FORM MUST BE TYPED

SIDE ONE

STATE CORPORATION COMMISSION OF KANSAS
OIL & GAS CONSERVATION DIVISION
WELL COMPLETION FORM
ACO-1 WELL HISTORY
DESCRIPTION OF WELL AND LEASE

ORIGINAL

Operator: License # 32034

Name: HAL C. PORTER

Address 10004 West 20th Street North

City/State/Zip Wichita, Kansas 67212

Purchaser:

Operator Contact Person: Hal C. Porter

Phone (316) 773-3808

Contractor: Name: Discovery Drilling, Inc.

License: 31548

Wellsite Geologist: Randy Kilian

Designate Type of Completion
X New Well ____ Re-Entry ____ Workover

X Oil ____ SWD ____ SIOW ____ Temp. Abd.
____ Gas ____ ENHR ____ SIGW
____ Dry ____ Other (Core, WSW, Expl., Cathodic, etc)

If Workover/Re-Entry: old well info as follows:

Operator:

Well Name:

Comp. Date ____ Old Total Depth ____

____ Deepening ____ Re-perf. ____ Conv. to Inj/SWD
____ Plug Back ____ PBTD
____ Commingled Docket No. ____
____ Dual Completion Docket No. ____
____ Other (SWD or Inj?) Docket No. ____

1/10/98 Spud Date | 1/16/98 Date Reached TD | 1/17/98 Completion Date

API NO. 15- 051-24985 0000

County Ellis

__ - NW - NE - NE Sec. 36 Twp. 13s Rge. 20w X E/W

330 Feet from S (N) (circle one) Line of Section

990 Feet from (E) W (circle one) Line of Section

Footages Calculated from Nearest Outside Section Corner:
NE, (SE) NW or SW (circle one)

Lease Name Matt Engel Well # 36-1

Field Name Pleasant North

Producing Formation Arbuckle

Elevation: Ground 2194 KB 2202

Total Depth 3886 PBTD 3860

Amount of Surface Pipe Set and Cemented at 204.51 Feet

Multiple Stage Cementing Collar Used? X Yes ~~X~~ No

If yes, show depth set Port collar @ 1550' Feet

If Alternate II completion, cement circulated from 1550'
feet depth to surface w/ 175 sx sx cmt.

Drilling Fluid Management Plan A/t 2, 5-27-98 UC
(Data must be collected from the Reserve Pit)

Chloride content 10,500 ppm Fluid volume 1250 bbls

Dewatering method used Evaporation

Location of fluid disposal if hauled offsite:

Operator Name

Lease Name License No.

____ Quarter Sec. ____ Twp. ____ S Rng. ____ E/W

County ____ Docket No.

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 200 Colorado Derby Building, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information on side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

All requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature

Title Operator Date 5 Mar 98

Subscribed and sworn to before me this 5th day of March, 1998.

Notary Public Doris L. Smith

Date Commission Expires 8-30-2001

DORIS L. SMITH
NOTARY PUBLIC
STATE OF KANSAS
My Appt. Exp.

K.C.C. OFFICE USE ONLY
F ____ Letter of Confidentiality Attached
C ✓ Wireline Log Received
C ✓ Geologist Report Received

Distribution
____ KCC ____ SWD/Rep ____ NGPA
____ KGS ____ Plug ____ Other (Specify)

Form ACO-1 (7-91)

SIDE TWO

Operator Name HAL C. PORTER

Lease Name Mat[illegible]gel (ENGEL)

Well # 36-1

Sec. 36 Twp. 13s Rge. 20w ☐ East ☒ West

County Ellis

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all drill stem tests givir. interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface during test. Attach extra shee if more space is needed. Attach copy of log.

Drill Stem Tests Taken (Attach Additional Sheets.) ☒ Yes ☐ No

Samples Sent to Geological Survey ☐ Yes ☒ No

Cores Taken ☐ Yes ☒ No

Electric Log Run (Submit Copy.) ☒ Yes ☐ No

List All E.Logs Run:

Radiation Guard Log
Sonic Log
Gamma Ray - Correlation - Cement
~~Bond Log~~

☒ Log Formation (Top), Depth and Datums ☐ Sample

Name	Top	Datum
Anhydrite	1486	+ 719
Base ANH	1531	+ 682
Topeka	3188	- 986
Heebner Shale	3438	- 1236
Toronto	3460	- 1258
Lansing	3480	- 1278
Base KC	3722	- 1520
Marmaton	3764	- 1562
Arbuckle	3818	- 1623
~~TD~~	~~3886~~	~~- 1623~~

CASING RECORD ☐ New ☒ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs./Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface Pipe	12¼	8 5/8	24	204.51	60/40Poz	150	2%Gel &3%CC
Production St.	7 7/8	5½	14	3883	Mid-ConII	140	

ADDITIONAL CEMENTING/SQUEEZE RECORD

Purpose:	Depth Top	Depth Bottom	Type of Cement	#Sacks Used	Type and Percent Additives
___ Perforate					
~~xx~~ Protect Casing	550-surface		Midcon II	175	2%CC 1/4# Flocele/sk
___ Plug Back TD					Full Circulation of cement to Surface
___ Plug Off Zone					

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
4	ELI Wireline	No treatment	3919-20

TUBING RECORD	Size	Set At	Packer At	Liner Run
3750'	2-7/8"	3750'		☐ Yes ☒ No

Date of First, Resumed Production, SWD or Inj. 3 Feb 98

Producing Method ☐ Flowing ☒ Pumping ☐ Gas Lift ☐ Other (Explain)

Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Water	Bbls.	Gas-Oil Ratio	Gravity
	15		0		0		0	34

Disposition of Gas: ☐ Vented ☐ Sold ☐ Used on Lease (If vented, submit ACO-18.) No Gas

METHOD OF COMPLETION ☐ Open Hole ☒ Perf. ☐ Dually Comp. ☐ Commingled ☐ Other (Specify)

Production Interval Arbuckle

ORIGINAL

Discovery Drilling
P.O. Box 763 • Hays, KS 67601 • OFFICE (913) 623-2920 • CELLULAR (913) 635-1511

15-051-24985-0000

DRILLER'S LOG

Operator: **HAL C. PORTER**
10004 20th St. North
Wichita, KS 67212

Contractor: **DISCOVERY DRILLING, INC.**
P.O. Box 763
Hays, KS 67601

Lease: Matt Engel #36-1

Location: NW/NE/NE
Sec. 36/13S/20W
Ellis Co., KS

Loggers Total Depth: 3886'
Rotary Total Depth: 3886'
Commenced: 01/10/98
Casing: 8 5/8" @ 204.51' w/150sks
5 1/2" @ 3883' w/140sks

Elevation: 2194' Gr/2202'KB
Completed: 01/17/98
Status: Oil Well

DEPTHS & FORMATIONS

(All measurements from K.B.)

Surface, Sand & Shale	0'	Shales	1530'
Dakota Sand	304'	Shales & Lime	1724'
Shales	485'	Shales	1864'
Cedar Hill Sand	902'	Shales & Lime	2532'
Red Bed Shale	1173'	Lime & Shales	3236'
Anhydrite	1485'	RTD	3886'
Base Anhydrite	1530'		

STATE OF KANSAS)
) ss
COUNTY OF ELLIS)

Thomas H. Alm of Discovery Drilling, Inc. states that to the best of his knowledge the above and foregoing is a true and correct log of the above captioned well.

Thomas H. Alm

Subscribed and sworn to before me on 1-19-98.

My Commission Expires: 10-12-98

(Place stamp or seal below.)

Notary Public

REBECCA L. CLAYCAMP
NOTARY PUBLIC
STATE OF KANSAS
My Appt. Exp. 10-12-98

15-051-24985
-00-00

ORIGINAL

Hal C. Porter
Matt Engel No. 36-1
NWNENE Section 36-13S, 20W, Ellis County, KS
330' FNL, 990' FWL
Elevation: GL: 2194; KB: 2202

Daily Drilling Report

January 11, 1998

Moved rig on location. Spud 12-1/4" hole at 5:15PM, January 10. Drilled to 205'. Ran 6 jts used 8-5/8" 24# casing. Talley 194.51'. Set @ 204.51'. Cemented by Halliburton w/150 sx 40/60 pozmix; 2% gel; 3% cc. Full returns of cement to the surface. WOC. Drilled plug at 7:00AM, January 11. Deviation ½ degree at 205'.

January 12, 1998

Drilling @ 2179'. Native mud. Anhydrite 1484'-1530' (+719').

Janaury 13, 1998

Drilling @ 2901'. Native mud.

January 14, 1998

Drilling @ 3445'. Top Topeka 3184' (-981'). Top Heebner shale 3439' (-1236'). Running high to offset wells in the area.

