ORIGINAL

SIDE ONE

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itle <u>President</u> Date <u>11-20-90</u> F Letter of Confidentiality Attached C Wireline Log Received	itle <u>President</u> Date	11-20-90	CWireline Log	Received
Subscribed and sworn to before me this 210th day of Overhou, C Drillers Timelog Received Distribution	subscribed and sworn to before me this 20th day of 000	ember.		
Notary Public Michelle E - Coldwell KGS SWD/Rep NGPA SKGS Plug Other			KCC KGS	NGPA
Oate Commission Expires Michael STATE OF KANSAS STATE OF KANSAS (Specify) STATE OF KANSAS	The state of the s	14KI-MIRLIO-		4000

Shan	prock Resou	rces Inc.	SIDE TUO Lease Na	ne Howard	Trust	We¦l#	1-6
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WELL COMPLETIONS WELL WORKOVERS EQUIPMENT DESIGN AND INSTALLATION

15-193-20490-0001 ORIGINA

PROPERTY EVALUATIONS PROPERTY MANAGEMENT SECONDARY RECOVERY

James R. Line

PHONES: Office: 913-483-4092 Home: 913-483-4780 Mobil: 913-483-5206

PETROLEUM AND NATURAL GAS CONSULTANT

29 OBER RUSSELL, KANSAS 67665

Shamrock Resources, Inc. Howard Trust # 1 Sec 26-9-23w Thomas County, Kansas

Information on the well as follows: 9-8-90

Howard Trust # 1 was drilled and plugged as a dry hole without running a long casing string. The well was reentered by Shamrock Resources, Inc. and cleaned out to 4,699'. 41" 10.5 #/ft st&c, limited service casing was set at 4,438'. A stage collar was at 2,645', insert float at 4,407', and wall scratchers used for rotating the casing during cementing. While rotating the casing with 15 barrels of cement in the casing, the slips turned loose allowing the casing to drop 2'. The casing was reset and the cementing finished with 110 sacks of EA-2 cement. Pump pressure declined from 500 psig to 150 psig after resuming cementing. Flushed cement with 81 barrels of water which was II barrels over casing capacity to the insert float. Lost circulation at the surface with 50 barrels of water displacement in the casing. Had 200 psig on the casing at end of the job and it would back flow. Shut-in casing. The casing was picked up in the elevators with 16,000-18,000 # weight and then reset. From this data, there is a good possibility that the casing is parted.

Rigged up Log-Tech with a portable mast and ran a collar locator to 1,388' and hit a bridge. Ran a gamma ray-collar log tool (3 1/8" diameter) to 1,987' and hit a soft bottom. Ran a gamma ray-collar log-bond-tool (31" diameter) to 1,987' and hit a soft bottom. Logged to surface and found an apparent separation in the $4\frac{1}{2}$ " casing at 1,388'-1,390', good bonded cement from 726'-1,190', and the fluid level in the casing at 418' from the surface. The rest of the casing was in good shape.

9-13-90 Drove to Hays to pick up a junk basket at Log-Tech. Talked with Halliburton Services about a tool to align the two parted pieces of casing and keep them aligned during cementing. Will have the tool fabricated at New Age in Norton, Kansas. Had Ceneral Roustabout truck load 89 joints (2,536') of 2 3/8" tubing at Midwestern Pipe Works and 71 joints at the Kingry # 1, and haul the tubing to the Howard Trust # 1.

Moved in and rigged up Cheyenne Well Service unit to the south of the well. Moved in swab tank and filled it with 100 barrels of salt water. Rigged up Log Tech and ran a Baker junk basket (3.80" O.D.) to 1,338'. Stuck junk basket, but worked it loose. Could not get deeper than 1,388'. Ran a casing gun (3.3/8" + 0.D.) and went through parted casing at 1,388'. Ran a Bolt cast iron bridge plug (3½" O.D.) on Log Tech line and set plug at 1,930'. Ran Halliburton EZ Drill retainer with a 12' aluminum alignment tool (3.80" 0.D.) on 2" tubing. Correlated depth setting with Log Tech 1 11/16" gamma ray tool. Set retainer at 1,382' and alignment

