

Johnson County, KS
Well: Thomas C 4-1
Lease Owner:ST Petroleum

Town Oilfield Service, Inc.
(913) 294-2125

Commenced Spudding:
4/20/2018

WELL LOG

Thickness of Strata	Formation	Total Depth
0-11	Soil-Clay	11
5	Lime	16
7	Shale	23
15	Lime	38
8	Shale	469
8	Lime	54
9	Shale	63
15	Lime	78
12	Shale	90
8	Sand	98
75	Lime	173
29	Shale	202
9	Lime	211
18	Shale	229
7	Lime	236
6	Shale	242
8	Lime	250
34	Shale	284
1	Lime	285
9	Shale	294
28	Lime	322
5	Shale	327
24	Lime	351
4	Shale	355
2	Lime	357
6	Shale	363
7	Lime	370
170	Shale	540
6	Lime	546
4	Shale	550
3	Lime	553
5	Shale	558
7	Lime	565
17	Shale	582
3	Lime	585
8	Shale	593
11	Lime	604
83	Shale	687
1	Lime	688
142	Shale	830

Short Cuts

TANK CAPACITY

BBLS. (42 gal.) equals $D^2 \times .14 \times h$

D equals diameter in feet.

h equals height in feet.

BARRELS PER DAY

Multiply gals. per minute x 34.2

HP equals $BPH \times PSI \times .0004$

BPH - barrels per hour

PSI - pounds square inch

TO FIGURE PUMP DRIVES

* D - Diameter of Pump Sheave

* d - Diameter of Engine Sheave

SPM - Strokes per minute

RPM - Engine Speed

R - Gear Box Ratio

*C - Shaft Center Distance

D - $RPM \times d$ over $SPM \times R$

d - $SPM \times R \times D$ over RPM

SPM - $RPM \times D$ over $R \times d$

R - $RPM \times D$ over $SPM \times d$

BELT LENGTH - $2C + 1.57(D + d) + \frac{(D-d)^2}{4C}$

* Need these to figure belt length

TO FIGURE AMPS: $\frac{WATTS}{VOLTS} = AMPS$

746 WATTS equal 1 HP

Log Book

Well No. 4-1

Farm Thomas C

KS Johnson
(State) (County)

14 14 22
(Section) (Township) (Range)

For ST Petroleum
(Well Owner)

15-091-24486

Town Oilfield Services, Inc.

1207 N. 1st East
Louisburg, KS 66053
913-710-5400

Thickness of Strata	Formation	Total Depth	Remarks
0-11	soil-clay	11	
5	Lime	16	
7	Shale	23	
15	Lime	38	
8	Shale	46	
8	Lime	54	
9	Shale	63	
15	Lime	78	
12	Shale	90	redbed
8	sand	98	no oil
75	Lime	173	water
29	Shale	202	
9	Lime	211	
18	Shale	229	
7	Lime	236	
6	Shale	242	
8	Lime	250	
34	Shale	284	
1	Lime	285	
9	Shale	294	
28	Lime	322	
5	Shale	327	
24	Lime	351	
4	Shale	355	
2	Lime	357	
6	Shale	363	
7	Lime	370	H-4 the



PRESSURE PUMPING LLC
PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

10522
10414

TICKET NUMBER 53984
LOCATION Ottawa, KS
FOREMAN Casey Kennedy

FIELD TICKET & TREATMENT REPORT
CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
4/24/18	7532	Thomas C # 4-1	SW 14	14	22	JO
CUSTOMER ST Petroleum			TRUCK #	DRIVER	TRUCK #	DRIVER
MAILING ADDRESS 18800 Sunflower Rd			729	Casey Ken	✓ Safety Meeting	
CITY Edgerton			467	Kei Car	✓	
STATE KS	ZIP CODE 66021		558	Ala Mad	✓	
			675	Kei Det	✓	
JOB TYPE <u>Lengthing</u>	HOLE SIZE <u>5 5/8"</u>	HOLE DEPTH <u>940'</u>	CASING SIZE & WEIGHT <u>2 7/8" EUE</u>			
CASING DEPTH <u>924'</u>	DRILL PIPE	TUBING <u>baffle - 892'</u>	OTHER			
SLURRY WEIGHT	SLURRY VOL	WATER gal/sk	CEMENT LEFT IN CASING <u>32'</u>			
DISPLACEMENT <u>5.16 bbls</u>	DISPLACEMENT PSI	MIX PSI	RATE <u>4 bpm</u>			

REMARKS: held safety meeting, established circulation, mixed + pumped 100 # Gel followed by 10 bbls fresh water, mixed + pumped 116 sks Pozblend 1A cement w/ 2% gel + 1/4 # Flocal per sk, cement to surface, flushed pump clean, pumped 2 1/2" rubber plug to baffle w/ 5.16 bbls fresh water, pressured to 800 PSI, released pressure, shut in casing.