January 15, 1998

DST #1: 3627-3675. Rec: 372' gas in pipe; 112' oil and gas cut mud' 62' slightly oil and gas cut water; Initial Flow Pressure 31-45; Final Flow Presssure 46-121; Initial Shut-In Pressure 292; Final Shut-In Pressure 304. This is the LKC "J" interval that recovered 300' free oil immediately north. Drilling @ 3703'.

January 16, 1998

Total Depth 3886'. Deviation 1 degree at 3886'. Top Arbuckle 3819 (-1617'). DST No. 2: 3791'-3826'. Recovered 248' gas in pipe; 1094' fluid as follows: 412' Clean, gassy oil; 186' slightly water and mud cut gassy oil (70% oil, 5% water); 186' water and mud cut gassy oil (35% oil, 20% water, 20% mud); 124' slightly oil cut gassy water (5% oil, 35% water, 40% mud); 186' water (95% water, 5% mud). IFP 29-212; ISIP 1163; FFP 224-438; FSIP 1163. Coming out of hole to log.

ORIGINAL

15-051-24985-00-00

January 17, 1998

Ran ELI Radiation - Guard Log TD to 3100' and Sonic Log TD to surface. Ran 95 jst used 14# 5-1/2" casing - talley 3876'. Set at 3883' KB. Cemented by Halliburton w/140 sx Mid-Con II with additives. Cement rathole and mousehole. Set port collar at 1550'. Used centralizers and scratchers thru ARB and LKC J and in Anhydrite and Cedar Hills - Datoka water zones. Plug down at 11:45 PM, 16 Jan. Release rig at 12:15AM, 17 Jan.

D:\A-AAA\WPDOCS\3-D\CKU-LSG\EASY\ENGEL.NO1\ENGEL.RPT

HALLIBURTON

HALLIBURTON ENERGY SERVICES

TICKET CONTINUATION

TICKET No 197075

Truck# (s)	52419	CUSTOMER	Imperial American	WELL	Matt Engel 36	4:51 PM	1/10/98	PAGE	2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
504-136					40/60 Pozmix Standard	150	sk			$8.71	$1,306
506-121					Halliburton Gel @2%	2	sk				N
509-406					Calcium Chloride	4	sk			$46.90	$187
500-207					SERVICE CHARGE	CUBIC FEET		153		1.66	$262
500-306					MILEAGE CHARGE	TOTAL WEIGHT 12,625	LOADED MILES 10	TON MILES 63.125		1.25	$125

CONTINUATION TOTAL $ 1,881

ORIGINAL

IS-057 24985-0000

No. B 660236

HALLIBURTON 15-051-24985-00-00

JOB LOG 1239-5

TICKET #	TICKET DATE
19 2275	1-10-98

REGION	NWA / COUNTRY	BDA / STATE	COUNTY
North America	Midcontinent	KS	Ellis

MBU ID / EMP #	EMPLOYEE NAME	PSL DEPARTMENT
HAYS 502 41489	Greg Palmberg	5001

LOCATION	COMPANY	CUSTOMER REP / PHONE
HAYS 25525	Hal C. Porter	Tom Allen

TICKET AMOUNT	WELL TYPE	API / UWI #
3679	01	API 15-051-24985-0000

WELL LOCATION	DEPARTMENT	JOB PURPOSE CODE
SW HAYS KS	5001	010

LEASE / WELL #	SEC / TWP / RNG
Matt Engel 36-1	36-13S-20W Pleasant North

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS
G Palmberg 41489		S Engel J0482					
M Karlin G1511							

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS T	PUMPS C	PRESS. (psi) Tbg	PRESS. (psi) Csg	JOB DESCRIPTION / REMARKS
	2090							Called out
	2130							On location Rig drlg @ TD
								Discuss Job
								Set up Equipment
								Casing on Bottom
								Rig up to circulate
								Circulate
								Rig up to pump truck
	2255							Start mixing cement
								150 sks 40/60 pozmix "A" 2% Gel 3% CC
		5	34					Cement mixed
								Release plug
	2305							Start displacement
	2310		12				200	Plug down
								Close in @ well head
								Wash up
								Rack up
								Job Completed

ORIGINAL

CMT DID CIRC

Thank you

Hal Mel & Scott

HALLIBURTON

HALLIBURTON ENERGY SERVICES

HAL-1906-P

CHARGE TO: Hal C. Porter

ADDRESS

CITY, STATE, ZIP CODE

CUSTOMER COPY

TICKET No. 197075 -

PAGE 1 OF 2

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY/OFFSHORE LOCATION	DATE	OWNER
1. Hays 25525	36-1	Matt Engel	Ellis	KS	Hays KS		Same

	TICKET TYPE	NITROGEN JOB?	CONTRACTOR	RIG NAME/NO.	SHIPPED VIA	DELIVERED TO	ORDER NO
2.	☑ SERVICE ☐ SALES	☐ YES ☐ NO	Discovery Drlg	1	CT	Wellsite	
3.							

	WELL TYPE	WELL CATEGORY	JOB PURPOSE	WELL PERMIT NO	WELL LOCATION
4.	01	01	010	API 15-051-24985.0000	SW Hays KS

REFERRAL LOCATION

INVOICE INSTRUCTIONS

Pleasant North 36-13S-20W

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
100-117		1			MILEAGE	20	mi			3 65	73 0
001-016		1			Pump Service	205	Ft			1630 00	1630 0
030-503		1			Top Plug	1	EA	8 5/8	in	95 00	95 0

15-051-24985.00.00

ORIGINAL

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X Thomas AL

DATE SIGNED | TIME SIGNED ☐ A.M. ☐ P.M.

I ☐ do ☐ do not require IPC (Instrument Protection). ☐ Not offered

SUB SURFACE SAFETY VALVE WAS: ☐ PULLED & RETURN ☐ PULLED ☐ RUN

TYPE LOCK	DEPTH
BEAN SIZE	SPACERS
TYPE OF EQUALIZING SUB.	CASING PRESSURE
TUBING SIZE / TUBING PRESSURE	WELL DEPTH
TREE CONNECTION	TYPE VALVE

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	1798 0
FROM CONTINUATION PAGE(S)	1881 3
SUB-TOTAL APPLICABLE TAXES WILL BE ADDED ON INVOICE	3679 3

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowleges receipt of the materials and services listed on this ticket.

CUSTOMER OR CUSTOMER'S AGENT (PLEASE PRINT)	CUSTOMER OR CUSTOMER'S AGENT (SIGNATURE)	HALLIBURTON OPERATOR/ENGINEER	EMP #	HALLIBURTON APPROVAL
Thomas Alm	X Thomas AL	G. Palmberg	41489	

CUSTOMER COPY

INVOICE

HALLIBURTON®

HALLIBURTON ENERGY SERVICES, INC.

REMIT TO:
P. O. BOX 951046
DALLAS, TX 75395-1046
Corporate FIN 73-0271280

INVOICE NO.	DATE
196522	01/17/1998

WELL LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	OWNER
MATT ENGEL 36-1	ELLIS	KS	SAME

SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE
HAYS	DISCOVERY DRILLING	SHOWN BELOW	01/17/1998

ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
104443	MIKE STANTON			COMPANY TRUCK	36071

ORIGINAL

IMPERIAL AMERICAN OIL CORP.
10004 WEST 20TH STREET NORTH
WICHITA, KS 67212

DIRECT CORRESPONDENCE TO:
1102 E. 8TH
HAYS, KS 67601
913-625-3431

15-051-24985-00-00

REFERENCE NO.	DESCRIPTION	QUANTITY	UM	UNIT PRICE	AMOUNT	
PRICING AREA - MID CONTINENT						
JOB PURPOSE - CEMENT PRODUCTION CASING						
000-117	MILEAGE CEMENTING ROUND TRIP	20	MI	3.65	73.00	
		1	UNT			
001-016	CEMENTING CASING	3886	FT	1,938.00	1,938.00	
		1	UNT			
018-317	SUPER FLUSH	80	SK	14.00	1,120.00	
018-303	CLAYFIX II, PER GAL	2	GAL	30.50	61.00	
27	FILL-UP UNIT 5 1/2"-6 5/8"	1	EA	87.00	87.00	
815 19313						
120	GUIDE SHOE - 5 1/2" 8RD THD	1	EA	133.00	133.00	*
825.205						
24A	INSERT FLOAT VALVE - 5 1/2"8RD	1	EA	133.00	133.00	*
815 19251						
40	CENTRALIZER-5-1/2 X 7-7/8	11	EA	70.00	770.00	*
806 60023						
320	BASKET-CMT-5 1/2 CSG X 17"OD-	1	EA	122.00	122.00	*
806.71430						
56	WIPER-REC, PROCATING WALL CLEAN	10	EA	22.00	220.00	
805.71230						
030-016	CEMENTING PLUG SW ALUM TOP	5.5	IN	66.00	66.00	*
		1	EA			
24	PORT COLLAR	1	EA	1,450.00	1,450.00	*
813.0151						
504-130	CEMENT - 50/50 POZMIX STANDARD	25	SK	8.23	205.75	*
504-280	PREMIUM-2 STANDARD CEMENT	120	SK	14.17	1,700.40	*
509-406	ANHYDROUS CALCIUM CHLORIDE	2	SK	46.90	93.80	*
507-775	HALAD-322	34	LB	7.70	261.80	*
507-210	FLOCELE	15	LB	2.09	31.35	*
509-771	GILSONITE BULK	600	LB	.58	348.00	*
500-207	BULK SERVICE CHARGE	168	CFT	1.66	278.88	*
500-306	MILEAGE CMTG MAT DEL OR RETURN	22.375	TMI	1.25	125.00NN	*