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tool from 1,383'-1,395'. Pressured casing above the retainer from surface to 1,382' to 300 psig. Pressure bled off slowly. Might have a collar leak. Pumped down tubing at 2 BPM at 200 psig. Had no blow from the casing annulus. Mixed 150 sacks of Halliburton Lite cement with \ # of Flocele per sack followed by 50 sacks of common cement, 3 % calcium chloride and 4/10% H-322. Displaced cement in stages for 1 1/3 hours with total of 5 barrels of flush water. Held 125 psig. Pulled out of retainer and laid down 3 joints of tubing. Circulated casing and tubing clean. Pulled tubing and setting tool.

Shut-down to allow cement to strengthen. Moved in Cheyenne swivel 9-18-90 and pump and filled tank with water.

Ran a 3 7/8" Walker tricone bit on 49 joints of 2" tubing. Tagged bottom at 1,381' by tubing measurement. Circulated 1' of soft cement to pit and drilled up Halliburton retainer in 4 hours to 1,383'. Drilled 13' of cement and alignment tool to 1,396' in 5 hours and ran bit to 1,576'. Circulated casing clean. Pulled bit to 1,548' and shut-in.

Pulled 3 7/8" bit and 55 joints of tubing to check bit. Bearings were loose. Ran a 3 7/8" Varel tricone bit on 2" tubing. Tagged bottom at 1,928' by tubing measurement. Circulated clean and drilled on bridge plug at 1,930' for 11 hours. Bridge plug fell free. Pushed bridge plug to 1,973' and had a tight spot in casing. Bit plugging using reverse circulation. Switched circulation down the tubing. Pushed plug to 1,987' and drilled for 2 hours. Not making any progress. Bit bouncing on bottom. Cetting a few pieces of metal in return circulation. Reciprocated tubing on bottom but bottom is solid. Pulled bit and left 2 cones in hole.

Ordered fishing tools from Homco in Plainville. Met Homco in Hays and loaded an impression block, magnet, flat bottom mill, and crossover subs. Ran 31" Magnet on sand line to 1,987'. Made 10 runs and picked up pieces of metal, mostly fine cuttings. Could not recover bit cones. Checked depth at 1,993' with a depthometer. Shut down. Drove to Plainville to discuss situation with Homeo and Leon's Cable Tool. No cable tool units were loose until later in the week. Decided to try to mill the cones up with a flat bottom mill on Monday.

Ran a 3 7/8" flat bottom mill on 2" tubing to 1,987'. Rigged 9-24-90 up Homco swivel and pump. Milled 4 hours and made 3' from 1,987'-1,990'. Recovered pieces of cast iron from the bridge plug, pieces of steel from the bit cones, and pieces of rubber. Circulating down the tubing. Mill fell free in the casing at 1,990'. Getting large chunks of rubber just before mill fell through. Ran to 2,003' and circulated casing clean. Ran mill to 4,406', and hit total depth. Insert float is at 4,407'. Pulled mill and tubing. Talked with Log Tech and Halliburton Services.

9-25-90 Rigged up Log Tech and ran gamma ray-collar log from 4,000'-4,409'. Correlated to the gamma ray on the open hole log. Perforated two 3/8" jet holes at 4,400'. Mud from behind the casing stuck the gun. Worked but could not free gun. Pulled perforating line free at the rope socket. STATE COMPORATION COMMISSION

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Called Homco for overshot to fish gun. Ran 3 1/8" overshot with a 3 7/8" skirt and a bumper sub to catch the collar locator on top of the gun. Could not get through casing part at 1,388'. Pulled overshot. Also could feel several casing joints which were probably over torqued. Reran 2" tubing with 1 7/16" overshot with a 3 3/4" skirt to catch the rope socket on top of the gun. Caught fish and pulled tubing wet. Had mud in tubing from 1,400' -bottom. Ran perforating gun and it started floating in heavy mud at 4,200'. Shot two 3/8" jet holes at 4,140'.

