



COMPANY PROFILE



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1. Introduction.

It's with great pleasure to introduce our company profile which outlines in same details of who we are, Our company registered under Iraqi Government law (as per attached complete documents) from Ministry of trading, under registration No.(000087552-02) dated on (20.Nov.2014), translated by legal translator (Mr. Ghazi S. Lilio), ID No# 14267, Member of Iraqi Translators Association and approved by I.T.A as well as approved by Ministry of Foreign Affairs on (16.December.2013), as oil field services provider by a capital (2,000,000,000 IQD) (2 Billion IQD) as per attached registration certificate issued by Ministry of trading on (20.Nov.2014) updating and renew complete set of documents attached, updating and renew complete set of documents attached.

Client stratifications has always been our prime objective, our technical & supplier teams has performed in close coordination with our client technical & purchasing departments and to provide them by high grade oil fields materials, equipment, tools and services.

We need to ensure that our customers are fully aware of the value that we can bring to their operations, the way we conduct our business in a safe, socially responsible and ethical manner.

We believe that our most important assets are the people we employ, our experienced and professional team include project manager, engineers, supervisors, health safety and environmental officers, with mechanical and electrical engineers and administration with finance team.



2. Company Overview.

Our commitment is very strong to serve our client to the highest standard to meet their objectives in terms of best practice, standard, requirements and advance technologies, in an effective manners a term in constant communications.

We provide advance services to help customers in drilling operations, our commitment to quality, health, safety and environment remains an integral part of our corporate governance.

Our vision to be a leading providing and supply materials, equipment, tools and services with high quality and services in all drilling environment to the oil and gas drilling industry.

Our mission , maximize a client profitability by offering high quality , provide the most cost effective source for drilling materials, equipment, tools , services and conducting our business in safe, environmentally sustainable.

Our commitment to safety:

We take safety very seriously and are consultant improving our policies and procedures to ensure a safe work environment.

We employ safety offices to ensure that all policies and procedures are adhered that our zero harm targets will met.

Safety is our first priority at every stage throughout our project from the design and planning stage through to completion.

- **Safety Strategies.**
 - ✓ Ongoing supervision training.
 - ✓ Incident reporting and investigation.
 - ✓ Daily safety Toolbox meeting.
 - ✓ Newsletter updates detailing health and safety issues.
- **Our target is zero harm**, at every our workforce is making zero harm safety our main objective. Our commitment is to provide a safe work environment for our employees and everyone who visits our worksites.





3. Main Services.

3.1 Civil Engineering and pipelines.

We pride ourselves on the knowledge, skills and expertise of our employees who work together as a team delivering successful projects, valuing the importance of relationships, we have a collaborative approach that is flexible and can respond quickly to the needs of our clients.

Established 2014, and over than (25 years) to the top management experiences in oilfields and civil engineering construction, material processing and quarry operations, We have built on our strength to become a very successful IRAQI owned company, We have experienced, having a proven track record in a large variety of civil and piping construction including: road constructions, earthworks, water and sewer projects, hydro-transportation, dredging, mining infrastructure, quarrying, material processing, retaining walls, sea walls, environmental remediation works and all aspects of residential, commercial and industrial development.

SOS is able to undertake bulk earthworks, large paved areas, access road, and piled foundation as well as supporting civil engineering enabling works for oil, gas and geothermal drilling such as access roads well pads, airstrips and constructions camps, as well as more objectives as below:

- Pipelines projects.
- Main road projects.
- Aviation Works.
- Crushing and screening.
- Tank Farm fabrication project.
- Transportation, Mob. Demob. Equipment projects and logistic projects.

For Logistic Projects

We have the capabilities and experience to successfully deliver and manage the logistical challenges involved in delivering on shore works. The barging of personnel and resources for these projects is a significant challenge.



What Make SOS unique:

1. Our dedication to enhance your existing Supply Chain, or help develop new strategies using our cost-effective professional approach.
2. Our commitment to developing long-term relationships with like-minded companies who rely on price sensitive logistics solutions.
3. We encourage an open dialogue with our clients.
4. All our staff are highly trained, efficient, qualified and dedicated professionals.
5. Customer focused
6. Satisfying customers with our Competitive Pricing Structures





3.2 Supply Drilling and Workover Operations Materials.

This is the very foundation for our business, SANA go strongly to Iraqi market and we can supply all the drilling and completion fluid materials as below that deal with the drilling operations under all the normal and ab-normal conditions.

below tables provide a quick overview of SANA purposes and their compatibilities.

3.2.1 Drilling and Completion Materials.

Provides a complete line of reservoir drill-in, completion and workover materials and additives to help make oil and gas wells more production, also we offer fluid filtration services, our focusing is the protection of well completion and formation stability by delivering techniques, technologies fluid and expertise that ensure the optimal condition of the wellbore and fluid system.



A. WEIGHTING MATERIALS:

PRODUCT NAME	DESCRIPTION	FUNCTION
BAR 4.2	Barite BaSo ₄ , meets API Specifications 13 A Section 7	Universally used as weighting agent.
BAR 4.1	Barite BaSo ₄ , meets API Specifications 13 A Section 20	Universally used as weighting agent.
BAR 4.0	Barite BaSo ₄ , Sp.Gr.4.0	Universally used as weighting agent.
IO	Hematite, meets API Specifications 13 A Section 8	Used as Weighting agent.
TEMPCARB M	Ground Marble (Calcium Carbonate)	High purity ground marble, used as a bridging & weighting agent in drilling , workover and completion fluids. it id generally more pure with high hardness and provides better acid solubility, Available in different microns size.
PAL CARB L	Ground Limestone (Calcium Carbonate)	Ground Limestone based Calcium Carbonate used to increae the density of the drilling fluids and serve as LCM and bridging agent. It can be used in both water based and oil based drilling fluids. Available in various particle sizes.

B. FILTRATION CONTROL AGENT:

PRODUCT NAME	DESCRIPTION	FUNCTION
TEMP	Resin modified Lignite	High temperature fluid loss control and rehology modifier for all water based fluids
FLC	Preserved modified starch, Pregelatinized Starch	Non fermenting starch for fluid loss control and rheology stabilizer in fresh water and saturated salt water mud.



FLC HT	Preserved modified starch, Pregelatinized Starch	High temperature stable. Non fermenting starch for fluid loss control and rheology stabilizer in fresh water and saturated salt water mud.
CHECK	Modified natural polymer, Carboxy methyl starch	Fluid loss controller in most water base drilling and drill-in fluids at high temperature environment does not significantly increase viscosity. Can be used to encapsulate drill cutting and exposed wellbore formation to reduce particle dispersion and reactive clay/shale formation swelling. it does not require a biocide to prevent fermentation
TROL HT	Non ionic, cross-linked Starch for HTHP applications	A special starch derivative to reduce HTHP filtrate loss for all water based muds including drilling completion and workover. It is non ionic in nature suitable for muds containing salts or ion sensitive additives. Acts synergically with Xanthan gum polymer to increase LSRV. It can be used in most brines including seawater, NaCl, KCl, CaCl ₂ , NaBr and format salt system.
TROL DI	Modified starch divalent drilling fluid system applications	High-molecular weight, branched-chain starch derivative used to provide elevated low-shear-rate viscosity (LSRV) and controls fluid loss in the divalent drilling fluid system such as calcium chloride, magnesium chloride, calcium bromide and zinc bromide brines.