***** CONTINUED ON NEXT PAGE *****

TERMS: If Customer does not have an approved open account with Halliburton, all sums due are payable in cash at the time of performance of services or delivery of equipment, products or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, Customer

CUSTOMER COPY

INVOICE

HALLIBURTON®

HALLIBURTON ENERGY SERVICES, INC.

REMIT TO:
P O BOX 951046
DALLAS, TX 75395-1046
Corporate FIN 73-0271280

INVOICE NO.	DATE
196522	01/17/1998

WELL LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	OWNER
MATT ENGEL 36-1	ELLIS	KS	SAME

SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE
HAYS	DISCOVERY DRILLING	SHOWN BELOW	01/17/1998

ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
004443	MIKE STANTON			COMPANY TRUCK	36071

ORIGINAL

IMPERIAL AMERICAN OIL CORP.
10004 WEST 20TH STREET NORTH
WICHITA, KS 67212

DIRECT CORRESPONDENCE TO:
1102 E. 8TH
HAYS KS 67601
913-625-3431

15-051-24985-00-00

REFERENCE NO.	DESCRIPTION	QUANTITY	UM	UNIT PRICE	AMOUNT
	JOB PURPOSE SUBTOTAL				9,220.98
	INVOICE SUBTOTAL				9,220.98
	DISCOUNT-(BID)				2,719.83-
	INVOICE BID AMOUNT				6,501.15
	*-KANSAS STATE SALES TAX				216.89
	*-HAYS CITY SALES TAX				44.25

INVOICE TOTAL - PLEASE PAY THIS AMOUNT $6,762.29

TERMS: If Customer does not have an approved open account with Halliburton, all sums due are payable in cash at the time of performance of services or delivery of equipment, products or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable [illegible] to exceed 18% per annum. In the event [illegible]

M HAL-1900-H

HALLIBURTON

JOB LOG 4239-5 15-051-24985-00-00

TICKET #	TICKET DATE
196522	1-16-98

REGION	NWA/COUNTRY	BDA / STATE	COUNTY
North America	mid Cont.	Ks	Ellis

MBU ID / EMP #	EMPLOYEE NAME	PSL DEPARTMENT
HA0102 86101	Allen F. Werth	5001
LOCATION	**COMPANY**	**CUSTOMER REP / PHONE**
25525 Hays Ks	Imperial American	Mike Stanton
TICKET AMOUNT	**WELL TYPE**	**API / UWI #**
9418.98	01	API 15-051-2498 50000
WELL LOCATION	**DEPARTMENT**	**JOB PURPOSE CODE**
S.W. Hays Ks	5001	035
LEASE / WELL #	**SEC / TWP / RNG**	
Matt Engel 36-1	36-13S-20W	

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS
Allen F Werth 86101							
Ron Barons 57220							
Eldon Reynolds 47538							

ORIGINAL

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS T	PUMPS C	PRESS. (psi) Tbg	PRESS. (psi) Csg	JOB DESCRIPTION / REMARKS
	1500							Called out
1	1900							On location w/ RCM + BLK cmt
								25 sks 50/50 Poz to Plug RH + MH
								120 sks mid Con II - 2% CC, 1/4 Flocele, 3/10 H-322
								5# G.I.
								10 sks super Flush
								2 gal Cla-Fix II for 20 BBls Pro Flush.
								Discuss safety, set up + Plan Job.
								Rig pulling Drill Pipe
								Float Equip. - Guide Shoe + IFAF - Shoe Jt
								22.82
								Cent - 1-3-5-7-9-11-13-15-58-60-78
								Recipo scratchers - on Bottom 6 ea
								every 15' apart. For Bottom zone
								4 Recipo For zone @ 3656-70
								Basket - 58th
	1945							Port collar 59th @ 1550 - out of Hole w/ D.P
	2020							Start 5 1/2 csg. 14# Pipe
	2215							On Bottom w/ Pipe 3886
	2227				✓			cir w/ mud Hog + Recipo - Pipe
	2230	5	20		✓			Start Pump 20 BBls Cla-fix II water
		5	10					Start Pump 10 BBls Super Flush
			5.6					mix 25 sks 50-50 poz - Plug RH + MH
		5			✓			mix 120 sks mid con II w/ 2% CC
								1/8# Flocele, 3/10% H-322 5# Gilsonite
	2324		36					Fin mix - wash out Pump + Line
	2330	8			✓			Start Disp. csg cap. 94 BBls
								PSI starts to climb w/ 60 BBls Disp
								Pumped - Stop Recipo w/ 10 BBls Left.
	2343		94		✓		1300	Plug Lands 1300 PSI
							0	Release PSI Float Holds
								Wash up Equip.
								Rack up Equip.
	0015							Job complete

Thanks
Allen Ron
Eldon.

HALLIBURTON

15-051-24985-00-00

JOB SUMMARY 4239-1

TICKET #	TICKET DATE
196522	1-16-98 196522

REGION	NWA/COUNTRY	BDA / STATE	COUNTY
North America	Mid Cont	Ks	Ellis

MBU ID / EMP #	EMPLOYEE NAME	PSL DEPARTMENT
HA0102 86101	Allen E Worth	5001

LOCATION	COMPANY	CUSTOMER REP / PHONE
2525 Hays Ks	Imperial American	Mike Stanton

TICKET AMOUNT	WELL TYPE	API / UWI #
9418.98	01	15-051-24985-0000

WELL LOCATION	DEPARTMENT	JOB PURPOSE CODE
S.W. Hays Ks	5001	035

LEASE / WELL #	SEC / TWP / RNG
Matt Engel 36-1	36-13S-20W

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS
Allen E Worth 86101							
Ron Begeman 57220							
Eldon Reynolds 47578							

HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES
420624 P.U.	25						
51374 RCM	25						
38604 BLK.	25						

ORIGINAL

Form Name _____ Type: _____
Form Thickness _____ From _____ To _____
Packer Type _____ Set At _____
Bottom Hole Temp. _____ Pressure _____
Misc. Data _____ Total Depth 3886

	CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE	1-16-98	1-16-98	1-16-98	1-17-98
TIME	1500	1900	2000	0000

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY	MAKE
Float Collar		
~~Float Shoe~~ IFAF	1	Halliburton
Guide Shoe Reg 5 1/2	1	Halliburton
Centralizers S-4 5 1/2	11	Halliburton
Bottom Plug		
Top Plug S-wiper 5 1/2	1	Halliburton
Head 5 1/2	1	Halliburton
~~Packer~~ Scratchers 5 1/2	1	Halliburton
Other Basket 5 1/2	1	Halliburton

WELL DATA

	NEW/USED	WEIGHT	SIZE	FROM	TO	MAX ALLOW
Casing	U	14	5 1/2	KB	3885	
Liner						
Liner						
Tbg/D.P.						
Tbg/D.P.						
Open Hole			7 7/8	3885	3886	SHOTS/FT.
Perforations						
Perforations						
Perforations						

MATERIALS

Treat Fluid _____ Density _____ Lb/Gal
Disp. Fluid _____ Density _____ Lb/Gal
Prop. Type _____ Size _____ Lb. _____
Prop. Type _____ Size _____ Lb. _____
Acid Type _____ Gal. _____ % _____
Acid Type _____ Gal. _____ % _____
Surfactant _____ Gal. _____ In _____
NE Agent _____ Gal. _____ In _____
Fluid Loss _____ Gal/Lb _____ In _____
Gelling Agent _____ Gal/Lb _____ In _____
Fric. Red. _____ Gal/Lb _____ In _____
Breaker _____ Gal/Lb _____ In _____
Blocking Agent _____ Gal/Lb _____
Perfpac Balls _____ Qty. _____
Other _____
Other Cla-Fix II - 29gal - 20 BBl Pre Flush
Other _____
Other 10 sks Super Flush