Ran 3 7/8" tricone bit on tubing to 4,406. Circulated down 9-26-90 tubing to clean out drilling mud. Waited 20 minutes and reverse circulated down casing. No mud in returns. Pulled tubing and bit. Ran Halliburton EV-SV retainer on 2" tubing and set at 4,385'. Pumped down tubing into perforations at 4,400' at 11 BPM at 1,000 psig. No circulation to the surface. Switched to casing and pumped at 1 BPM at 350 psig into perforations at 4,140' and had full circulation to surface. Switched back to tubing and pumped at 1½ BPM at 550 psig. Had good circulation to surface. Mixed 75 sacks of common cement with 1 % calcium chloride and 2/10 % Halad 322. Started losing circulation 5 minutes after the start of mixing cement and had sporadic circulation after that. Flushed cement into perforations at 4,400° at { BPM. Pressure increased to 850 psig and slowly declined to 400 psig. Pulled out of the retainer at 4,385° and reverse circulated casing clean of cement. Had I sack of cement in tubing but no sign of cement in the casing at 4,140'. Pulled tubing.

9-27-90 Rigged up Log Tech to check cement placement behind the casing. Found fluid level in the casing at 600' from the surface and the retainer at 4,384'. Ran a cement bond log from 3,620'-4,380'. Had fair cement bonding. Ran upper bond log from 1,150'-2,250' to check cement where the 4½" casing was parted at 1,388'-1,390'. Had excellent cement bond log from 1,258'-1,448' and scattered bonding down to 2,194'. Shut-down to allow cement to strengthen.

10-2-90 Checked bottom cement from 3,620'-4,380' and had no change in bond log. Fluid level at 900' from the surface. Log Tech perforated the 'L' zone of the Kansas City formation from 4,322'-4,330' with 3 jets per foot (23 gram charges). Ran 2" tubing with RTTS packer and PPI adapter to 4,330'. Circulated down tubing and spotted 300 gallons of 15 % MCA on perforations 4,322'-4,330'. Had no drilling mud in the casing. Pulled packer to 4,294' and set packer. Pressured acid to 700 psig in stages for 15 minutes and started into perforations. Treated as follows:

150 gal acid 150 gal acid 300 gal acid	700-400 psig 500-475 psig	‡ - ‡ BPM 1 BPM
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Instant shut-in pressure was 300 psig and pressure declined to 0 psig in 12 minutes. Total load to recover is 25 barrels. Ran tubing swab. Swabbed down and recovered 15.51 barrels of flush water. No show of oil. Tested as follows:

1 hour 1.06 barrels of water hoto it show, 2 swab runs

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Total recovery since acid treatment is 16.57 barrels. Dropped dart and RFC valve down tubing to actuate PPI tool. Retreated perforations 4,322'-4,330' with 1,000 gallons of 15 % non emulsion acid using 125 gallons per foot as follows:

Interval	Gallons	Break	Rate	Average	Shut-in
4,329-30' 4,328-29 4,327-28' 4,326-27' 4,325-26' 4,324-25' 4,323-24' 4,322-23'	125 " " " " " " 1,000 gal	1,700 psi 1,350 psi 1,200 psi 1,325 psi 1,350 psi 1,300 psi 1,350 psi 1,375 psi	1 BPM	1,300-1,000 psi 1,000-1,025 psi 875-1,000 psi 1,000 psi 1,080 psi 1,125 psi 1,175-1,150 psi 1,100 psi	600 psi 600 psi 550 psi 650 psi 600 psi 700 psi 650 psi 650 psi

Total load to recover is 42 barrels. Swabbed tubing down and recovered 15.86 barrels of load water. Tested as follows:

l hour 3.88 barrels water, no show oil 2 swab runs

Total recovery since acid treatment is 19.74 barrels.