FC	Polysaccharide derivative to control filtration in mixed metal oxide system	PAC-FC fluid-loss-control agent is a polysaccharide derivative used to control filtration in mixed-metal oxide system, it will not destroy the low-end rheology of the mixed metal oxide system, it is effective in seawater fluids, but all hardness should be treated out before the product is added. It can be used in any other type of fluid where starch and cellulose additives are permitted.
CMC -LV	Sodium Carboxy Methel Cellelose Low Viscosity	Technical grade low viscosity, fluid loss additive used in fresh water and sea water muds, it is used in high viscosity, high solids or heavily weighted fluids and produces only slight increase in viscosity.
CMC-HV	Sodium Carboxy Methel Cellelose high Viscosity	Technical grade low viscosity, fluid loss additive used in fresh water and sea water muds, it is used in low viscosity, low solids and increase viscosity in addition to controlling fluid loss.
PAC LV	Polyanionic cellulose-low viscosity	Low viscosity grade fluid loss control polymer with minimal viscosity increase, it will perform well in all brine applications, especially saltwater-base fluids, it can be used at all densities in either dispersed or non-dispersed systems. It will encapsulate solids to control dispersion of active shale.
PAC SLV	Polyanionic cellulose-super low viscosity	Super low-viscosity PAC is used primarily as a fluid-loss reducer. It is a high performance product,



		readily dispersible in water-base drilling fluids ranging from fresh to saturated salt water. PAL PAC-SLV polymer is primarily used in weighted systems to a void an uncontrollable viscosity build-up.
PAC LV PLUS	Specially processed blend of polysaccharide derivative	PAC LV PLUS is specially processed blend of polysaccharide derivatives to control filtrate loss, which gives higher temperature stability than regular PAC LV grade. It is designed for situations where filtration control is needed with only minimal increase in rheology. PAC LV PLUS polymer will perform well in all brine applications, especially salt water-base fluids.
PAC R	Polyanionic cellulose Regular viscosity grade	Regular grade viscosity PAC useful in controlling fluid loss and increasing rheology in all types of water. It will aid in dispersion control by attaching and encapsulating the dispersion solid. It may be used in all density ranges and functions effectively in dispersed and non dispersed systems.
PAC LV PREMIUM	High-quality, Medium purity Polyanionic cellulose low viscosity	High-quality, Medium purity Polyanionic cellulose low viscosity grade fluid -loss-control polymer. It is designed for situations where filtration control is needed with only minimal increase in rheology. It performs well in all brine applications, especially saltwater-base fluids. Can be used at all



		densities in either dispersed systems. Functions at all PH rang. Trmptrtue stability is up to 300°F.
PAC R PREMIUM	High-quality, Medium purity Polyanionic cellulose , regular viscosity	High-quality, Medium purity filtration control agent used in most water-based drilling fluids, can provide secondary viscosity and is effective even at lowconcentrations. It is suitable for use in ftresh water,salt water and brine-based fluids and stable to 300° F(149°C). Effective in moderate to high PH systems.
PAC LV SUPREME	High-quality, Medium purity Polyanionic cellulose , low viscosity	High-quality, Medium purity grade polymer, effective in low concentration to provide fluid loss control with minmal increase in viscosity in water base muds.Encapsulates shale particles to inhibit swelling and dispersion of active drill solid.Tempreture stability is up to 300°F.
PAC LV R SUPREME	High-quality, Medium purity Polyanionic cellulose , Regular viscosity	High-quality, Regualr -viscosity grade polymer, effective in low concentration to control fluid loss, increase viscosity and provide shale inhibition in water base muds Tempreture stability is up to 300°F.Effectively function in a wide range of salinity, hardness and PH levels.
SFC-HTHS	Syntheric polymer high tempreture/high salinity fluid loss control	SFC-HTHS Syntheric polymer specially designed for high-tempreture and/or high-salinity environmental sticking tendencies.Temprtue stable upto



		475°F(246°C).Calcium tolerance in excess of 100,000 ppm.
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C. VISCOSIFIERS:

PRODUCT NAME	DESCRIPTION	FUNCTION
GEL	Sodium Bentonite, meets API specification 13 A section 9	Premium-grade sodium montmorillonite clay, used as primary filter-cake building, filtration-control and suspension agent in water-base mud systems.
GEL SUPEREME	Non treated Bentonite, meets API specifications 13 A section 10.	Chemically untreated, premium-grade sodium montmorillonite clay, used as primary filter-cake building, filtration-control and suspension agent in water-base mud systems.
GUM	Gaur Gum, Viscosity and fluid loss control in low solids mud.	Rapid mixing high viscosity polymer for use in freshwater and seawater spud muds.
XAN	Primary viscosifying polymer Xanthan Gum	High molecular weight liner polysaccharide, used to increase viscosity for cutting transport and weight-material suspension for all water-base mud,. Provides better rheology profile with elevated low - shear-rate viscosity and highly shear-thinning characteristics.
XAN D	Primary viscosifying polymer. Highly dispersible bio polymer. Xanthan Gum.	Highly dispersible, high molecular weight liner polysaccharide used to increase viscosity for cutting transport and weight-material suspension for all water-base



		mud,. Provides better rheology profile with elevated low – shear-rate viscosity and highly shear-thinning characteristics.
XAN D L	Liquified Xanthan Gum, non-clarified.	High purity Xanthan Gum biopolymer, suspended in an ultra-clean mineral oil or Glycol used in most types of water-based fluids for rheology modification, improved hole cleaning and solids suspension.
CLAY	Attapulgite clay, meets API specifications 13A section 12	Premium Attapulgite clay, used to provide viscosity and hole cleaning capabilities in drilling fluids with high concentrations of salts.
HEC	Hydroxy Ethyl Cellulose polymer	Multi-purpose viscosifying agent for use in freshwater, sea-water and complex brine systems, its viscosifying characteristics are unaffected by common contaminants and dissolved salts.

D. LOAT-CIRCULATION MATERIALS:

PRODUCT NAME	DESCRIPTION	FUNCTION
LOSS PLUS	Micronized cellulose fiber	Bridging and sealing permeable formations in water/oil/synthetic base fluids, it is particularly useful for preventing differentially pipe when drilling depleted zones where high differential pressures exit. Available in Fine, Medium and coarse grades.
MICA	Sized grade of Mica	Flake LCM for seepage losses and prevention. It is used for



		preventing or curing formation losses while drilling fractured or porous zones, Available in Fine, Medium and coarse grade.
PLUG	Ground Nut shells	Granular Lost circulation material.
BRIDGE	Granular Graphite	Chemically inert and thermally stable, effective bridging and sealing agent used in water, oil or synthetic based drilling fluid. Can lower the potential for stuck pipe, control lost circulation and reduce torque and drag.
BRIDGE PLUS	Granular Graphite/Coke blend	Chemically inert, sized plugging agent used to bridge and seal porous and fractured formations in water, oil or synthetic based drilling fluid. Can lower the potential for stuck pipe, control seepage, partial and severe lost circulation and reduce torque and drag.
SEAL	Blend of fibrous, flaky and granular LCM	Mixture of selected non-abrasive granular, flake and fibrous material with unique physical structure and an extensive range of particle size that enhances its bridging properties, It very effective to combat severe lost circulation for water base mud. Will function at all temperature.
COTTON SEEDS HULLS	For all type lost circulation	Fibrous, biodegradable material, an excellent bridging agent when large-particle-size



		material is needed, Can be used in any water-base mud system.
DIATOMACEOUS EARTH	Diatomaceous earth blend for preparing soft plugs for severe lost circulation	Highly effective, High-fluid-loss lost circulation squeeze material. Creates a seal in the loss zone, effective in both water-based and oil-based mud applications.
NUT SHELLS	Granular Nut shells	Granular Lost circulation material, inert additives, compatible in all and densities of fluids.

E. THINNERS AND DISPERSANTS:

PRODUCT NAME	DESCRIPTION	FUNCTION
PTS	Polymeric temperature stabilizer	Polymeric alkaline material, improve the temperature stability of polymer fluid by a margin of 70°F(39°C by effectively reducing the degradation of polymers at higher thermal condition.
TEMP	Resinated lignite complex	Most effective HTHP filtration control additive provides rheological stability over a wide range of temperatures, suitable for use in freshwater, seawater and brackish water.
LIG	Ground Lignite	Effectively reduce fluid loss in high temperature application and deflocculated water-base muds, provides thin, low-permeability filter cakes, performs exceptionally well in dispersed systems as a synergistic additive with lignosulfonates.
CAUSLIG	Causticized Lignite	Control rheology and reduce fluid loss for higher



		temperature muds, emulsifies oil, reduces flocculation and stabilizes water-base drilling fluids.
CHROLIG	Chrome lignite, sodium hydroxide, neutralized	High-temperature thinner, excellent additive for HTHP filtration control and rheological stabilization for muds subjected to high temperatures.
LIGNO C	Ferrochrome lignosulfonate, chrome lignosulfonate	Multi-purpose deflocculant and gel-strength reducer, temperature stabilizer and filtration-control additive for use in all water-base systems. Exhibits superior deflocculating ability, even in the presence of contaminants and elevated temperatures.
LIGNO CF	Chrome-free lignosulfonate, Environmentally acceptable thinner	Environmentally acceptable deflocculant and fluid loss additive in all types of water-base systems. Exhibits superior deflocculant ability, even in the presence of contaminants and elevated temperatures.