Handwritten signature

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CE0450	1	PUMP CHARGE	1500.00	
CE0002	30 mi	MILEAGE	214.50	
CE0711	min	fuel mileage	600.00	
WE0853	4 hrs	80 UaE	400.00	
		trucks	2774.50	
		-30%	832.35	
		subtotal		1942.15
CC5840	116 sks	Pozblend 1A cement	1546.00	
CC5965	295 #	Gel	88.50	
CC6075	29 #	Flocal	58.00	
CP8776	1	2 1/2" rubber plug	45.00	
		materials	1757.50	
		-30%	527.25	
		subtotal		1230.25
		7.975%	SALES TAX	98.11
			ESTIMATED TOTAL	3270.51

AVIN 3737
AUTHORIZATION [Signature] TITLE _____ DATE (4672.16)

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

TERMS AND CONDITIONS

ATTENTION: THESE TERMS AND CONDITIONS CONTAIN INDEMNITY PROVISIONS FOR DAMAGE TO PERSONS AND PROPERTY. All Services or Products provided by QES Pressure Pumping LLC (the Consolidated Oil Well Services LLC) are subject to these Terms and Conditions unless superseded by a Master Service Agreement signed by the parties. In the event Customer does not accept these Terms and Conditions as written, Customer must request a Master Service Agreement from QES' Contracts Administration Department at contracts@qesllc.com.

The operations, services, supplies, materials, personnel or goods to be provided ("Services" or "Products" as applicable) by QES Pressure Pumping LLC ("QES") will be provided to you, as customer ("Customer"), in accordance with the following terms and conditions ("Agreement"). QES and Customer may be referred to as "Party" or "Parties".

1. **Price and Taxes.** Customer will pay QES for the Services or Products in accordance with QES' quoted price which excludes applicable sales or process license fees. Customer shall pay all applicable taxes and process license fees related to the Services and/or Products. QES prices are subject to change without notice.

2. **Terms of Payment.** Customer will pay QES cash in advance for Services and Products unless QES has approved credit prior to the performance of the Services and/or delivery of the Products. Credit terms for approved accounts require full payment of the invoice amount within 30 days from the date of invoice. All invoices not paid within 30 days will be charged an interest rate of 1.5% per month or the maximum rate allowed under applicable state law, whichever is higher. Customer will be responsible for any fees incurred by QES in the collection of any amounts owed to QES including but not limited to attorney's fees and/or collection fees.

3. **Proof of Services or Delivery of Products.** QES will furnish verification of proof of Services performed and Product delivered to Customer's representative at the time of performance of the Services or Product delivery. Customer agrees to sign and return such verification indicating Customer's acceptance of the Services or Products.

4. **Delivery or Completion.** All liability and responsibility of QES ceases when (1) Products are delivered to the Customer or QES and no longer in the care, custody and control of QES or (2) when the carrier receives the Products for transport. QES will not be responsible for loss or damage to Products in transit or for delays of carriers in delivering goods, in case of shortage, non-conformance, or apparent damage, it is the Customer's responsibility to secure written acknowledgement from the carrier before Customer accepts delivery. Additionally, QES will not be liable for any damage or delays in delivery or completion due to a Force Majeure (as defined below), acts or omissions of the Customer, third party material or manufacturing delays, impossibility or impracticability of performance or any other cause or causes beyond the control of QES. In the event of a delay caused by the aforesaid, the delivery or completion date will be extended for a period equal to any such delay, and the purchase or service will not be void or voidable as a result thereof.