HOURS ON LOCATION

DATE	HOURS
1-16-98	5
TOTAL	

OPERATING HOURS

DATE	HOURS
1-16-98	2
TOTAL	

DESCRIPTION OF JOB

cmt 5 1/2 L.S.
Port collar @ 1550

HYDRAULIC HORSEPOWER
ORDERED _____ Avail. _____ Used _____

AVERAGE RATES IN BPM
TREATED _____ Disp. _____ Overall _____

CEMENT LEFT IN PIPE
FEET 22.82 Reason Shoe Joint

CEMENT DATA

STAGE	SACKS	CEMENT	BULK/SKS	ADDITIVES	YIELD	LBS/GAL
	25	50/50 poz	Bulk	Plug Rat Hole + Mouse Hole	1.26	14.5
	120	mid con II	Bulk	2% CC 1/8# Flocele, 3/10 H-322, 5# Gilsonite	1.67	13.8

Circulating _____ Displacement _____
Breakdown _____ Maximum _____
Average _____ Frac Gradient _____
Shut In: Instant _____ 5 Min _____ 15 Min _____

Preflush: Gal - BBl _____ Type Clafix #
Load & Bkdn: Gal - BBl _____ Pad: BBl Gal 20
Treatment Gal - BBl _____ Disp: BBl Gal 94
Cement Slurr Gal - BBl 41
Total Volume Gal - BBl _____

Frac Ring #1	Frac Ring #2	Frac Ring #3	Frac Ring #4

THE INFORMATION STATED HEREIN IS CORRECT CUSTOMER'S REPRESENTATIVE SIGNATURE

HALLIBURTON

HALLIBURTON ENERGY SERVICES

TICKET CONTINUATION

TICKET No. [illegible]

ck# (s)	3990		CUSTOMER	Imperial American	WELL	34-1	4 03 PM 1/16/98	PAGE

PRICE EFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY	U/M	QTY	U/M	UNIT PRICE	AMOUNT
04-130				35	50/50 Pozmix Standard	25	sk			$8.23	$205.75
04-280					Mid Con II	120	sk			$14.17	$1,700.40
09-406					Calcium Chloride	2	sk			$46.90	$93.80
07-775					HALAD-322	34	lb.			$7.70	$261.80
07-210					Flocele	15	lb.			$2.09	$31.35
08-291					Gilsonite	600	lb.			$0.58	$348.00
				35							
00-207					SERVICE CHARGE	CUBIC FEET		168		1.66	$278 88
					MILEAGE CHARGE / TOTAL WEIGHT / LOADED MILES	TON MILES					
00-306					14,475 / 10	72.375				1.25	$125 00

ORIGINAL

15-051-24985-00-00

CONTINUATION TOTAL $ 3,041 98

Jo. B 660242

15-051-24985-00-00

HALLIBURTON

HALLIBURTON ENERGY SERVICES

HAL-1906-P

CHARGE TO: Imperial American

ADDRESS: 10004 W. 20th St

CITY, STATE, ZIP CODE: Wichita Ks 67212

ORIGINAL - DUNCAN COPY **TICKET**

No. 196522-7

PAGE 1 OF 2

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY OFFSHORE LOCATION	DATE	OWNER
1. 25525 Hays Ks	36-1	Matt Engel	Ellis	Ks		1-17-98	Same
2.	TICKET TYPE: ☑ SERVICE ☐ SALES	NITROGEN JOB? ☐ YES ☑ NO	CONTRACTOR: Discovery Drlg	RIG NAME NO: Discovery Drlg	SHIPPED VIA: ct	DELIVERED TO: wellsite	ORDER NO
3.	WELL TYPE: 01	WELL CATEGORY: 01	JOB PURPOSE: 035			WELL PERMIT NO: ACE-15-051-24985-00-00	WELL LOCATION: 36-13S-20W
4.							
REFERRAL LOCATION	INVOICE INSTRUCTIONS: 5½ L.S.						

Customer Recieved MSDS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
000-117		1		35	MILEAGE #1374 RCM Rt "ORIGINAL"	20	mi	1	unit	3 65	73 00
001-016		1			Pump Service	3886	ft			1938 00	1938 00
018-317		1			Super Flush	10	sk			112 00	1120 00
018-303		1			C.I.A-Fix II	2	gal			30 50	61 00
27	815.19313	1			Fillup Assembly "H"	1	ea			87 00	87 00
12A	325.205	1			Reg Guide Shoe "H"	1	ea	5½	in	133 00	133 00
24A	815.19625I	1			Insert Float Value "H"	1	ea	5½	in	133 00	133 00
40	806.60022	1			5-4 cent "H"	11	ea	5½	in	70 00	770 00
320	806.71430	1			Cement Basket "H"	1	ea	5½	in	122 00	122 00
56	806.71230	1			Recipo Cable Scratchers "H"	10	ea	5½		22 30	223 00
030-016		1			5-wiper Top Plug	1	ea	5½		66 00	66 00
73	813.0151	1		0	Port collar "Tech-Line"	1	ea	5½		1450 00	1450 00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X Mike Stanton

DATE SIGNED: 1-16-98 TIME SIGNED: 1930 ☐ A.M. ☑ P.M.

☐ do ☐ do not require IPC (Instrument Protection) ☐ Not offered

SUB SURFACE SAFETY VALVE WAS ☐ PULLED & RETURN ☐ PULLED ☐ RUN

TYPE LOCK	DEPTH
BEAN SIZE	SPACERS
TYPE OF EQUALIZING SUB.	CASING PRESSURE
TUBING SIZE / TUBING PRESSURE / WELL DEPTH	
TREE CONNECTION	TYPE VALVE

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☑ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	6176 00
FROM CONTINUATION PAGE(S)	3044 90
SUB-TOTAL APPLICABLE TAXES WILL BE ADDED ON INVOICE	9220 90

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowleges receipt of the materials and services listed on this ticket.

CUSTOMER OR CUSTOMER'S AGENT (PLEASE PRINT)	CUSTOMER OR CUSTOMER'S AGENT (SIGNATURE)	HALLIBURTON OPERATOR/ENGINEER	EMP #	HALLIBURTON APPROVAL
Mike Stanton	X Mike Stanton	Allen F. Ward	86101	

CUSTOMER COPY

INVOICE

HALLIBURTON

HALLIBURTON ENERGY SERVICES, INC.

REMIT TO:

P. O. BOX 951046
DALLAS

Corporate FIN 73-0271280

INVOICE NO.	DATE
19660	02/20/1998

WELL LEASE NO./PROJECT	WELL/PROJECT LOCATION	STATE	OWNER

SERVICE LOCATION	CONTRACTOR	JOB PURPOSE	TICKET DATE
MATT	IS	SAME	

ACCT. NO.	CUSTOMER AGENT	VENDOR NO.	CUSTOMER P.O. NUMBER	SHIPPED VIA	FILE NO.
H	URFIN	BILL	SHOWN	02/20	

004443 MIKE STANTON COMPANY TRUCK 32617

ORIGINAL

DIRECT CORRESPONDENCE TO:

IMPERIAL AMERICAN OIL CORP.
10004 WEST 20TH STREET NORTH
WICHITA, KS 67212

1107 E. 6TH
HAYS KS 67601
913-625-3431

15-051-24985-00-00

REFERENCE NO.	DESCRIPTION	QUANTITY	UM	UNIT PRICE	AMOUNT
	PRICING AREA - MID CONTINENT				
	JOB PURPOSE - TOP OUTSIDE PRODUCTION CASING				
000-117	MILEAGE CEMENTING ROUND TRIP	20	MI	3.65	73.00
		1	UNT		
009-019	PLUGGING BK, SPOT CEMENT OR MUD	1550	FT	1,875.00	1,875.00
		1	UNT		
504-280	MIDCON-2 STANDARD CEMENT	175	SK	14.17	2,479.75
509-406	ANHYDROUS CALCIUM CHLORIDE	3	SK	46.90	140.70
507-210	FLOCELE	44	LB	2.09	91.96
510-222	SACKED SAND 20/40 & SMALLER	1	SK	10.00	10.00
500-207	BULK SERVICE CHARGE	194	CFT	1.66	322.04
500-306	MILEAGE CMTG MAT DEL OR RETURN	87.460	TMI	1.25	125.00
	JOB PURPOSE SUBTOTAL				5,117.45
	INVOICE SUBTOTAL				5,117.45
	DISCOUNT-(BID)				1,893.43-
	INVOICE BID AMOUNT				3,224.02
	*-KANSAS STATE SALES TAX				157.65
	*-HAYS CITY SALES TAX				32.18