F. SHALE INHIBITORS AND FLOCCULANTS:

PRODUCT NAME	DESCRIPTION	FUNCTION
GLY GP	Broad-cloud-point, general-purpose polyglycol for low-salinity fluids and low temperatures.	Improves shale stability, lubricity and high-temperature filtration control in freshwater to seawater polyglycol systems.
GLY HC	Polyglycol for high-salinity fluids and high temperatures.	Improves wellbore stability, lubricity, high-temperature filtration control in fresh-to-high salinity and can be used in



		wells with high formation temperatures.
GLY LC	Low-cloud-point polyglycol for low-salinity fluids and low temperatures.	Improves wellbore stability, lubricity, high-temperature filtration control in fresh-to-medium salinity and can be used in wells with moderate formation temperatures.
GLY MC	Medium-cloud-point polyglycol for moderate-salinity fluids and high temperatures.	Improves wellbore stability, lubricity, high-temperature filtration control in fresh-to-medium salinity and can be used in wells with moderate formation temperatures.
TROL	Sulfonated asphalt	Water dispersible shale inhibitor, aids in stabilizing shale sections, controlling solids dispersion and improving wall cake characteristics.
TROL-S	Sulfonated asphalt supreme	Water dispersible shale inhibitors, aids in stabilizing shale sections, controlling solids dispersion and improving wall cake characteristic .Provide high-temperature fluid-loss control for water-base drilling fluids.
TROL-X	Sodium Asphalt sulfonate	Water soluble shale inhibitor , effective in controlling HTHP fluid loss, increases lubricity, prevents bit balling, reduces torque and drag and helps to prevent differential sticking, Environmentally acceptable and can be used in water, oil and synthetic base muds.



HS	Poly amino acid hydration suppressant	Water soluble hydration suppressant, environmentally acceptable, organic compound designed to reduce the dispersion and swelling of reactive clay formation and minimizes the potential for bit balling.
SIL N 2.7	Liquid sodium-silicate	Provides superior chemical inhibition to reactive shales, clay and claystone formations, chalk, and formations interbedded with dispersive clays, secondary inhibition is achieved with the use of KCL or NaCl.
SIL K	Potassium silicate	Provides superior chemical inhibition to reactive shales, clay and claystone formations, chalk, and formations interbedded salt to enhance inhibition, used in environmentally sensitive areas, where chlorides are prohibited from being discharged.
PHPA	Dry PHPA polymer	Encapsulating polymer for freshwater and saltwater mud.
PHPA L	Liquid PHPA	Provide cutting encapsulating and clay-dispersion inhibition in fresh and saltwater drilling fluids.
OHPA RD	Readily dispersible PHPA powder	Provide cutting encapsulating and shale stabilization in freshwater to saltwater drilling fluids ranging from low solids to weighted mud.



G. BIOCIDES AND SACVENGERS:

PRODUCT NAME	DESCRIPTION	FUNCTION
BIO T	Biocide triazine base. Available in 50% and 78% active content.	Prevent bacterial growth in water base muds and low-salinity clear brine fluids. Effective H ₂ S scavenger.
BIO A	Biocide Amine base,quaternary ammonium compounds.	Prevent bacterial degradation of drilling mud.
BIO G	Biocide Gutraldehyde base	Prevent bacterial degradation.It is de-activated by ammonia, primary amines and oxygen scavengers.
SCAV HS	Organic H ₂ S scavenger, Trizine base	Provides solid free H ₂ S scrubbing for brine based drilling fluid in neutral-high PH conditions.
OXAL HS	H ₂ S scavengers Glycol base	Displays a continous H ₂ S scavenging activity over longer time period. Exhibits good temperature stability up to 150°C and intended for use in low ph conditions.
OS	Bisulfite-base oxygen scavenger	Removes dissolved oxygen from drilling and completion fluids, eliminating a potential source of corrosion. Suitable for use in freshwater and monovalent brines, incompatible with gutraldehyde base biocide.
OS-P	Sulfite-based oxygen scavenger powder	Removes dissolved oxygen from drilling and completion fluids, eliminating a potential source of corrosion. Improves thermal stability of polymers by a margin of 20°F(11.1°C).



		Suitable for use in freshwater and mono-valent brines.
ERYT OS	Sodium Erythorbate base oxygen scavenger	Non-sulfite oxygen scavenger suitable for mono valent and divalent brines.
ZNO	ZINC OXIDE material reacts with sulfides to form Zns	Efficient H ₂ S scavenger, Zinc oxide reacts with sulfides to form zns precipitate, with is an insoluble, inert, fine solid remain harmlessly in the drilling fluid and removed through the solids-control equipment.

H. DEFORMERS AND FOAMERS:

PRODUCT NAME	DESCRIPTION	FUNCTION
DEF A	Alcohol-base defoamer	Higher esters based product to control foaming in all water-based drilling fluids as well as brine-based completion and workover fluids.
DEF S	Silicone-base defoamer	Silicon based defoamer to prevent foaming in drilling fluids as well as soilds free workover and completion fluids. Highly effective in low concentration at a wide range pf PH.
DEF OL	Ployether poyil based defoamer	Low-tocity blend of defoaming agents to control foaming in freshwater muds, seawater muds and all brine systems. Compatible with all common mud additives and effective in low concentration.
DEF MIX	Blend of Oxygen silicone, high molecular weight alcohol and fatty acid derivatives.	Effective defoamer to reduce the foam in water-based drilling fluids, crude oils and aqueous solutions. Also controls



		foaming in fluids viscosified with polymers.Effective in small concentration.
FA-P	Foaming Agent Powder	Biodegradable surfactants that can be added to fresh, brine, or brakish water for air/foam,air/gel-foam, or mist drilling applications.
FA- L	Foaming Agent Liquid	Biodegradable surfactant that can be added to fresh,brine, or brakish water for air/foam,air/gel-foam, or mist drilling applications.

I. LUBRICANTS:

PRODUCT NAME	DESCRIPTION	FUNCTION
BEADS	Soild lubriand drag Spherical glass beads (or)-polymer beads	Spherical beads to reduce torque and drag in oil base mud systems.
LUBE HQ	Premium Ester base lubricant	Provides a tough lubricating film between the wallcake and drillstring imparts lubrication to the bearing surfaces, reduce torque and drag experienced in highly deviated, horizontal and extended and extended-reach wells, suitable in all water base fluids and has temperature stability upto 400°F.
LUBE EP	Extreme-pressure water base lubricant.	Effectively reduce the coefficient of friction on metal-to-metal contact area and reduces possibility differential wall sticking.
LUBE XL	Low toxicity lubricant	Effectively reduces torque, drag and the potential for differential sticking by reducing the coefficient of friction in all types of water-



		base mud and salinity. Will not effect the rheological properties, may lower fluid loss and has temperature stability upto 400°F (204°C).
LUBE G	Unique metal-wetting and water dispersible lubricant.	Provides excellent metal-wetting characteristic which lowers the potential for bit and BHA balling and decreases the coefficient of friction which reduces torque and drag. Contains no hydrocarbons and can be used in all water-base fluids.
SILIC LUBE	Lubricant for SILICATE system.	Reduces torque, drag and the potential for differential sticking by reducing the coefficient of friction in Silicate mud system.
LUBE RG	Fatty esters and specialist based environmental friendly lubricant.	Provides excellent reduction in torque and drag issues in highly tortuous long reach wells, will not damage delicate production zones, increases penetration rates, prevents bit balling and differentially stuck pipe. Improves the overall API and HTHP fluid loss behaviors of the drilling fluid with no negative effects on the fluids rheology.
LUBE SAFE	Water soluble brine lubricant	Provides exceptional reduction in metal-to-metal friction when added to seawater, sodium chloride, sodium bromide, calcium chloride and calcium bromide completion fluids, Reduce torque and drag in