5. **Well or Service Site Conditions.** Customer, having custody and control of the well and/or service site, and having superior knowledge of the same, and the conditions surrounding them, warrant that the well and/or service site will be in proper condition to receive and accommodate Services and Products. Upon QES' request, Customer will provide documentation to verify that the well or service site is adequate to support the Services and the delivery of Products. Customer also warrants that QES' personnel and equipment will be able to safely access the well and service site and that any special equipment or road improvements required for such access will be the responsibility of Customer unless otherwise agreed to by the parties.

6. **Chemical, Handling and Hazardous Materials.** Customer agrees that for any waste created as part of the Services, Customer will be considered the "generator" for purposes of any applicable laws or regulations pertaining to the transportation, storage and handling of chemical and hazardous materials.

7. **Data, Data Transmission and Storage.** QES does not warrant or guarantee the accuracy of any research analysis, survey, or other data generated for the Services. QES is not responsible for any accidental or intentional interception of such data by third parties and it is the responsibility of the Customer to safeguard such data against loss including any need to secure digital or paper copies for storage.

8. **WARRANTIES - LIMITATION OF LIABILITY.** QES warrants that the Services and Products will (i) be free from defects in materials and workmanship; (ii) be performed in a good and workmanlike manner, in accordance with good oilfield servicing practices; and (iii) conform to the plans, specifications and technical information provided in writing by Customer until the Services or Products are accepted by Customer or QES' contractual obligations are met. In the event that Customer discovers a defect in the Services or Products within the warranty period specified above, Customer will notify QES of such defect. In the event that QES confirms that the Services or Products are defective, QES's liability and Customer's exclusive remedy in any cause of action (whether in tort, contract, breach of warranty or otherwise) arising out of the sale or use of any Services or Products is expressly limited to, at QES' option, the (i) replacement of such Services or Products upon their return to QES or (ii) a credit to Customer for the full price paid by Customer for the defective segment of the Services or Products upon their return to QES, in the case of products or parts not wholly of QES' manufacture, QES' liability will be limited to the amount of its recovery from the manufacturer of such products or parts under its liability to QES. QES will not be liable for any damages, claims, losses or expenses of Customer resulting from such defects or for damages resulting from delays, loss of use, or other direct, indirect, incidental, punitive or consequential damages of any kind. QES will not be responsible for: (i) failures of Services that have been in any way tampered with or altered by anyone other than an authorized representative of QES; (ii) failures, due to lack of compliance with recommended maintenance procedures; and (iii) products requiring replacement due to normal wear and tear.

b) **EXCEPT FOR THE WARRANTIES EXPRESSLY STATED ABOVE, THERE ARE NO OTHER WARRANTIES. THE PARTIES EXPRESSLY EXCLUDE AND CUSTOMER WAIVES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

c) **IN NO EVENT WILL QES' ENTIRE LIABILITY (IN TORT, CONTRACT, WARRANTY, INFRINGEMENT OR OTHERWISE) TO CUSTOMER EXCEED THE PURCHASE PRICE ACTUALLY PAID BY CUSTOMER FOR THE SERVICES OR PRODUCTS THAT GIVE RISE TO A DISPUTE. THIS PROVISION WILL SURVIVE ANY TERMINATION OF THIS AGREEMENT.**

9. **INDEMNIFICATION AND WAIVER OF CONSEQUENTIAL DAMAGES.**

9.1 For purpose of this Section 9, the following definitions will apply: "QES Group" means QES Pressure Pumping LLC, its parent company and affiliated companies, and its and their officers, directors, employees, contractors, subcontractors and invitees. "Customer Group" means Customer, its parent (if any), subsidiary and affiliated companies, co-owners, co-venturers, partners and any entity with whom Customer has an economic interest with respect to the Services, including Customer's joint interest owners and partners and its and their officers, directors, employees, contractors (not including QES), subcontractors and invitees.

9.2 **QES INDEMNITY.** QES AGREES TO PROTECT, DEFEND, INDEMNIFY AND HOLD HARMLESS CUSTOMER GROUP FROM AND AGAINST ALL CLAIMS, DEMANDS, AND CAUSES OF ACTION OF EVERY KIND AND CHARACTER, ARISING IN CONNECTION WITH THE SERVICES, ON ACCOUNT OF BODILY INJURY, ILLNESS, OR DEATH OF ANY MEMBER OF QES GROUP OR DAMAGE TO OR LOSS OF PROPERTY OF ANY MEMBER OF QES GROUP.