INVOICE TOTAL - PLEASE PAY THIS AMOUNT 3,413.86

Paid 3/13/98 #1116

TERMS: If Customer does not have an approved open account with Halliburton, all sums due are payable in cash at the time of performance of services or delivery of equipment, products or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable but never

HALLIBURTON

HALLIBURTON ENERGY SERVICES

HAL-1906-P

CHARGE TO: Imperial American Oil Corp

ADDRESS: 100004 W. 20th St. North

CITY, STATE, ZIP CODE: Wichita, Ks 67212

ORIGINAL - DUNCAN COPY

TICKET No. 196609 - 6

PAGE 1 OF 2

SERVICE LOCATIONS	WELL/PROJECT NO	LEASE	COUNTY/PARISH	STATE	CITY/OFFSHORE LOCATION	DATE	OWNER
1. HAYS 25525	36-1	Matt Engle	Ellis	KS	Ellis KS	2-20-98	SAME

TICKET TYPE	NITROGEN	CONTRACTOR	RIG NAME/NO	SHIPPED VIA	DELIVERED TO	ORDER NO
☑ SERVICE ☐ SALES	JOB? ☐ YES ☑ NO	Murfin Drlg		CT	wellsite	

WELL TYPE	WELL CATEGORY	JOB PURPOSE	WELL PERMIT NO	WELL LOCATION
01	02	030	APL 15-051-24985-0000	SE Ellis KS 36-13S-20W

REFERRAL LOCATION

INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
000-117		1		37	MILEAGE	20	Mi			3.65	73.00
009-019		1		38	Pump Service	1560	Ft			1875.00	1875.00

15-051-24985-0000

ORIGINAL

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X Mik Stanton

DATE SIGNED | TIME SIGNED ☐ A.M. ☐ P.M.

I ☐ do ☐ do not require IPC (Instrument Protection). ☐ Not offered

SUB SURFACE SAFETY VALVE WAS ☐ PULLED & RETURN ☐ PULLED ☐ RUN

TYPE LOCK	DEPTH
BEAN SIZE	SPACERS
TYPE OF EQUALIZING SUB	CASING PRESSURE
TUBING SIZE / TUBING PRESSURE / WELL DEPTH	
TREE CONNECTION	TYPE VALVE

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	1948.00
FROM CONTINUATION PAGE(S)	3169.4
SUB-TOTAL APPLICABLE TAXES WILL BE ADDED ON INVOICE	5117.4

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowleges receipt of the materials and services listed on this ticket.

CUSTOMER OR CUSTOMER'S AGENT (PLEASE PRINT): Mik Stanton

CUSTOMER OR CUSTOMER'S AGENT (SIGNATURE): X Mik Stanton

HALLIBURTON OPERATOR/ENGINEER: Gail Palmberg EMP # 41489

HALLIBURTON APPROVAL

HALLIBURTON

HALLIBURTON ENERGY SERVICES

TICKET CONTINUATION

TICKET No. 176607

JOB# (s)	52418	CUSTOMER	Imperial American	WELL	Matt Engle #36-1	7:37 AM 2/20/98	PAGE 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
504-280				57	Mid Con II	175	sk			$14.17	$2,479.75
509-406					Calcium Chloride	3	sk			$46.90	$140.70
507-210					Flocele	44	lb.			$2.09	$91.96
510-222					Sand	1	sk			$10.00	$10.00
500-207					SERVICE CHARGE	CUBIC FEET		194		1.66	$322.04
					MILEAGE CHARGE / TOTAL WEIGHT / LOADED MILES	TON MILES					
500-306					17,492 / 10	87.460				1.25	$125.00

CONTINUATION TOTAL $ 3,169.45

No. B 660265

15-051-24985-00-00

ORIGINAL

JOB SUMMARY 4239-1

196609 | 2-20-4

REGION: North America	NWA/COUNTRY: mid continent	BDA / STATE: Ks	COUNTY: Ellis
MBU ID / EMP #: HA0502 41489	EMPLOYEE NAME: Gail Palmberg	PSL DEPARTMENT: 5001	
LOCATION: Hays 25525	COMPANY: Imperial American Oil Corp	CUSTOMER REP / PHONE: Mike Stanton	
TICKET AMOUNT: 5117	WELL TYPE: 01	API / UWI #: API 15-051-24985 0000	
WELL LOCATION: SE Ellis Ks	DEPARTMENT: 5001	JOB PURPOSE CODE: 030	
LEASE / WELL #: MATT ENGEL 36-1	SEC / TWP / RNG: 36-13S-20W	15-051-24985-00-00	

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS
G Palmberg 41489		D Ash H1609					
M Karlin G1511							

HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES
41326	27						
53557	27						
52418	27						

Form Name _____ Type: _____
Form Thickness _____ From _____ To _____
Packer Type _____ Set At _____
Bottom Hole Temp. _____ Pressure _____
Misc. Data BHP 1726 Total Depth 3886

	CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE	2-20	2-20	2-20	2-20
TIME	0800	0935	0945	1300

TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY	MAKE
Float Collar		
Float Shoe		
Guide Shoe		
Centralizers		
Bottom Plug		
Top Plug		
Head		
Packer		
Other		

WELL DATA

	NEW/USED	WEIGHT	SIZE	FROM	TO	MAX ALLOW
Casing	U	14	5 1/2	0	3885	
Liner						
Liner						
Tbg/D.P.	U	6.7	2 1/8	0	1650	
Tbg/D.P.						
Open Hole						SHOTS/FT.
Perforations						
Perforations						
Perforations						

MATERIALS

Treat Fluid _____ Density _____ Lb/Gal
Disp. Fluid _____ Density _____ Lb/Gal
Prop. Type _____ Size _____ Lb. _____
Prop. Type _____ Size _____ Lb. _____
Acid Type _____ Gal. _____ % _____
Acid Type _____ Gal. _____ % _____
Surfactant _____ Gal. _____ In _____
NE Agent _____ Gal. _____ In _____
Fluid Loss _____ Gal/Lb _____ In _____
Gelling Agent _____ Gal/Lb _____ In _____
Fric. Red. _____ Gal/Lb _____ In _____
Breaker _____ Gal/Lb _____ In _____
Blocking Agent _____ Gal/Lb _____
Perfpac Balls _____ Qty. _____
Other _____
Other _____
Other _____
Other _____

HOURS ON LOCATION DATE	HOURS
2-20	3.5
TOTAL	

OPERATING HOURS DATE	HOURS
2-20	2
TOTAL	

DESCRIPTION OF JOB

CEMENT PORT COLLAR
CEMENT DID CIRCULATE

HYDRAULIC HORSEPOWER
ORDERED _____ Avail. _____ Used _____
AVERAGE RATES IN BPM
TREATED _____ Disp. _____ Overall _____
CEMENT LEFT IN PIPE
FEET _____ Reason _____

CEMENT DATA

STAGE	SACKS	CEMENT	BULK/SKS	ADDITIVES	YIELD	LBS/GAL
	150	Midcon II	B	2% CC 1/4# Flocele 1sk	3.11	11.2
	25	Midcon II	B	2% CC 1/4# Flocele 1sk	1.74	13.5

Circulating _____ Displacement _____
Breakdown _____ Maximum _____
Average _____ Frac Gradient _____
Shut In: Instant _____ 5 Min _____ 15 Min _____

Preflush: Gal - BBI _____ Type _____
Load & Bkdn: Gal - BBI _____ Pad: BBI - Gal _____
Treatment Gal - BBI _____ Disp: BBI - Gal 9
Cement Slurr Gal - BBI 91
Total Volume Gal - BBI 100

Frac Ring #1	Frac Ring #2	Frac Ring #3	Frac Ring #4

THE INFORMATION STATED HEREIN IS CORRECT | CUSTOMER'S REPRESENTATIVE SIGNATURE

HALLIBURTON

JOB LOG 4239-5

REGION: North America	NWA/COUNTRY: Midcontinent	TICKET #: 196609	TICKET DATE: 2-20
MBU ID / EMP #: HAO502 41489	EMPLOYEE NAME: Gail Palmberg	BDA / STATE: Ks	COUNTY: Ellis
LOCATION: HAYS 25525	COMPANY: Imperial American Oil Corp	PSL DEPARTMENT: 5001	
TICKET AMOUNT: 5117	WELL TYPE: 01	CUSTOMER REP / PHONE: Mike Stanton	
WELL LOCATION: SE Ellis Ks	DEPARTMENT: 5001	API / UWI #: API 15-051-24985 0000	
LEASE / WELL #: Matt Engel 36-1	SEC / TWP / RNG: 36-13S-20W	JOB PURPOSE CODE: 030	