		high-angle, extended-reach wells.
DRIL L	Rate of penetration (ROP) enhancer	Improves the ROP in water base mud system by removing buildup of drill solids below the bit and allowing the cutter to make continuous contact with new formation, improves bit life and lowers torque and drag.
MIX	Liquid Asphalt for differential sticking prevention.	Stabilize water-sensitive, microfractured shales when drilling with water-base drilling fluids by sealing microfractures, reduces API, HTHP, dynamic fluid loss and potential for differential sticking. Improves lubricity and shale inhibition by reducing accretion from sticky clays. Combat seepage losses in conjunction with fibrous materials and calcium carbonate. Temperature stability is up to 425°F (218°C).

J. SURFACTANT AND SPOTTING FLUIDS:

PRODUCT NAME	DESCRIPTION	FUNCTION
DD TECH	Surface tension reducer to prevent balling, drop sand and emulsify oil	Aqueous blend of surface - active agents can be used in any water base drilling fluid to reduce surface tension, reduce the sticking tendency of water-sensitive shale cutting, minimize bit and BHA balling and reduce torque drag.
PIPE NW	Stuck pipe liberator unweighted	Effective additive to free the differentially stuck pipe in a shorter period of time , by



		cracking and penetrating the filter cake.
PIE W	Weightable stuck pipe liberator, liquid one-drum spotting fluid	Single pack liquid blend, easy to mix and quickly prepare weighted oil base spotting fluid to free differentially stuck pipe. Dehydrates and cracks the filter cake, allowing the spotting fluid to penetrate between drillstring and formation, wets and lubricates the drillstring and reduces the force required to free stuck pipe.
PIPE ENV	Environmentally acceptable low Toxicity stuck pipe liberator/spotting fluid	Low-toxicity spotting fluid used for environmental sensitive offshore and onshore wells, to free differentially stuck pipe by penetrating between the wall and drillstring, reduces torque , drag and wall provides metal wetting characteristic.
BLACK SPOT	Powder spotting fluid, stuck pipe liberator, sack concentrate.	One sack powder blend, easy to handle and store at rig sites, effective additive for freeing differentially stuck pipe, can be mixed with diesel oil, mineral oil or synthetic fluids and weighted to the desired density before spotting.

K. OIL BASE MUD PRODUCTS:

PRODUCT NAME	DESCRIPTION	FUNCTION
MUL P	Primary Emulsifier and wetting agent	Provides excellent emulsion stability, secondary wetting, filtration control and contamination-resistance of oil muds systems.



MUL S	Secondary Emulsifier	Multi-functional additive serves as secondary emulsifier, wetting agent and filtration control agent in oil mud systems.
MUL NT	Non TOFA base multipurpose Emulsifier	High temperature stable invert emulsion, secondary wetting, reduce HPHT filtration, improves thermal stability and resistance to contamination in oil systems.
MUL P-HT	High concentrated high temperature stable primary Emulsifier	Provides excellent emulsion stability, secondary wetting, HTHP filtration control, high temperature stability and contamination-resistance of oil mud systems.
MUL S-HT	Highly concentrated high temperature stable Secondary Emulsifier	Multi-functional additives serves as secondary emulsifier, wetting agent and HTHP filtration control agent with improved thermal stability in oil mud systems.
WET	Oil wetting agent for improving oil wetting of solids and emulsion stability	Powerful oil wetting product udes to oil wet drill solids and weighting agents in oil-based drilling fluids.
THIN	Oil mud thinner for reducing the viscosity and gel strength	Reduces viscosity and gel strengths in oil base mud caused by high content of colloidal solids, without the need for changing the oil/water ratio.
MOD	Rheological modifier to increase LSRY, yield point, gel strength and carrying capacity.	Enhance LSRY and gel strength for improved cutting-carrying capacity in large-diameter, high-angle, horizontal and extended-reach wells, improves



		shear thinning, throtrophic characteristic without using additional clay-base additive and reduce fluid loss in oil base muds.
VIS OBM	Polymeric viscosifier for increasing yield point and gel strengths with minimal plastic viscosity	Provides elevated yield point and gel strength with minimal increase in plastic viscosity thereby minimize the amount of clay in formulation and improves LRSV to increase shear thinning, characteristics oil base mud.
ORGANOCLAY	Organophilic clay, Viscosifier and gelling agent.	Impart viscosity and suspension properties to oil base drilling fluids, for improving cutting-carrying capacity and to provide long-term suspension of weighting agents.
ORGANOLIG	Amine-treated lignite, HT filtration control additive.	High temperture filtration control agent, act synergistically with emulsifies in conventional invert emulsion systems to enhance the overall emulsion and thermal stability.
PHALT	Asphaltic resin, Filtration control Addivie	Provides filtration control, seal low-pressure and depleted formation, also improcves overall emulsion stability, thermal stability and suspension characterstic of oil base mud.
PHALT HT	Blend of lignite and Asphaltic resin for HTHP filtration control.	Provides HTHP filtration control, seal low -pressure and depleted formations, also improves overall emulsion stability, thermal stability and



		suspension characteristic of oil base mud.
THNNIN Q	Amine -treated tannin-Quebracho, HT filtration control additive for OBM and SBM	High temperature filtration control additive for use in any oil-or synthetic base mud systems with minimal effect on rheological properties of mud , Temperature stability id up to 500°F(260°C).

L. CORROSION AND SCALE INHIBITORES:

PRODUCT NAME	DESCRIPTION	FUNCTION
COR FILM-W	Water soluble film forming amine corrosion inhibitor used for drilling.	Provides excellent corrosion inhibition from Oxygen, Carbon Dioxide and Hydrogen Sulphide gases during drilling, for the down hole tubular and associated surface equipments up to 300°F. Compatible with all types of water base mud.
COR FILM-O	Film forming amine corrosion inhibitor used for drilling, Oil soluble and water dispersible.	It effectively protects the drill string by forming a tough persistent film on metal surfaces. It is compatible with all types of water base muds both weighted and underweighted. It is most applicable in the presence of carbon dioxide or hydrogen sulfide gas, Effective up to 350°F.
COR ALL 40	General-use, all purpose water soluble organo phosphorus - base inhibitor	Highly effective passivating type inhibitor for reducing oxygen corrosion in aerated muds, low -solids, non-dispersed, polymer muds and potassium muds with effect on



		fluid rheology. Effective up to 350°F.
COR ALL 50	General-use, all purpose water soluble potassium salt-base inhibitor.	Effective corrosion inhibitor used in water based drilling fluids systems, to control general and pitting corrosion due to oxygen, hydrogen sulfide and carbon dioxide without affecting the drilling fluid properties. Effective up to 250 °F.
SCALE P	Phosphonate base scale inhibitor, inhibits scaling caused by calcium carbonate, calcium sulfate and barium sulfate.	Inhibits deposition of mineral scales such as calcium carbonate, calcium sulfate and barium sulfate on down hole tubular and associated surface equipment in clear brine completion fluid systems.
COR BRINE 20	Amine corrosion inhibitor (15-20%) for clear completion/packer brine	It controls corrosion of tubing and casing strings when used in work over and packer brines including sodium chloride, calcium chloride, and bromide. Provide protection at bottom hole temperature up to 300°F.
COR BRINE 30	Amine corrosion inhibitor (30-35%) for clear completion/packer brines	It control corrosion of tubing and casing strings when used in work over and packer brines including sodium chloride, calcium chloride, sodium bromide, calcium bromide and zinc bromide. Provide protection at bottom hole temperature up to 350°F.
COR T	Filming amine type inhibitor for mono and divalent brines	Effective water soluble corrosion inhibitor and bacteriostatic for water based work over and packer fluids



		which is complete with non-ionic, cationic and anionic materials.
COR M	Low toxicity amine based corrosion inhibitor	Effective inhibitor to reduce corrosion in freshwater, monovalent brines and polymeric systems that are sensitive to brines and divalent ions. Also used to increase ph and treat carbonate contamination in water based system, Provide protection at bottom hole temperature up to 350°F (175°C).