9.3 **CUSTOMER INDEMNITY.** CUSTOMER AGREES TO PROTECT, DEFEND, INDEMNIFY AND HOLD HARMLESS QES GROUP FROM AND AGAINST ALL CLAIMS, DEMANDS, AND CAUSES OF ACTION OF EVERY KIND AND CHARACTER, ARISING IN CONNECTION WITH THE SERVICES, ON ACCOUNT OF BODILY INJURY, ILLNESS, OR DEATH OF ANY MEMBER OF CUSTOMER GROUP OR DAMAGE TO OR LOSS OF PROPERTY OF ANY MEMBER OF CUSTOMER GROUP.

9.4 **WELL.** CUSTOMER WILL RELEASE, PROTECT, DEFEND, AND INDEMNIFY QES GROUP FROM AND AGAINST ALL CLAIMS, DEMANDS AND CAUSES OF ACTION OF EVERY KIND AND CHARACTER IN THE EVENTS OF: (i) LOSS OR DAMAGE TO ANY GEOLOGICAL FORMATION, STRATA OR OIL OR GAS RESERVOIR OR MINERAL OR WATER RESOURCE BENEATH THE SURFACE OF THE LAND OR WATER, (ii) LOSS OR DAMAGE TO THE HOLE OR WELL, (iii)

IMPAIRMENT OF PROPERTY RIGHTS OR OTHER INTERESTS IN OR TO OIL, GAS, MINERAL OR WATER RESOURCES, AND (iv) REGAINING CONTROL OF ANY WILD WELL OR OUT OF CONTROL WELL, UNDERGROUND OR ABOVE THE SURFACE, INCLUDING REMOVAL OF WRECK, DEBRIS, EQUIPMENT, AND HAZARDOUS MATERIALS AND REMEDIATING ENVIRONMENTAL DAMAGE.

9.5 **POLLUTION RESPONSIBILITY.** Subject to paragraphs 9.2 and 9.3, it is understood and agreed between Customer and QES that the responsibility for pollution shall be as follows:

(a) **QES WILL ASSUME RESPONSIBILITY FOR CONTROL AND REMOVAL OF AND WILL PROTECT, DEFEND AND INDEMNIFY CUSTOMER GROUP FROM AND AGAINST ALL CLAIMS, DEMANDS AND CAUSES OF ACTION OF EVERY KIND OR CHARACTER ARISING FROM POLLUTION OR CONTAMINATION WHICH ORIGINATES ABOVE THE SURFACE OF THE LAND, OR WATER FROM THE EQUIPMENT OF ANY MEMBER OF QES GROUP MAINTAINED IN QES GROUP'S CARE, CUSTODY AND CONTROL, AND ARISING FROM THE PERFORMANCE OF THE SERVICES.**

(b) **CUSTOMER WILL ASSUME RESPONSIBILITY FOR CONTROL AND REMOVAL OF AND WILL PROTECT, DEFEND AND INDEMNIFY QES GROUP FROM AND AGAINST ALL CLAIMS, DEMANDS AND CAUSES OF ACTION OF EVERY KIND AND CHARACTER ARISING FROM POLLUTION OTHER THAN THAT DESCRIBED IN SECTION 9.5(A) ABOVE, WHICH MAY OCCUR DURING THE CONDUCT OF OPERATIONS HEREUNDER, INCLUDING, BUT NOT LIMITED TO, POLLUTION RESULTING FROM FIRE, BLOWOUT, CRATERING, SEEPAGE OR OTHER UNCONTROLLED FLOW OF OIL, GAS OR OTHER SUBSTANCE.**

9.6 **WAIVER OF CONSEQUENTIAL DAMAGES.** NOTWITHSTANDING ANY PROVISION TO THE CONTRARY, CUSTOMER AND QES FURTHER AGREE THAT NEITHER PARTY WILL BE LIABLE TO THE OTHER OR EACH OTHER'S RESPECTIVE GROUP FOR ANY CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF PROFIT, LOSS OF PRODUCTION, REVENUE, OR ANTICIPATED BUSINESS ("LOSSES"). CUSTOMER AGREES TO INDEMNIFY AND HOLD QES GROUP HARMLESS FROM AND AGAINST ANY AND ALL CLAIMS FOR SUCH LOSSES ASSERTED BY MEMBERS OF CUSTOMER GROUP. QES AGREES TO INDEMNIFY AND HOLD CUSTOMER GROUP HARMLESS FROM AND AGAINST ANY AND ALL CLAIMS FOR SUCH LOSSES ASSERTED BY MEMBERS OF QES GROUP.