10-3-90 Fluid level in the tubing at 2,800' from the surface. Swabbed tubing down and recovered 3.87 barrels of water with no show of oil. Total recovery is 23.62 barrels. Pulled tubing and packer. Crimped 3 joints of tbg. with the hydraulic tongs. Log Tech set a Bolt bridge plug at 4,315'. Fluid level in the casing at 1,300' from the surface. Perforated the 'J' zone of the Kansas City formation from 4,254'-4,260' with 3 jets per foot (23 gram charges). Reran 2" tubing with packer to 4,265'. Circulated down tubing and spotted acid on perforations 4,254'-4,260'. Set packer at 4,240' and treated perforations with 300 gallons of 15 % MCA acid as follows:

300 gal acid 0 psig 1 BPM

Had casing valve open during treatment and had no blow from it. Total load to recover is 25 barrels. Ran tubing swab and swab stopped at 1,115'. Pulled tubing and checked the inside diameter of it with a gauge ring. Found 16 joints more with crimps that would stop the swab. Replaced 19 bad tubing with spare tubing on location. Reran tubing and packer. Tagged bridge plug at 4,315' and picked up to 4,223' to set packer. Fluid level in casing at 2,350' from surface. Have 20 barrels of water out of casing annulus to recover now. Total load 45 barrels. Swabbed tubing for 1 hour as follows:

1 hour 27.49 bbls 2½ % oil fl at 2,950' down

10-4-90 Fluid level in the tubing at 2,650' from the surface. Made 1 swab run from seating nipple and recovered 5 28 barrels of water with 15 gallons of oil on top. Tested as follows FFATE COMPONATION COMMISSION.

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1 hour 17.63 harrels 18 % oil fl 3,100° down 1 hour 11.28 barrels 20 % oil fl 3,150° down

Total recovery since acid retreatment is 62 barrels. Still getting some mud out of formation. Gear box on Cheyenne Well Service pulling unit had bearing failure. Shut-down.

10-5-90 Cheyenne Well Service took gear box to Pampa, Texas for repair

10-6-90 Shut Down

 $\frac{10-7-90}{33\%}$ Found Fluid at 2,600' from surface, swab down-Rec. 5.28 BF 33% 0il.

 1st Hr.
 11.28 Barrels
 24% Oil
 3100' Down to fluid

 2nd Hr.
 15.51 Barrels
 30% Oil
 3200' Down to fluid

 3rd Hr.
 13.75 Barrels
 29% Oil
 3250' Donw to fluid

Ran mud anchor & tubing- Shut down

10-8-90 Shut down

10-9-90 Shut down

10-10-90 Shut down

10-11-90 Building tank battery & pumping unit pad

10-12-90 moving saltwater tank to lease

PRESENTACIÓN PARA PRATE PARE

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CONSERVATION DIVISION Wichita, Kansas

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LEASE HOWGAS TILLY TICKET NO 904230-31

A Division of Halliburton Company

WORK ORDER CONTRACT AND PRE-TREATMENT DAT

INVOICE & TICKET NO 904231

DISTRICT Oberly KS

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YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICEMEN TO DELIVER AND OPERATE

THE SAME AS AN INDEPENDENT CONTRACTOR TO:

AND DELIVER AND SELL PRODUCTS, SUPPLIES, AND MATERIALS FOR THE PURPOSE OF SERVICING

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CUSTOMER OR HIS AGENT WARRANTS THE WELL IS IN PROPER CONDITION TO RECEIVE THE PRODUCTS, SUPPLIES, MATERIALS, AND SERVICES

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THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED

As consideration, the above-named Customer agrees:

- (a) To pay Halliburton in accord with the rates and terms stated in Halliburton's current price lists;
- (b) Halliburton shall not be responsible for and Customer shall secure Halliburton against any liability for damage to property of Customer and of the well owner (if different from Customer), unless caused by the willful misconduct or gross negligence of Halliburton, this provision applying to but not limited to subsurface damage and surface damage arising from subsurface damage.
- (c) Customer shall be responsible for and secure Halliburton against any liability for reservoir loss or damage, or property damage resulting from subsurface pressure, losing control of the well and/or a well blowout, unless such loss or damage is caused by the willful misconduct or gross negligence of Halliburton.
- (d) Customer shall be responsible for and secure Halliburton against any and all liability of whatsoever nature for damages as a result of subsurface trespass, or an action in the nature thereof, arising from a service operation performed by Halliburton hereunder.
- (e) Customer shall be responsible for and secure Halliburton against any liability for injury to or death of persons, other than employees of Halliburton, or damage to property (including, but not limited to, injury to the well), or any damages whatsoever, irrespective of cause, growing out of or in any way connected with the use of radioactive material in the well hole, unless such damage shall be caused by the willful misconduct or gross negligence of Halliburton.
- (I) Halliburton makes no guarantee of the effectiveness of the products, supplies or materials, nor of the results of any treatment or service.
- (g) Customer shall, at its risk and expense, attempt to recover any Halliburton equipment, tools or instruments which are lost in the well and if such equipment, tools or instruments are not recovered, Customer shall pay Halliburton is replacement cost unless such loss is due to the sole negligence of Halliburton. If Halliburton equipment, tools or instruments are damaged in the well, Customer shall pay Halliburton the lesser of its replacement cost or the cost of repairs unless such damage is caused by the sole negligence of Halliburton. In the case of equipment, tools or instruments for marine operations, Customer shall, in addition to the foregoing, be fully responsible for loss of or damage to any of Halliburton's equipment, tools or instruments which occurs at any time after delivery to Customer at the landing until returned to the landing, unless such loss or damage is caused by the sole negligence of Halliburton.
- (h) Because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the accuracy of any chart interpretation, research analysis, job recommendation or other data furnished by Halliburton. Halliburton personnel will use their best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton shall not be responsible for any damages arising from the use of such information except where due to Halliburton's gross negligence or willful
- (i) Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTIABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale or use of any products, supplies or materials in expressly limited to the replacement of such special, incidental, indirect, punitive or consequental damages.
- (j) Invoices payable NET by the 20th of the following month after date of invoice. Upon Customer's default in payment of Customer's account by the last day of the month following the month in which the invoice is dated, Customer agrees to pay interest thereon after default at the highest lawful contract, rate applicable but never to exceed 18% per annum. In the event it becomes necessary to employ an attorney to enforce collection of said account, Customer agrees to pay all collection costs and attorney fees in the amount of 20% of the amount of the unpaid account.
- (k) This contract shall be governed by the law of the state where services are performed or equipment or materials are furnished.
- (I) Halliburton shall not be bound by any changes or modifications in this contract, except where such change or modification is made in writing by a duly authorized executive officer of Halliburton.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMERS AGENT:

ED CUSTOMER

* A - 27.12_

We certify that the Fair Labor Standards Act of 1938, as amended, has been complied with in the production of goods and/or with respect to services furnished under this contract.

_____A.M. P.

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WORK ORDER CONTRACT AND PRE-TREATMENT DA

ATTACH TO INVOICE & TICKET NO

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(d) Customer shall be responsible for and secure Halliburton against any and all liability of whatsoever nature for damages as a result of subsurface trespass, or an action in the nature thereof, arising	well blowout, unless such loss or damage is caused by the willful misconduct of	r gross negligence of Hallibur	ton.				