M. WORKOVER, COMPLETION AND DRILL IN PRODUCTS:

PRODUCT NAME	DESCRIPTION	FUNCTION
HEC	Hydroxyl Ethyl Cellulose	Viscosifier in brine workover, completion fluids and water-base mud
HEC L	Liquid Hydroxyl Ethyl Cellulose	Liquid viscosifier for single - salt brines
DRIL IN	Modified starch derivative, cross linked Non-Ionic	Non-ionic, starch derivative intended to reduce HTHP filtrate loss in all water based mud containing salts or ion sensitive additives for drilling, completion and work over application. Acts aynergically with Xanthan gum polymer to increase LSRV. Can be used in most brines including seawater, NaCl, KCl, CaCl ₂ , NaBr and format salt systems.
XAN PLUS	Premium grade clarified Xanthan Gum	Highly Dispersible, premium grade, Xanthan gum used to provide superior hole cleaning and suspension, minimize filtrate invasion to formation



		and reduces torque and drag in reservoir drill in fluids. Provides better rheological profile with elevated low-shear-rate viscosity and highly shear-thinning characteristic.
SODIUM BROMIDE	Sodium Bromide	Used to eliminate potential of formation damage from the precipitation of carbonate, bicarbonate or sulfate compounds associated with using calcium-base brines where formation waters contain high concentration of bicarbonate and sulfate ions.
PAC R PREMIUM	High-quality polyanionic cellulose Regular viscosity	Filtration control agent is used in most water-based drilling fluids, can provide secondary viscosity and is effective even at low concentration. it is suitable for use in fresh water, salt water and brine -based fluids and stable to 300°F(149°C).Effective in moderate to high ph systems.
BROM Ca	Calcium bromide Liquid, used for mixing high density, solids free completion brines.	Used to formulate clear-brine work over and completion fluid with densities ranging from 8.4 to 15.3 Lb/gal. Inhibits hydration and migration of swelling clays.
COR BRINE 20	Amine corrosion inhibitor (15-20%) for clear completion/packer brines	It controls corrosion of tubing and casing strings when used in work over and packer brines including sodium chloride, calcium chloride, sodium bromide, calcium bromide and zin bromide, Provide



		protection at bottom hole temperature up to 300°F.
COR BRINE 30	Amine corrosion inhibitor (30-35%) for clear completion/packer brines	It controls corrosion of tubing and casing strings when used in work over and packer brines including sodium chloride, calcium chloride, sodium bromide, calcium bromide and zinc bromide, Provide protection at bottom hole temperature up to 350°F.
CARB-F	Calcium Carbonate Flakes	Acide-soluble and weighting agent for controlling fluid loss and density. Available in fine, medium and coarse grades.
CARB-M	Ground marble (Calcium Carbonate)	High purity marble, used as a bridging and weighting agent in drilling, work over and completion fluids, It is generally more pure with high hardness and provides better acid solubility. Available in different microns size.
LUB SAFE	Water soluble brine lubricant	Provides exceptional reduction in metal-to-metal friction when added to seawater. sodium chloride, sodium bromide, calcium chloride and calcium bromide completion fluids. Reduce torque and drag in high-angle, extended-reach wells.
CLEAN-UP	Mud cake clean up solvent	Multi-functional surfactant additive, serves as wetting agent, a demulsifier and an interfacial tension reducer. Soluble in oil, acid and water to penetrate deep in the formation



		to dissolve oil films on fines leaving them water-wet thereby preventing particle plugging and minimizing loss of permeability.
FORM K	Potassium format brine	Used to formulate clear-brine work over and completion fluid with densities ranging from 8.4 to 13.1 Lb/gal inhibits hydration and migration of swelling clays.

N. COMMERCIAL CHEMICALS:

PRODUCT NAME	DESCRIPTION	FUNCTION
KOH	KOH, caustic potash, Potassium Hydroxide	Used to maintain or increase ph, inhibitor for swelling shale. Used instead of caustic soda to reduce the sodium ion content and avoid dispersion of clays in inhibitive water-base fluids and drill-in fluids, increasing ph with KOH precipitates magnesium (Mg ²⁺) and suppresses (Ca ²⁺) in high hardness water, reduce corrosion and neutralizes acid gases such as carbon dioxide and hydrogen sulfide.
POTASSIUM IODIDE	Is used as a tracer in water base mud	Used as a tracer in water base mud to determine mud filtrate invasion in formation.
SAPP	Sodium Acid pyrophosphate (Na ₂ H ₂ P ₂ O ₇) is an effective dispersant and protect against cement contamination	Efficient dispersant in low-weight fresh water muds used un up hole drilling and effective additive for treating



		cement contamination and reduce viscosity.
SODA ASH	Sodium carbonate to treat Ca ion out in makeup water and to remove Calcium Contamination particularly due to Anhydrite	Used as a source of carbonate ions to precipitate and remove soluble calcium from water base fluids and makeup waters. Provide effective treatment for calcium contamination particularly due to Anhydrite, increase pH and flocculates spud mud.
SODIUM BICARBONATE	Sodium bicarbonate. To remove calcium	Used as source of bicarbonate ions to participate and remove soluble calcium from water base fluids and reduce pH. Provide effective treatment for cement contamination and deflocculates cement contaminated fluids.
MGO	Magnesium Oxide, Anhydrous	Used as a pH buffering agent, promotes temperature stability and enhances the rheological and filtration properties of water base drilling fluid at high temperature.
SALT	NaCl for weight up and salt saturated system.	Used to form clear-brine work over and completion fluid with densities ranging from 8.4 to 10Lb/gal. Increase shale inhibition by decreasing water activity, reducing formation salt dissolution, reducing freezing point of water base fluid and reducing the potential of foaming hydrates.
CALCIUM CHLORIDE	Calcium Chloride (CaCl ₂) Powder is single salt used as	Used to form clear-brine work over and completion fluid with densities ranging from 8.4 to



	soluble weighting agent and source of calcium	11.8 Lb/gal. Inhibits hydration and migration of swelling clays. Used in invert emulsion mud to adjust the activity of the water phase.
CARB	CaCO ₃ is acid soluble weighting or bridging agent	Acid-soluble bridging and weighing agent for controlling fluid loss and density. Available in Fine, Medium and coarse grades.
CARB-S	Sized Calcium Carbonate	Acid-soluble bridging and weighing agent for controlling fluid loss and density. Available in Fine, Medium and coarse grades.
SODIUM HYDROXIDE	Sodium hydroxide to control ph	Used to maintain or increase ph, increasing ph with NaOH precipitates magnesium (Mg ²⁺) and suppresses (Ca ⁺²) in high hardness water, reduces corrosion and neutralizes acid gases such as carbon dioxide and hydrogen sulfide.
GYPSUM	Gypsum (Calcium Sulfate (CaSO ₄ 2H ₂ O) to treat carbonate contamination in high PH mud.	Source of Ca ion, used to reduce carbonate ion contamination, without increasing the PH in freshwater and seawater muds.
LIME	Calcium Hydroxide for Alkalinity control and bicarbonate contamination primary invert emulsion mud component	Economical source of calcium and alkalinity in water and oil base muds. Flocculating agent in spud mud for improved hole cleaning, removes soluble carbonate ions, controls corrosion and activities fatty acid in oil base mud.
LIME O	Calcium Oxide	Used as source of alkalinity to elevate pH, buffer aqueous



		fluids at high pH, flocculate bentonite, participate soluble carbonate ions, and saponify fatty acid emulsifiers.
KCL	KCL, POTASSIUM CHLORIDE	Used to form clear-brine work over and completion fluid with densities ranging from 8.4 to 9.7 Lb/gal. Inhibits hydration and migration of swelling clays.
SODIUM CHROMATE	Na ₂ CrO ₄ sodium salt in which chromium atoms are in the plus-6 valence state	Used as corrosion inhibitor.
SODIUM DICHROMATE	Na ₂ Cr ₂ O ₇ sodium salt in which chromium atoms are in the plus-7 valence state	Used as corrosion inhibitor and to prevent temperature gelation.
SODIUM NITRATE	Long term tracer	Used as long term trace in water base muds to determine mud filtrate invasion in formation.
BROM Zn	Zinc Bromide Liquid, used for micing high density, solids free completion brines.	Used to formulate clear-brine work over and completion fluid which requires density to 19.2Lb/gal. Inhibits hydration and migration of swelling clays.
CITRIC ACID	Citric Acid for cement Contamination	Reduce PH and removes calcium to pretreat or remedy cement contamination, sequesters soluble iron to prevent polymer crosslinking in the drilling fluid system.