9.7 **EXCEPT AS OTHERWISE EXPRESSLY LIMITED BY THIS AGREEMENT OR BY LAW, ALL RELEASES, INDEMNITY OBLIGATIONS AND OTHER LIABILITIES ASSUMED UNDER THIS AGREEMENT WILL BE WITHOUT LIMIT, AND WITHOUT REGARD TO THE CAUSE OR CAUSES, INCLUDING, WITHOUT LIMITATION, PREEXISTING CONDITIONS, UNSEAWORTHINESS, STRICT LIABILITY, WILLFUL MISCONDUCT, AND THE SOLE, JOINT, GROSS, OR CONCURRENT NEGLIGENCE OF ANY PARTY.**

9.8 **Each Party hereunder agrees to support its indemnity obligations with liability insurance coverage with limits of liability not less than ten million dollars (\$10,000,000). It is the express intention of the Parties that the indemnities contained herein apply to the fullest extent permitted by applicable law, and in no event will a Party's indemnity obligation be limited to the amount of insurance carried by each Party.**

THIS SECTION 9 WILL SURVIVE THE TERMINATION OR EXPIRATION OF THIS AGREEMENT.

10. **Insurance.** All insurance policies of either Party in any way related to the Services, whether or not required by this Agreement, shall be the extent of the risks and liabilities assumed by such party. (i) name the other party group as additional insured (except for worker's compensation, OEC/OCW, or professional liability policies), (ii) waive subrogation as to the other party group; and (iii) be primary and non-contributory to any insurance of the other party group.

11. **Force Majeure.** Except the obligation to make payments when due, neither QES nor Customer will be liable nor deemed to be in breach of this Agreement for any delay or failure in performance resulting from the acts of God, civil or military authority, national change of law, any governmental action, acts of public enemy, war, accidents, fires, explosions, earthquakes, floods, failure of transportation, national strikes, acute or unusual labor, material or equipment shortages, or any similar or dissimilar cause beyond the reasonable control of either Party. The Party so affected will do so on as such a cause or event occurs promptly notify the other Party in writing concerning the cause and its anticipated effect and take reasonable measures with proper dispatch to remedy the condition. In the event Customer declares a force majeure occurrence, QES will be compensated at the standard daily rate for the materials and personnel that are standing idle as a consequence of the force majeure occurrence until Customer terminates the work order or work resumes.

12. **Governing Law.** This Agreement will be governed by the laws of the State of Texas, without regard to its conflicts of law provisions. The Parties agree to submit to the exclusive jurisdiction of the federal or state courts located in Houston, Harris County, Texas with respect to any and all disputes that arise out of or in relation to in any way to the subject matter of this Agreement. This Section 12 will survive the termination or expiration of this Agreement.

13. **Independent Contractor.** QES will be an independent contractor with respect to the Services performed, and neither QES nor anyone employed by QES will be deemed for any purpose to be an employee, agent, servant, borrowed servant or representative of Customer.

14. **Severability.** In the event any provision of this Agreement is inconsistent with or contrary to any applicable law, rule or regulation, the provision will be deemed modified to the extent required to comply, and the remaining terms, as modified, will remain in full force and effect.

15. **Waiver.** A waiver on the part of either Party of any breach of any term, provision or condition of this Agreement will not constitute a precedent and not bind either Party to a waiver of any succeeding or other breach of the same or any other term, provision or condition of this Agreement.

16. **Entire Agreement.** This Agreement contains the entire agreement of the Parties with regard to the subject matter hereof and supersedes any prior oral and written agreements, contracts, representations or warranties between the Parties relating to the subject matter hereof. No amendment or modification of this Agreement will be effective unless it is in writing and signed by an authorized representative of each Party. If the Parties enter into a Master Service Agreement, then any term or condition herein which conflicts with the provisions of such Master Service Agreement will be deemed invalid.