15-051-24985-00-00

HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)	HRS	HES EMP NAME/EMP#/(EXPOSURE HOURS)
G Palmberg 41489		D Ash E1609				
M Kaclin G1511						

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS T	PUMPS C	PRESS. (psi) Tbg	PRESS. (psi) Csg	JOB DESCRIPTION / REMARKS
	0800							Called out
	0935							On Location
								Discuss Job BPO 1726' Retriever @ 1691
	1015	2 1/2	38					Load Hole
	1030						1000	Hole loaded
			8					Pressure Test BP's Csg HELD
								Spot 1 sks Sand
								Locate Port Collar
	1115	2 1/2						Open Port Collar
	1120	4						Injection Rate
								Start mixing Cement
								150 sks Midcon II 2% CC 1/4# Flocele @ 11.2 #/gal
	1148	2	91					25 sks Midcon II 2% CC 1/4# Flocele @ 13.5 #/gal
	1148						400	Cement mixed
	1149						200	Start displacement
	1152		9				450	Cement displaced
								Close port Collar
	1158						1000	Pressure Test Collar Closed
	1200	3					400	Reverse cement, sand and Fresh water out of
	1220							Hole clear
								Wash up
								Rack up
	1300							Job completed.

Thank you

Gail Mel & Dave

CEMENT DID CIRCULATE

Gail Palmberg

Roger L. Moss State Ks.

15-051-24985
-00-00

ORIGINAL

Hal C. Porter
Matt Engel No. 36-1
NWNENE Section 36-13S, 20W, Ellis County, KS
330' FNL, 990' FWL
Elevation: GL: 2194; KB: 2202

Daily Drilling Report

January 11, 1998

Moved rig on location. Spud 12-1/4" hole at 5:15PM, January 10. Drilled to 205'. Ran 6 jts used 8-5/8" 24# casing. Talley 194.51'. Set @ 204.51'. Cemented by Halliburton w/150 sx 40/60 pozmix; 2% gel; 3% cc. Full returns of cement to the surface. WOC. Drilled plug at 7:00AM, January 11. Deviation ½ degree at 205'.

January 12, 1998

Drilling @ 2179'. Native mud. Anhydrite 1484'-1530' (+719').

Janaury 13, 1998

Drilling @ 2901'. Native mud.

January 14, 1998

Drilling @ 3445'. Top Topeka 3184' (-981'). Top Heebner shale 3439' (-1236'). Running high to offset wells in the area.

January 15, 1998

DST #1: 3627-3675. Rec: 372' gas in pipe; 112' oil and gas cut mud' 62' slightly oil and gas cut water; Initial Flow Pressure 31-45; Final Flow Presssure 46-121; Initial Shut-In Pressure 292; Final Shut-In Pressure 304. This is the LKC "J" interval that recovered 300' free oil immediately north. Drilling @ 3703'.

January 16, 1998

Total Depth 3886'. Deviation 1 degree at 3886'. Top Arbuckle 3819 (-1617'). DST No. 2: 3791'-3826'. Recovered 248' gas in pipe; 1094' fluid as follows: 412' Clean, gassy oil; 186' slightly water and mud cut gassy oil (70% oil, 5% water); 186' water and mud cut gassy oil (35% oil, 20% water, 20% mud); 124' slightly oil cut gassy water (5% oil, 35% water, 40% mud); 186' water (95% water, 5% mud). IFP 29-212; ISIP 1163; FFP 224-438; FSIP 1163. Coming out of hole to log.

ORIGINAL

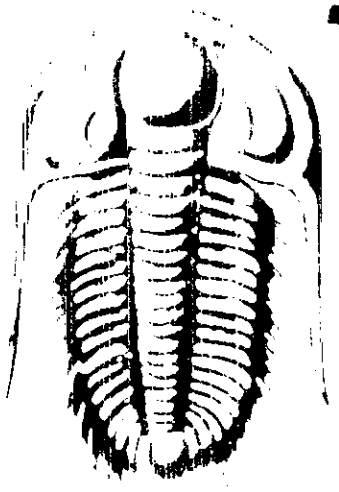
15-051-24985-0000

January 17, 1998

Ran ELI Radiation - Guard Log TD to 3100' and Sonic Log TD to surface. Ran 95 jst used 14# 5-1/2" casing - talley 3876'. Set at 3883' KB. Cemented by Halliburton w/140 sx Mid-Con II with additives. Cement rathole and mousehole. Set port collar at 1550'. Used centralizers and scratchers thru ARB and LKC J and in Anhydrite and Cedar Hills - Datoka water zones. Plug down at 11:45 PM, 16 Jan. Release rig at 12:15AM, 17 Jan.

D:\A-AAA\WPDOCS\3-D\CKU-LSG\EASY\ENGEL.NO1\ENGEL.RPT

[redacted]



TRILOBITE TESTING, L.L.C.

TEST REPORT

(Includes As-[illegible])

ORIGINAL

WELL NAME:	Matt Engle #36-1
COMPANY:	Hal C Porter
LOCATION:	36-13S-20W
	Ellis County, Kansas
DATE:	1/16/98

15-051-24985-0000

TRILOBITE TESTING L.L.C. 15-051-24985-00-00

OPERATOR : Hal C Porter DATE 1-14-98
WELL NAME: Matt Engel #36-1 KB 2203.00 ft TICKET NO: 10428 DST #1
LOCATION : 36-13S-20W Ellis Co Ks GR 2195.00 ft FORMATION: I-J LKC
INTERVAL : 3627.00 To 3675.00 ft TD 3675.00 ft TEST TYPE: CONV

RECORDER DATA

Mins		Field	1	2	3	4
PF 30	Rec.	13754	13754	2341		
SI 30	Range(Psi)	4000.0	4000.0	4995.0	0.0	0.0
SF 45	Clock(hrs)	12 Hr	12 Hr	Elect		
FS 60	Depth(ft)	3672.0	3672.0	3639.0	0.0	0.0

TIME DATA----------
PF Fr. 2320 to 2350 hr
IS Fr. 2350 to 0020 hr
SF Fr. 0020 to 0105 hr
FS Fr. 0105 to 0205 hr

	Field	1	2	3	4
A. Init Hydro	1836.0	1818.0	1771.0	0.0	0.0
B. First Flow	49.0	46.0	31.0	0.0	0.0
B1. Final Flow	59.0	53.0	45.0	0.0	0.0
C. In Shut-in	275.0	283.0	292.0	0.0	0.0
D. Init Flow	68.0	69.0	49.0	0.0	0.0
E. Final Flow	88.0	89.0	77.0	0.0	0.0
F. Fl Shut-in	295.0	306.0	304.0	0.0	0.0
G. Final Hydro	1766.0	1738.0	1754.0	0.0	0.0
Inside/Outside	O	O	I		

T STARTED 2125 hr
T ON BOTM 2317 hr
T OPEN 2320 hr
T PULLED 0205 hr
T OUT 0400 hr

RECOVERY
Tot Fluid 174.00 ft of 30.00 ft in DC and 144.00 ft in DP
50.00 ft of Oil & gas cut mud 30%g 20%o 50%m
62.00 ft of Oil & gas cut mud 40%g 15%o 45%m
62.00 ft of Slightly oil cut muddy water 5%o 50%w 45%m
0.00 ft of
372.00 ft of Gas in pipe
0.00 ft of
0.00 ft of
0.00 ft of
SALINITY 0.00 P.P.M. A.P.I. Gravity 0.00

TOOL DATA----------

Tool Wt.	1000.00 lbs
Wt Set On Packer	30000.00 lbs
Wt Pulled Loose	50000.00 lbs
Initial Str Wt	39000.00 lbs
Unseated Str Wt	40000.00 lbs
Bot Choke	0.75 in
Hole Size	7.88 in
D Col. ID	2.25 in
D. Pipe ID	3.80 in
D.C. Length	30.00 ft
D.P. Length	3591.00 ft

BLOW DESCRIPTION

Initial blow - Weak building to 12"
fair blow

Final blow - Weak building to bottom
of bucket in 25 min

MUD DATA----------

Mud Type	Chemical
Weight	9.30 lb/cf
Vis.	45.00 S/L
W.L.	9.80 in3
F.C.	0.00 in
Mud Drop N	
Amt. of fill	0.00 ft
Btm. H. Temp.	108.00 F
Hole Condition	Good
% Porosity	0.00
Packer Size	6.75 in
No. of Packers	2
Cushion Amt.	0.00
Cushion Type	
Reversed Out N	
Tool Chased N	
Tester	Dan Bangle
Co. Rep.	Randy Kilian
Contr.	Discovery
Rig #	1
Unit #	
Pump T.	