3.2.2 Special Products Used to Improve Drilling and Cementing Operations with High Performance:

3.2.2.1 Aphron Products:

Aphron ICS has successfully drilled more than 1000 wells worldwide, for depleted reservoir, multiple pressure zones, to replace UBD, and drilling intervals where shale's and low-pressure zones are present and to optimize production in some fields. The fluids have been used successfully in wells in the United States, Canada, Colombia Venezuela, Angola, Yemen Libya and other countries, in horizontal. The system has its unique solids free "micro-environment" bridging feature, High LSRV values, which make the fluid very applicable for high angle and horizontal well drilling, The Aphron ICS system is specifically recommended for drilling depleted formations, multible pressure zones, high porosity and fractures where the potential risk for whole mud losses, high NPT and formation damage is high.

- **System Description**

Aphrons exist as independent gas core spheres surrounded by a viscous water layer, all of which is then encapsulated with a multiple layered hydrophobic surfactant film. These multi layers and the high LSRV base fluid phase separating the Aphrons are the key to maintaining stability of the Aphron ICS system. As Aphrons are circulated down hole they become energized from the effect of increasing pressure. Upon entering into formations this confined energy is released resulting in proportional expansion of the compressed Aphrons. La Place pressures take effect at the same time helping to aggregate the Aphrons forming a micro-environment forming a solids free bridge within the formation. This bridge displaces the high pressures, being exerted from the annulus into the f, back into the formations and prevents further invasion of whole mud or filtrate. Operationally this translates to non-existent differential sticking potential. This unique behavior enables the system to drill multible pressure zones with one MW in one interval.

Individual aphrons must be stabilized within the drilling fluid. Stabilization is effectively achieved in a high LSRV fluid created with modified High Yield Stress, Shear Thinning (HYSST) polymers. This type of polymer chemistry effectively viscosifies the lamella (Aphron ICS base fluid) which both separates and stabilizes the aphrons as well as viscosifies the water layer surrounding the gas core.



Aphrons are unique in structure and size. The typical aphron ranges from <math><1.0-100</math> microns in diameter with the bulk being in the 20 micron range at ambient surface conditions. This allows them to be re-circulated even while solids control systems are in use. High-speed shakers with 175 mesh screens are recommended coupled to a high-speed centrifuge for reactive LGS control in the system. Since Aphrons have a gas core they have negligible density so are not discarded by hydro cyclones and centrifuges.

Unlike unstable foams and aerated fluids, stabilized Aphrons do not interfere with down hole tools such as LWD, MWD or mud motors making them ideal for directional and horizontal applications. It is important to note that no filtercake of significance is being formed by this fluid, coupled to the fact that fluid invasion profiles are minimal electric log quality is traditionally very good.

- 3.2.2.2 **Devil II:** is a blend of non-ionic polymers that provide low shear rate viscosity (LSRV) in the Aphron ICS□ system. The LSRV's created by Go Devil II promote hole cleaning, solids suspension, formation invasion control and lost circulation prevention. Recommended initial concentration for optimum performance is 5.0 lb./bbl.
- 3.2.2.3 **ActiVator I:** is a filtrate reducer and thermal stabilizer for the Aphron ICS□ system as well as other low shear rate viscosity fluids. ActiVator I can be added as a dry powder through a mud hopper or through a chemical barrel by dissolving in fresh water. Thermal stabilization is measured by determining the low shear rate viscosity at less than one rpm after hot rolling at a given temperature. Recommended initial concentration for optimum performance is 5.0 lb./bbl.
- 3.2.2.4 **ActiVator II:** is a pH buffer and thermal stabilizer for the Aphron ICS□ system. ActiVator II is more effective if dissolved in fresh water and added through a chemical barrel. Thermal stabilization is measured by determining the viscosity at 600 and 300 rpm after hot rolling at a specific temperature. Typical concentrations are 0.5 to 3.0 lb./bbl.
- 3.2.2.5 **ActiGuard:** is a blend of surfactants and vegetable oils that inhibit water absorption and swelling of reactive clays. Typical concentrations for optimum performance are 0.1% to 0.5% by volume.



- 3.2.2.6 **BLUE STREAK:** is a blend of anionic and nonionic surfactants and co-surfactants in an aqueous solution. BLUE STREAK encapsulates air in drilling fluids creating micro-bubbles that significantly enhance the low-shear rate viscosity (LSRV) of the system. The elevated LSRVs and the bridging effect of the micro-bubbles significantly reduce or eliminate formation losses. Initial application is usually 0.75 lb./bbl. Daily maintenance treatments are typically 0.1 to 0.25 lb./bbl.
- 3.2.2.7 **Aphronizer A & B:** are a co-associating surfactant for enhancing the shell structure and stability of aphrons.
- 3.2.2.8 **ClaySure:** CLAYSURE is clay inhibitor and fixative for polymer based drilling, completion, and work over fluids. CLAYSURE is a solution of multivalent, non-volatile organic amine in water.