- (e) Customer shall be responsible for and secure Halliburton against any liability for injury to or death of persons, other than employees of Halliburton, or damage to property (including, but not limited injury to the well), or any damages whatsoever, irrespective of cause, growing out of or in any way connected with the use of radioactive material in the well hole, unless such damage shall be caused the willful misconduct or gross negligence of Halliburton.
- Halliburton makes no guarantee of the effectiveness of the products, supplies or materials, nor of the results of any treatment or service.
- Customer shall, at its risk and expense, attempt to recover any Halliburton equipment, tools or instruments which are lost in the well and if such equipment, tools or instruments are not recover Customer shall pay Halliburton its replacement cost unless such loss is due to the sole negligence of Halliburton. If Halliburton equipment, tools or instruments are damaged in the well, Customer shall p Halliburton the lesser of its replacement cost of the cost of repairs unless such damage is caused by the sole negligence of Halliburton. In the case of equipment, tools or instruments for marine operation Customer shall, in addition to the foregoing, be fully responsible for loss of or damage to any of Halliburton's equipment, tools or instruments which occurs at any time after delivery to Custome the landing until returned to the landing, unless such loss or damage is caused by the sole negligence of Halliburton.
- (h) Because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the accuracy of any chain terpretation, research analysis, job recommendation or other data furnished by Halliburton Halliburton personnel will use their best efforts in gathering such information and their best judgm in interpreting it, but Customer agrees that Halliburton shall not be responsible for any damages arising from the use of such information except where due to Halliburton's gross negligence of will misconduct in the preparation or furnishing of it.
- Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED MERCHANTIABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale or use of any products, supplies or materials in expressly limited to the replacement of states. products, supplies or materials on their return to Halliburton or, at Halliburton's option, to the allowance to the Customer of credit for the cost of such items. In no event shall Halliburton be liable special, incidental, indirect, punitive or consequental damages.
- Invoices payable NET by the 20th of the following month after date of invoice. Upon Customer's default in payment of Customer's account by the last day of the month following the month in which invoice is dated. Customer agrees to pay interest thereon after default at the highest lawful contract, rate applicable but never to exceed 18% per annum. In the event it becomes necessary to employ attorney to enforce collection of said account, Customer agrees to pay all collection costs and attorney fees in the amount of 20% of the amount of the unpaid account.
- (k) This contract shall be governed by the law of the state where services are performed or equipment or materials are furnished.
- in this contract, except where such change or modification is made in writing by a duly authorized executive officer of Halliburton.

AND REPRESENT I HAVE READ AND UNDERSTAND THIS CONTRACT CUSTOMER'S AGENT.

CUSTOMER NOV

We certify that the Fair Labor Standards Act of 1938, as amended, has been complied with

#1 LEASE HOWARD TRUST TICKET NO. 904237 Shamrock Resources 7850 Pers Com Stuck in hole-Palled wine 2120 Line of aun wait for t Fishing Tast I retured a Pen Gun out-Released for (COPI 9/26/90 On Loc- Rice Crew running That Bit 058C 2/2 Circulate The days to 4406 Circ 15/12 Hde Clez Shut Down 75-1/20 1010 21/2 St Circ - Show Will 1030 400 Short Down Hale Staying Clear Start out with Tog 1 10 to 1011 27-1120 1050 1220 Make up Setting Tool-Make dinim 1250 Set Fiso @4383' Hat up to Tou 145 St Form How - Any Blazing 1475 GOO 5.160 1450 MA Blow on Ann Shud Down 16/24/2 250 1500 Runp dan Ann. permission
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Howard Trust TICKET NO. 904239

SUMMARY BILLED ON 904239 HALLIBURTON WELL DATA nomes WEIGHT SIZE TO 472" CASING उष्ठप 10.2 LINER TUBING nck OPEN HOLE SHOTS/FT. PERFORATIONS ÷ --- , , , , PERFORATIONS PERFORATIONS TOTAL DEPTH JOB DATA TOOLS AND ACCESSORIES QTY. FLOAT COLLAR FLOAT SHOE PERSONNEL AND SERVICE UNITS GUIDE SHOE CENTRALIZERS ४५५८८ न BOTTOM PLUG 10013 TOP PLUG 2591 HEAD (HT-400 46 49 5 ichita, Kansus r DEPARTMENT JOB DONE THRU: TUBING CASING [ANHULUS | HALLIBURTO COPIES REQUESTED CEMENT DATA NUMBER STAGE BULK CEMENT BRAND MIXED LBS/GAL ADDITIVES YIELD : SACKED PRESSURES IN PSI SUMMARY. VOLUMES HYDRAULIC HORSEPOWER TOTAL VOLUME: 65 ORDERED AVAILABLE AVERAGE RATES IN BPM TREATING CEMENT LEFT IN PIPE FORM 2025-R2 NOV 28 1990

CUSTOMER

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