SAMPLES:
SENT TO:

Test Successful: Y

*** TOOL DIAGRAM *** CONV

WELL NAME: Matt Engel #36-1

LOCATION : 36-13-20 Ellis Co Ks

TICKET No. 10428 D.S.T. No. 1 DATE 1-14-98

TOTAL TOOL TO BOTTOM OF TOP PACKERS 20

INTERVAL TOOL .....

BOTTOM PACKERS AND ANCHOR 19

TOTAL TOOL 39

DRILL COLLAR ANCHOR IN INTERVAL .....

D.C. ANCHOR STND.Stands Single Total

D.P. ANCHOR STND.Stands Single 1 Total 29

TOTAL ASSEMBLY 68

D.C. ABOVE TOOLS.Stands Single 1 Total 30

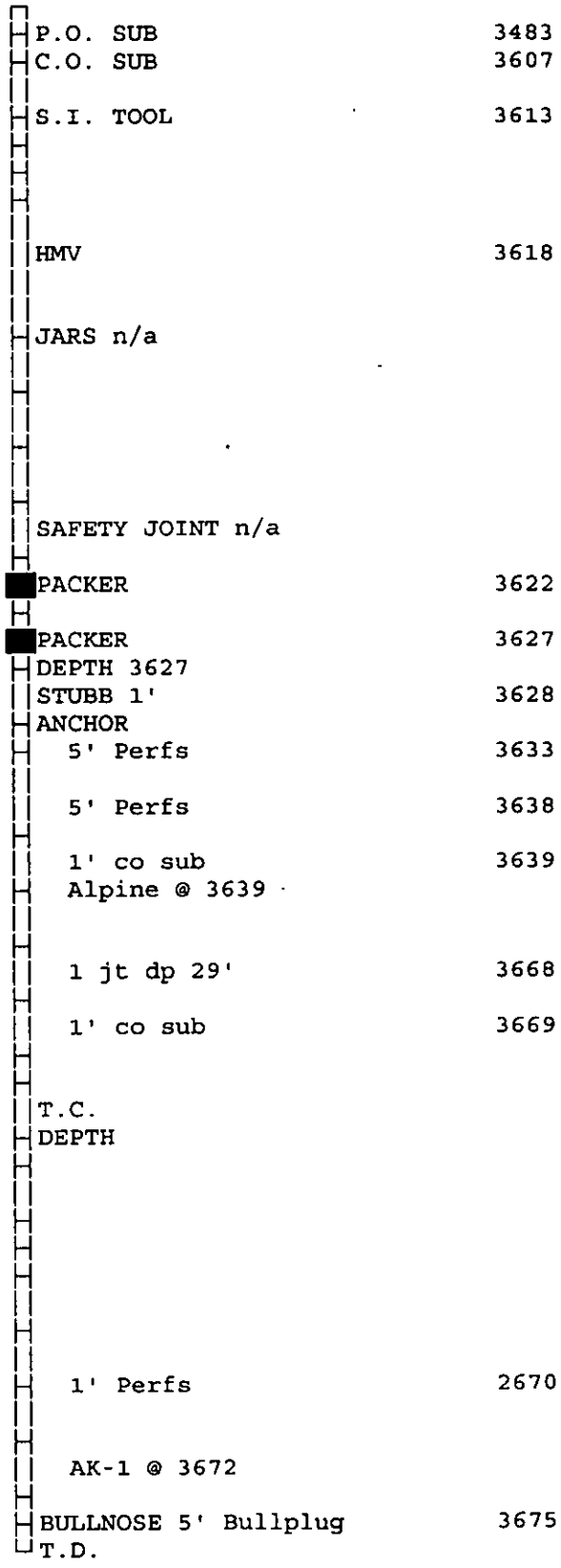
D.P. ABOVE TOOLS.Stands59 Single 1 Total 3591

TOTAL DRILL COLLARS DRILL PIPE & TOOLS .. 3689

TOTAL DEPTH 3675

TOTAL DRILL PIPE ABOVE K.B. 14

REMARKS:



TEST HISTORY

Tk #10428 DST #1 Matt Engel #36-1 Hal Porter

15-051-24985-00-00

Flag Points

	t(Min.)	P(PSIg)
A:	0.00	1770.73
B:	0.00	31.43
C:	22.00	44.84
D:	28.00	292.28
E:	0.00	49.17
F:	44.00	77.43
G:	60.00	303.94
Q:	0.00	1753.56

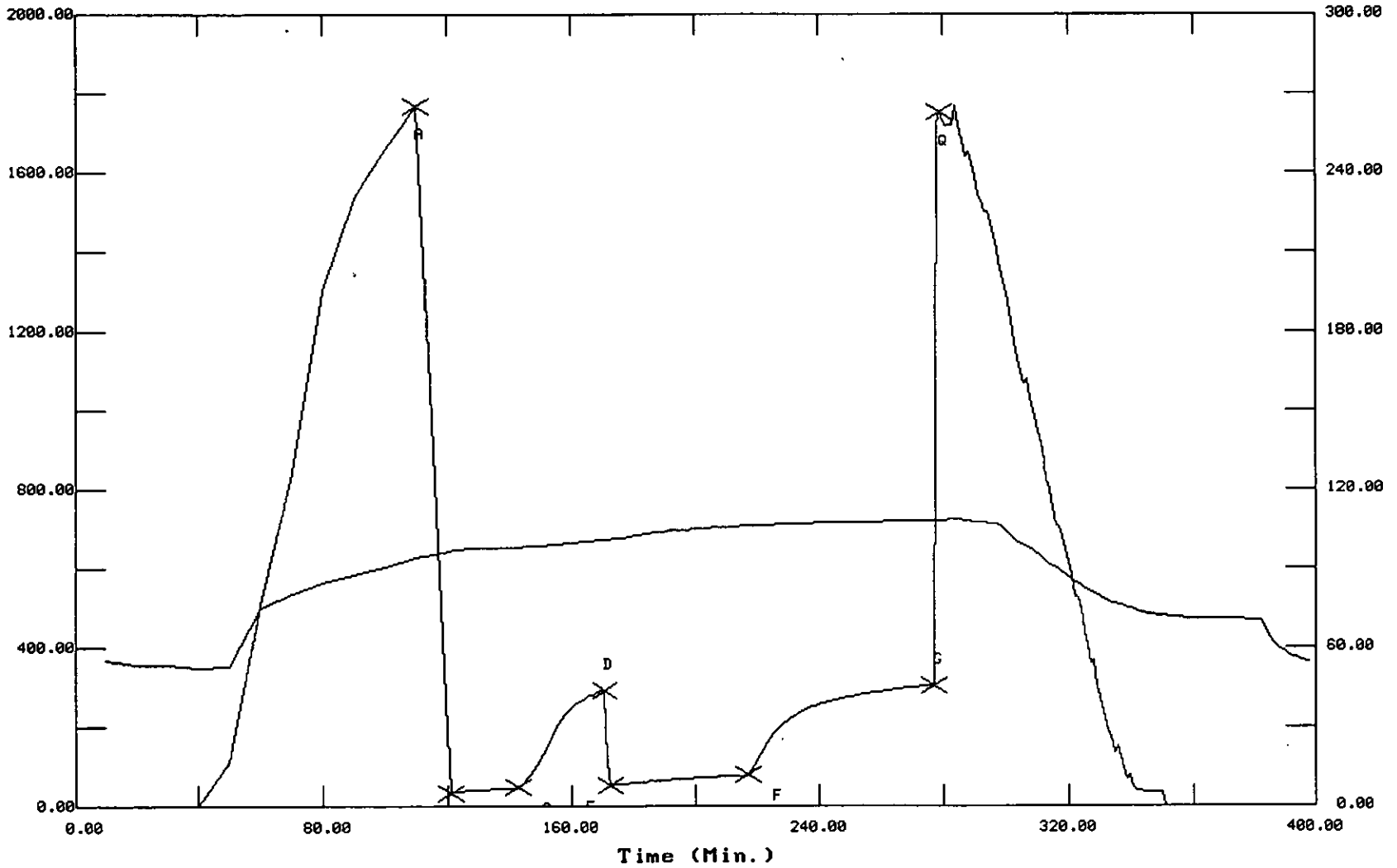
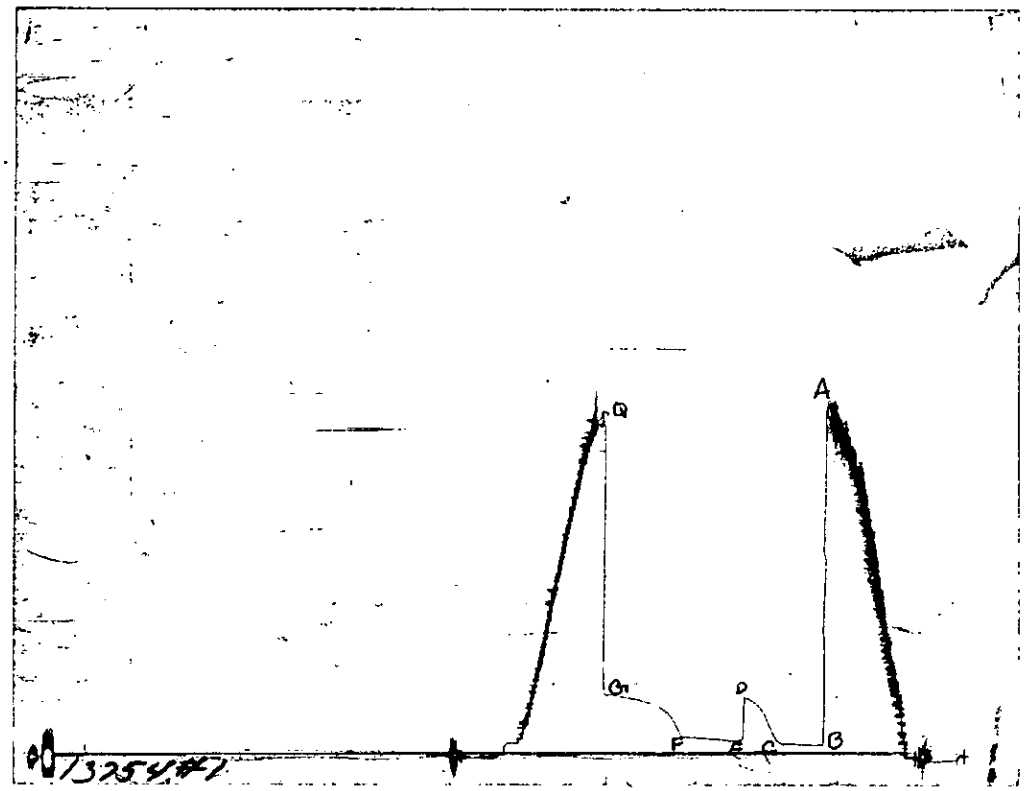