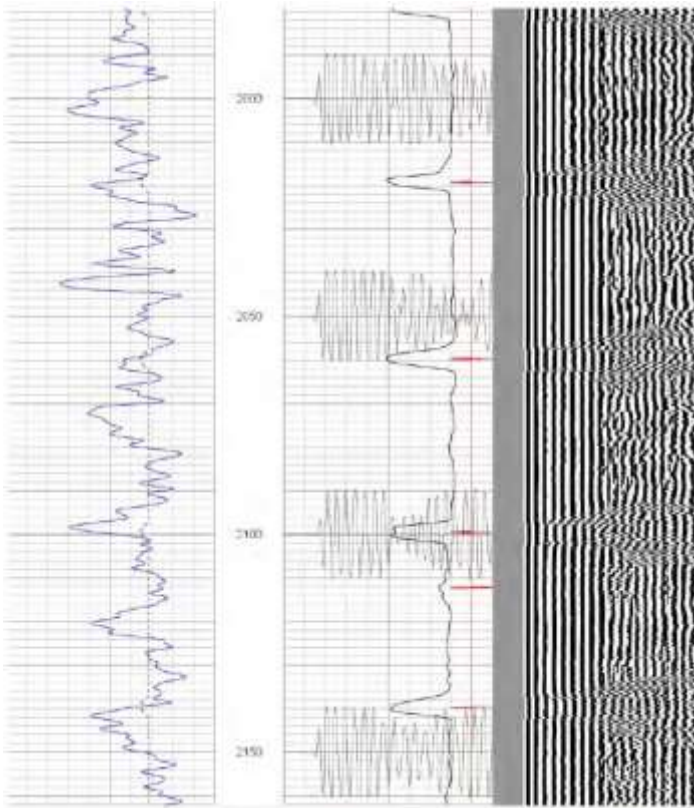


3.2.3 Cementing Technology

3.2.3.1 ULTRA SPACER®

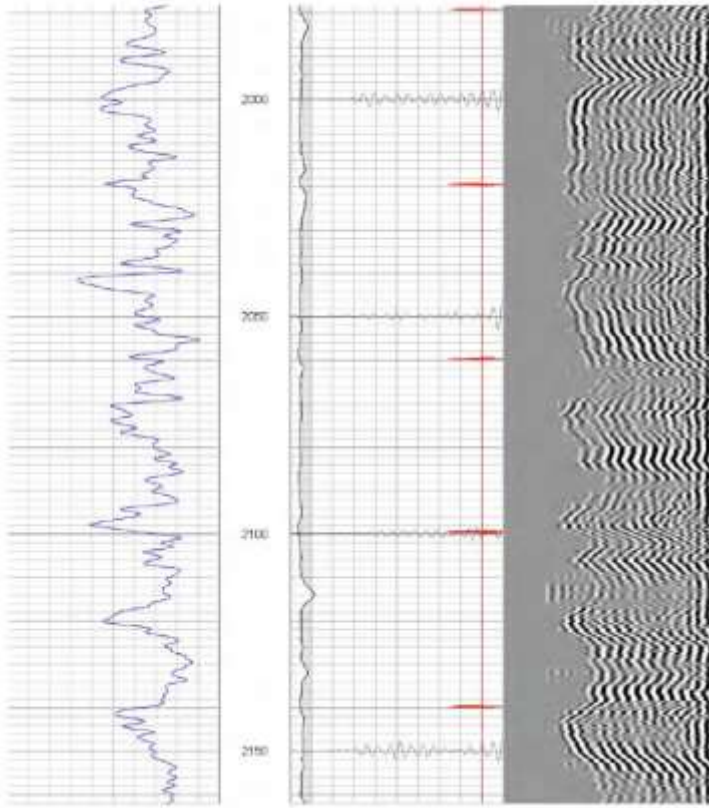
Ultra Spacer® is a blend of functionalized polymers and bridging agents designed to provide zonal isolation, even in the most challenging zones. Its low rheology controls fluid loss to the

formation, allowing the use of neat cement system slurries, and also effectively removes drilling mud and forms a non-damaging membrane, reducing fluid/filtrate invasion. Since the unique seal formed by Ultra Spacer® raises the formation's fracture pressure, cement can be placed at casing depth with higher



CBL Log without Ultra Spacer

equivalent circulating densities (ECDs) without increasing the risk of formation break down. This capability is highly beneficial in wells in which a narrow margin exists between the fracture gradient and pore pressure gradient.



CBL Log with Ultra Spacer

BENEFITS

- ✓ Ideal for wells with a narrow margin between fracture gradient and pore pressure gradient.
- ✓ Compatible with 99% of the market's cement slurries and drilling fluids.
- ✓ Incredible fluid loss properties for aiding in loss circulation.
- ✓ Reduces formation damage.
- ✓ age from cement filtrate.
- ✓ Prevents cement fallback to achieve higher tops of cement.
- ✓ Temperature stable to 400°F.
- ✓ Density controllable.



3.2.3.2 Prevent Loss circulation with Ultra Seal Fiber Technology

Unlike most fiber products, Ultra Seal® comprises a blend of cellulosic fiber groups, filtrate control agents and physical lubricants designed to reduce torque and drag, seal micro-fractured shale and control differential sticking.

BENEFITS

- ✓ Broad particle size loss circulation blend of fibrous, granular and flake materials designed for massive loss circulation and heavy seepage
- ✓ Designed for whole mud loss.





3.2.3.3 Customizable Resin Technology for Recompletion & Loss Circulation

This line of versatile, non-shrinking, exothermic reaction resins is applicable for well recompletion, loss circulation, wellbore stabilization, P&A and workover completion, and provides an impermeable seal through and around cement plugs.

3.2.3.4 LIQUID BRIDGE PLUG®

This non-shrinking, exothermic reaction resin provides an impermeable seal for micro leaks of gas through and around cement plugs and packers. It has successfully been used to shut off gas for abandonment, to seal leaking packers, for water shut-off, and to plug and abandon hurricane-damaged wells. Its viscosities can be altered for sealing control lines with small IDs.

BENEFITS

- Formulated for temperatures ranging from 55.4°F to 300.2°F
- Easily drilled
- Very high compressive strengths – greater than 4x that of advanced cement slurries
- Ultra-high shear bond strengths > 13.79 MPa
- Exothermic
- Not water or oil soluble





3.2.3.5 ULTRA SET ®

This right-angle set resin system is ideal for use in instances of massive loss circulation. In zones where losses are always heavy, Ultra Set® provides a cement-like consistency that stops leaks and gets production moving again.

BENEFITS

- Compatibility with a wide range of solid LCMs
- Functions across a wide range of temperatures, 50°- 250°F
- Ultimate compressive strength: ± 10,000 psi
- Over 60x the tensile strength of cement
- Low viscosity (25 cps) prior to cross-linking
- Density ranges of 7.0 ppg up to 19.0 ppg



Liquid Bridge plug® will reform and not fracture like other downhole sealant on the market



3.2.3.6 CROSS LINKING TECHNOLOGY

Enhance Drilling, Loss Circulation and Plug & Abandonment Functions

These non-biodegradable, density-controllable solutions can be weighted to 19.8 lb/gal or 2.36 specific gravity. Our cross-linking products can be mixed in seawater, NaCl, KCL and some formats, and is effective in temperatures over 350°F.

1. POLY PLUG®

Poly Plug® is formulated with a high-molecular weight anionic polymer that produces a rigid, robust gel structure ideal for shutoff treatments into fractured, vugular and high permeability formations. In addition to the polymer and cross-linking agent, a broad range of LCM (Ultra Seal® Plus) is included to slow seepage of the polymer solution into the formation.

BENEFITS

- Total shut-off squeeze treatments that effectively seal off water or gas.
- Effectively seals fractures, vugs, weak zones, flowing, over-pressured zones.
- Single sack product, pre-blended for ease of mixing.
- Can be pumped through the bit, mud motors and MWD/LWD tools.
- Does not harden sufficiently to stick pipe or side-track, so there is never a drill out problem.
- Insensitive to CO₂ or H₂ S .
- Can be mixed and placed with standard rig equipment or cement blender.
- Effective temperature range from.

2. POLY PLUG® CLEAR GEL

Used for drilling and workover applications, Poly Plug® Clear Gel can be mixed as either a high or a low molecular weight polymer. It is a temperature-activated, cross link polymer product, and can be retarded or accelerated to function within the wellbore BHT from 44.6°F to more than 350°F. The only product of its kind on the market today, Clear Gel is used by more than 50 different operators for casing leaks, gravel pack consolidation, matrix permeability and perforation abandonments for plug downs.

BENEFITS

- Works where cement doesn't
- Designed with a low viscosity prior to cross-linking to aid in injectivity
- Effective in full shut-off treatments into rock matrix less than 750 md
- Works by entering the reservoir and reducing permeability, not by simply plugging the perforation
- as in Portland cement treatments
- Never a drill-out problem, washes out of pipe for easy clean out



- Seals perforations in water zones

3. Industrial Products.

Specialize in marketing drilling fluids product and chemical to the general industrial, geothermal technical and construction industries,

4. Waste Management and Solid Control system.

Solid control is a vital part of any modern drilling operation, and choosing the right solid control and waste management system can make or break drilling project, the solids control and waste management equipments and services to the oil and gas industries contain below, and we can to supply at any time:-

- ✓ Land and offshore wells.
- ✓ Shale shakers
- ✓ Replacement shale shakers screen.
- ✓ Hydro-Cyclone including Desanders, Desilters and mud cleaners.
- ✓ Centrifugal equipments.
- ✓ Complete mud mixing, chemical addition and sharing system.
- ✓ Water-based drilling fluid De-watering units (Floc units).
- ✓ Waste water "polishing" for re-cycling and/or discharge.
- ✓ Cutting dryer system including cutting conveyance system as required (rig-specific).
- ✓ Mud cooling system.
- ✓ Drilling fluid storage and treatment tank system for rig location or mud plants.
- ✓ Equipments sale and rental services.
- ✓ Engineering and consultancy services.





