed and designed around the intricacies and challenges associated with each project.

PROCESS INNOVATIONS

- ◆ Minimize drilling or well servicing inefficiencies by knowledge of the local geological zones
- ◆ Rotary Steerable through cap rock
- ◆ Coring near top of cavern
- ◆ Multi-layer well control and Directional Planning
- ◆ Innovative cementing design/planning
- ◆ Inspections to prevent string failures
- ◆ Engineered mud system
- ◆ Loss circulation control and management
- ◆ Assure a brine source or alternative plan for loss zones
- ◆ Minimized cavern down time
- ◆ Optimizing wellbore sizes
- ◆ Minimize and manage Creep/Ullage
- ◆ Maintain Drawdown Capability
- ◆ Consider and manage well hydraulics
- ◆ Eliminate or manage drilling under pressure

EQUIPMENT INNOVATIONS

- ◆ Bit & Hole Opener technology (PDC, Hybrids, Inserts, etc..)
- ◆ Development of first PDC hole opener
- ◆ Under Reamers design improvements
- ◆ FIT for purpose drilling rig
- ◆ Stacked BHA for HO operations
- ◆ Mud tanks and solids control
- ◆ Flodrift-pulse survey tool to improve timing
- ◆ Test Mandrel to extend BOP Life
- ◆ Real time electronics for drilling parameters for improved operations support
- ◆ Consider Operational requirements

LOGISTIC INNOVATIONS

- ◆ Reduce location foot print-locating services and living quarters off site
- ◆ Integrating security and safety protocol
- ◆ Bulk purchase and nearby storing
- ◆ Insure backup vendors are vetted and pre-approved



SAFETY, HEALTH & ENVIRONMENTAL MANAGEMENT

Cavern Solutions, Inc. has a zero-incident safety culture and cares for the environment on all of our projects. The company policies, procedures, and training are second to none. Our personnel is trained to identify, prevent, mitigate, hazardous situations. We manage, contain, and dispose of hazardous and non-hazardous materials. Our training programs, company policies, SDS books, and previous experiences, enable us to comply with the most stringent of standards.

HSE PRINCIPLE AND PHILOSOPHY

CSI is committed to the safety and wellbeing of our employees, subcontractors, and clients. Safety and Environmental management is the company's highest priority and comes before all other aspects of the company business.

- ◆ Our goal is ZERO incidents. All adverse safety incidents can be prevented.
- ◆ All employees and subcontractors are held accountable for compliance with all safety, health, and environmental regulations.
- ◆ Subcontractors are evaluated by CSI on their performance and work practice relating to safety, health, and environmental issues.

HS&E MANAGEMENT

Drilling is a hazardous occupation and requires personnel to maintain high levels of work situational awareness. To ensure a safe drilling environment, CSI has designed comprehensive and holistic safety management plans:

- ◆ Incident Reporting and Management
- ◆ Safety Procedures and Programs
- ◆ Site Access Control
- ◆ Industrial Hygiene Procedures and Programs
- ◆ Emergency Preparedness
- ◆ Waste Management Plan

CONTRACT MANAGEMENT & PROCUREMENT

CONTRACT MANAGEMENT AND PROCUREMENT

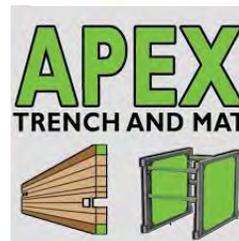
Cavern Solutions, Inc. follows a competitive bidding process with the resultant subcontract being awarded to the subcontractor providing equipment, personnel, and services with the best value considering safety, quality, technical acceptability, and cost for our clients.



OUR TRUSTED VENDORS



OFFSHORE ENERGY SERVICES, INC.



HALLIBURTON

BJ Weatherford®

ARC
Fluid Technologies, LLC

MONCLA
COMPANIES



FORUM™
ENERGY TECHNOLOGIES

PATRIOT
OILFIELD SERVICES



PIONEER

INNOVEX
Downhole Solutions

PREMIER

MEQGeo

tejas
tubular
OILFIELD SERVICES



NOVA
Directional

EMPIRE
WIRELINE, LLC

Oil Patch
Group
A CENTURION COMPANY



OIL STATES
Energy Services

SONIC
SURVEYS

Delta
Drilling
Products
& Services, LLC



PROCORING

PROFESSIONAL PUMPING SERVICES
LAFAYETTE, LOUISIANA



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ENERGY SERVICES

Dialog
Wireline Services, L.L.C.
24 Hour Toll Free Dispatch

PREMIUM
OILFIELD SERVICES

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MAT TECH

SMITH BITS
A Schlumberger Company

WEIR
OIL & GAS

TNT
CRANE & RIGGING

BAKER
HUGHES

TIGER SAFETY

OES | ASSET INTEGRITY
MANAGEMENT
A JOULON COMPANY

SOCON
SWS
Sonar Well Services

Schlumberger

N2 SOLUTIONS

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Oilfield Rentals, LLC
www.stellaroilfield.com

KNIGHT
oil tools

MAXIM
Crane Works, L.P.

TANMAR
COMPANIES, L.L.C.