5. Drying Shakers.

A shaker that further process the cutting from active system shaker to remove excess oil from cutting, we have high efficiency shaker in our yards in Um-Qaser port & in Kurdistan yards, brand new to supplying as client request.

- ✓ Suitable for land Rigs.
- ✓ Moderate capacity.
- ✓ Moderate Maintenance.
- ✓ Economically viable.
- ✓ Variable screening to suit applications.





6. Drivers of Waste Management.

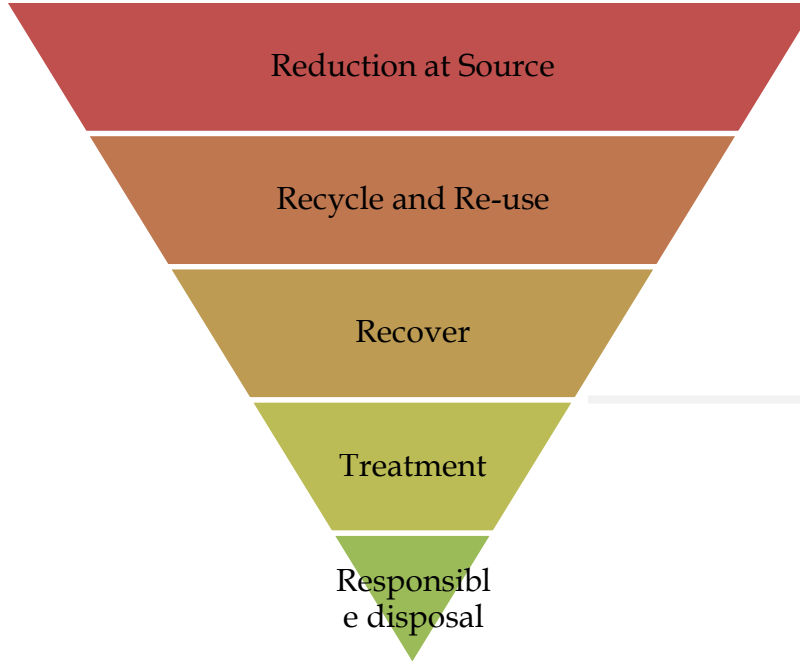
- Environmental requirements for drilling waste.
- Customer corporate policies on QHSE.
- Technology Vs. economics.
- Long term liability.



7. Overall Approach to Waste Management.

- Corporate commitment.
- New Technology.
- Full range of services.
- Integrated fluid Eng.
- Project planning.
- Added value.
- Waste minimization





8. Waste Management Hierarchy, Prioritized Strategy.

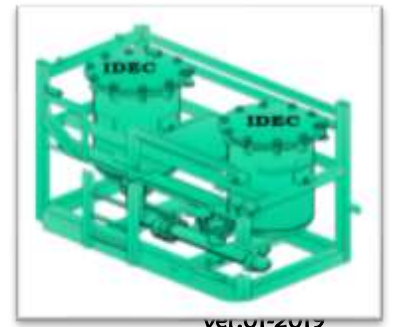
We are leader in waste management procedures, we can supply all the equipments and tool that deal with waste as below:

- De-Watering System.
- Water Treatment.

The final polishing and testing of water from de-watering, rain and rig-wash to meet standards for release in to environment of reuse on rig.

- Recycling and Reuse.

Technology used to separate contamination such as fine solid or hydrocarbons from fluid for reclamation or discharge.



ver.01-2012



A mud plant – based process/system to maximize recovery and reuse and minimize waste generated and disposed.

- **Enviro Center Range of Services.**

- Cleaning Services.
- Waste water handling.
- Waste management,
- Thermal treatment.
- Solid control.
- Filtration.
- Storage.

- Mixing.
- Mud recycling.
- Drilling fluid.
- Completion services.
- Workover fluids.
- Cutting treatment.
- Chemical analysis

9. Bioremediation for Green Earth.

- A natural process where adapted micro-organisms degrade hydrocarbon molecular chains to an acceptable level for discharge to the environment.
- The objective is to significantly reduce in volume and toxicity the hydrocarbons in drill cuttings to ensure any environmental impact is minimized.
- To be effective, it requires oxygen, temperature, moisture and nutrients to be constantly at a desirable level, which can be difficult in some environments.

Bioremediation Benefits.

- Operationally simple
- Does not need special equipment (farm equipment)
- Cost effective for small and large quantities
- Does not generate a by product, it is recycling the cuttings / soil
- Proven effective natural degradation
- Minimum interference with native ecosystem
- Does not require significant chemical additions



✚ **Bioremediation Desirable Conditions.**

- pH (6 to 8)
- % Moisture (60% to 80% Water Holding Capacity)
- Nutrient content (N,P,K Proportion 100:10:1)
- Dissolved Oxygen > 2 mg/L
- Temperature (50 to 100 ° F)
- SAR < 12 mg/L
- ESP < 15%
- EC < 4 mmho/cm

✚ **Example for our Bio remediation operations in Kurdistan.**



Turn over the soil



Rolling Over & Preparing the pit.



Spraying CS-03 (Bio-remediation Product)



Mixing Fiber Materials



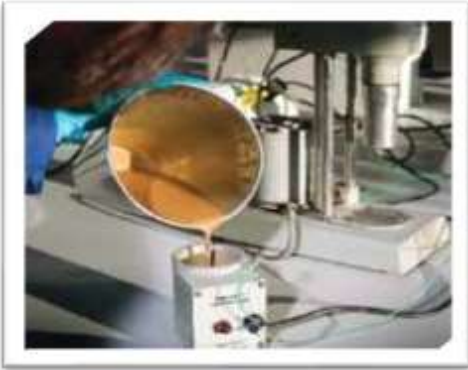
Collected Samples



10. Laboratories Facilities Services.

We can supply full laboratory equipments at rig site to allow for the completion of full API standard, mud checks.

This lab. Is capable to complete QC testing and sampling of products as well as API mud analyses. Also, this lab. Is capable of for formulating the drilling fluid system and running all the type of tests to control contamination, corrosion and optimize the drilling fluid formation.





11. Lab & Field Corporation.

Coordination of lab work field work is achieved through the availability of laboratory services to all technical and engineering personnel on location (24 hrs.) basis.

Assistance by laboratory management and technician is always available should an abnormal condition occur.

12. Testing Equipment.

Complete rheology as well as API and HPTP filtrate analysis can also be conducted by lab personnel in a short period of time. The Fann Model 75 automatic high pressure (HPTP) Viscometer uses newly designed proprietary software for fully automatic control for pressure , temperature and motor speed, as well as full manipulation of data for final presentation.

The instrument measures rheologies to a maximum of (20,000 psig) and (500 EF). It allows consistent result and more reliable data to integrated control of temperature, pressure and motor speed.

Than Fann (50) (capable of measuring viscosity at up to 500 degrees and 500 psi) with computerized instrument viscosity at up to 500 degrees and 20,000 psi. the Fann 75 is fully integrated with a personnel computer for real time read out and digital data recording. Output can be documented with onboard graphic display, or exported to the software applications for research and well analysis this can be n invaluable tool in deeper projects at elevated temperatures and pressures, especially when utilizing oil muds.

The ability to measure and record viscometer and gel strength on a regular basis at bottom hole temperatures and pressures can mean the difference between success and failure, we also have a Malvern Microsizer laser particle size analyzer for solids particle size analysis, an extreme lubricity meter and dynamic HTHP filter press.





Dear Customers:

We need to show our customers that our local company especially here in Basra, our commitment to health, safety and environment is unwavering and maintained to the highest standards for our employees, customers and contractors as well as for the protection of the environment in the communities in which we live and work.

As above profile to SOS, Pls. do not hesitate to contact to us at any time (24/7) on mail and phone number in footer below, if you need more details and information, we appreciate your esteemed company to receive our company profile for study our capabilities in oilfield services, and also we trained some local employees to follow up our operations here in Iraq by high grade professional levels .

Thanks a lot and appreciated.