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Energy Services
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INTERNATIONAL

TANNER
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HOLE OPENER
CORPORATION

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CORPORATION

DEEPSOUTH
HEAVY LIFT & TRANSPORT SOLUTIONS

GULLETT &
ASSOCIATES, INC.

BOSS
Services

COACH
SAFETY

BCI
Burnham Construction, Inc.
"Building the Road to Excellence"

CONQUEST
DRILLING FLUIDS

THE CAVERN SOLUTIONS' STANDARD IS RECOGNIZED BY MANY

OUR CLIENTS TESTIMONIALS

Michael Brandau

Director of Underground Storage

"CSI has been providing cavern oversight for our company for the last several years. Their performance and safety record are outstanding. Their expertise in the cavern business has been beneficial to us in making important financial decisions. On top of all this they are very ethical and I feel that they have our best interest in mind when decisions have to be made."

Steven Tam

Clemens Cavern Engineer

"CSI has performed a variety of projects for me in the past and the best way I can describe their performance is that they treat each job as if they are the owner of our equipment. Their safety performance is excellent, and they always try to keep the cost of their jobs at or under budget, while still accomplishing the work with high quality. In addition, they tell me what I need to know, not what they think I want to hear."

Alex Beam

Underground Storage Engineer

"Cavern Solutions has provided a value to the industry which combines customer service and project management. Their willingness to tackle any size project has proven to be a valuable resource for our storage group."

BOARDWALK



 Golden Triangle Storage



PAA NATURAL
GAS STORAGE



TEXAS BRINE
COMPANY, LLC



TARGA

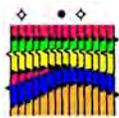
INEOS

Brinsa

Olefins & Polymers USA



Jefferson Island Storage & Hub



HILL
GEOPHYSICAL
CONSULTING



ONEOK

Integrating Geophysical Technology with Geology



ecoSERV



SG RESOURCES
MISSISSIPPI, L.L.C.
A PAA Natural Gas Storage Company



FAIRWAY ENERGY
PARTNERS LLC



ENERGY
TRANSFER



TRINITY
Environmental Services



Westlake
Chemical



GULF SOUTH
PIPELINE



FLUOR
FEDERAL PETROLEUM
OPERATIONS



NAmerico



TEXAS GAS
TRANSMISSION, LLC



Southern Company Gas

UNITED BRINE
SERVICES COMPANY



ENSTOR

ExxonMobil



David Branch

Chief Operating Officer

Caliche Development Partners, LLC

“In 2018 CDP, after meeting and working with several large firms, selected CSI as our cavern engineering experts to design, drill, and develop two new underground storage caverns wells at our Spindletop Storage Facility. CSI’s complete performance in all areas of the drilling project exceeded our high expectations of them. Their project management practices, responsiveness, communications, safety performance, and project execution brought the project in under budget, on time, and without incident. If you would like to speak with Dave Marchese (CEO) or myself regarding Cavern Solutions’ performance and capabilities, do not hesitate to give us a call.”

Ricky Dowell
Senior Manager of Contracts/Marketing
Precision Drilling Company, LP



“Precision has successfully and safely drilled cavern wells for practically every consulting company and operator on the Gulf Coast over the last twenty (20) years. Precision has enjoyed a long and beneficial working relationship with Mr. Mark Erskine, Mr. John Kyle, Mr. Joel Warneke, and Ms. Brenda Josey in their current and former capacities at the following companies: Cavern Solutions Inc., Apache Corporation, Dow Chemical Company, DM Petroleum Operations Company, Inc., Fairway Energy Partners, LLC, Texas Brine Company, LLC.

Precision welcomes the opportunity to provide our equipment and experienced crews for your next cavern project. We have multiple rigs capable of meeting your cavern drilling project requirements and the most personnel in the industry with salt cavern drilling experience. Additionally, Precision currently operates five (5) 2000HP rigs to date on various cavern projects scattered along the Texas and Louisiana Gulf Coast.”

Clint Ford
VP of Sales and Marketing
Nabors Industries



In recent years Nabors Drilling has successfully and safely drilled salt cavern wells for multiple storage operators and consulting companies such as Cavern Solutions, Coastal Caverns, Boardwalk Louisiana Midstream, Terra Dynamics, Dow Chemical Company, and WSP. We are currently contracted and drilling the first of a two well cavern project for Olin Chemicals in Assumption Parish.

We recently completed a successful two well drilling project for the aforementioned Cavern Solutions, Inc. at the Spindletop Salt Dome near Beaumont, Texas with our PACE™ (Programmable AC Electric) Rig F12. Throughout the project Cavern Solutions displayed the Professionalism and Safety mindset that we at Nabors value in our business partners, and we would very much welcome the opportunity to work with Cavern Solutions on future projects.

At Nabors we pride ourselves in our people, who are highly trained, professional, safety conscious, and hardworking individuals. We currently operate 115 drilling rigs across the US, and a number of these rigs are equipped with a 1000kip mast rating, 37.5” rotary table, and 26 feet of clear height under the rotary beams, making them prime candidates for large bore cavern drilling projects. Operations for our Gulf Coast and East Texas regions are based and serviced out of our Tyler Texas Facility.

Contact us:
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