CHART PAGE



This is a photocopy of the actual AK-1 recorder chart

15-051-24985-00-00

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING
TEST: Tk #10428 DST #1 Matt Engel #36-1 Hal Porter
DATE: 01/14/98 TIME: 21:26:08

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
****** Initial Hydro.	110.00	1770.7	0.0	94.04		
****** Start Flow 1	0.00	31.4	0.0	96.44		
	1.00	35.2	3.7	96.81		
	2.00	35.3	3.9	97.07		
	3.00	36.0	4.5	97.24		
	4.00	36.4	4.9	97.34		
	5.00	36.9	5.4	97.42		
	6.00	37.5	6.1	97.45		
	7.00	38.1	6.7	97.47		
	8.00	38.6	7.2	97.49		
	9.00	38.9	7.5	97.51		
	10.00	39.4	8.0	97.52		
	11.00	40.0	8.5	97.53		
	12.00	40.4	8.9	97.52		
	13.00	40.9	9.5	97.53		
	14.00	41.5	10.0	97.54		
	15.00	41.7	10.3	97.56		
	16.00	42.2	10.8	97.59		
	17.00	42.6	11.2	97.61		
	18.00	42.9	11.5	97.65		
	19.00	43.4	12.0	97.69		
	20.00	43.8	12.4	97.74		
	21.00	44.2	12.8	97.80		
****** End Flow 1	22.00	44.8	13.4	97.86		
****** Start Shutin 1	0.00	44.8	0.0	97.86	0.0000	0.002
	1.00	51.2	6.4	97.93	23.0000	0.003
	2.00	60.0	15.2	98.00	12.0000	0.004
	3.00	69.6	24.8	98.06	8.3333	0.005
	4.00	80.1	35.2	98.12	6.5000	0.006
	5.00	91.4	46.6	98.18	5.4000	0.008
	6.00	103.9	59.0	98.26	4.6667	0.011
	7.00	117.5	72.6	98.35	4.1429	0.014
	8.00	132.0	87.1	98.45	3.7500	0.017
	9.00	147.3	102.5	98.56	3.4444	0.022
	10.00	163.0	118.2	98.67	3.2000	0.027
	11.00	178.6	133.7	98.79	3.0000	0.032
	12.00	193.2	148.4	98.91	2.8333	0.037
	13.00	206.8	162.0	99.02	2.6923	0.043
	14.00	218.8	174.0	99.14	2.5714	0.048
	15.00	229.2	184.4	99.27	2.4667	0.053
	16.00	238.3	193.5	99.39	2.3750	0.057
	17.00	246.0	201.2	99.51	2.2941	0.061
	18.00	252.8	208.0	99.63	2.2222	0.064
	19.00	258.8	213.9	99.75	2.1579	0.067
	20.00	263.9	219.0	99.88	2.1000	0.070
	21.00	268.7	223.9	99.99	2.0476	0.072
	22.00	273.0	228.2	100.11	2.0000	0.075
	23.00	276.9	232.1	100.22	1.9565	0.077
	24.00	280.5	235.7	100.34	1.9167	0.079
	25.00	283.8	239.0	100.45	1.8800	0.081
	26.00	286.8	241.9	100.56	1.8462	0.082

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: Tk #10428 DST #1 Matt Engel #36-1 Hal Porter

DATE: 01/14/98 TIME: 21:26:08

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
	27.00	289.6	244.8	100.68	1.8148	0.084
****** End Shut-in 1	28.00	292.3	247.4	100.78	1.7857	0.085
****** Start Flow 2	0.00	49.2	0.0	100.96		
	1.00	50.3	1.1	101.02		
	2.00	53.0	3.9	101.07		
	3.00	53.7	4.5	101.20		
	4.00	54.8	5.6	101.31		
	5.00	55.1	6.0	101.39		
	6.00	56.0	6.8	101.62		
	7.00	56.6	7.5	101.93		
	8.00	57.3	8.1	102.23		
	9.00	57.7	8.5	102.50		
	10.00	58.5	9.3	102.74		
	11.00	59.3	10.1	102.94		
	12.00	59.9	10.7	103.12		
	13.00	60.6	11.4	103.28		
	14.00	61.3	12.1	103.42		
	15.00	61.9	12.7	103.55		
	16.00	62.6	13.4	103.68		
	17.00	63.1	14.0	103.79		
	18.00	63.6	14.4	103.90		
	19.00	64.5	15.3	104.00		
	20.00	64.8	15.6	104.11		
	21.00	65.7	16.5	104.19		
	22.00	66.3	17.1	104.29		
	23.00	66.7	17.6	104.37		
	24.00	67.2	18.1	104.46		
	25.00	67.8	18.6	104.54		
	26.00	68.2	19.0	104.63		
	27.00	68.8	19.6	104.71		
	28.00	69.4	20.2	104.80		
	29.00	69.7	20.5	104.89		
	30.00	70.2	21.1	104.98		
	31.00	70.6	21.5	105.06		
	32.00	71.2	22.0	105.16		
	33.00	71.5	22.4	105.25		
	34.00	72.1	23.0	105.33		
	35.00	72.5	23.4	105.41		
	36.00	73.2	24.0	105.48		
	37.00	73.4	24.2	105.54		
	38.00	73.8	24.6	105.60		
	39.00	74.2	25.1	105.67		
	40.00	74.7	25.5	105.74		
	41.00	75.1	25.9	105.79		
	42.00	75.6	26.4	105.84		
	43.00	76.0	26.8	105.90		
****** End Flow 2	44.00	77.4	28.3	105.96		
****** Start Shutin 2	0.00	77.4	0.0	105.96	0.0000	0.006
	1.00	90.9	13.5	106.01	67.0000	0.008
	2.00	104.2	26.8	106.07	34.0000	0.011
	3.00	117.8	40.4	106.12	23.0000	0.014

15-051-24985-00-00

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: Tk #10428 DST #1 Matt Engel #36-1 Hal Porter

DATE: 01/14/98 TIME: 21:26:08

Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
4.00	131.6	54.1	106.18	17.5000	0.017
5.00	145.0	67.6	106.24	14.2000	0.021
6.00	157.9	80.5	106.29	12.0000	0.025
7.00	169.8	92.4	106.34	10.4286	0.029
8.00	180.7	103.3	106.39	9.2500	0.033
9.00	190.4	113.0	106.45	8.3333	0.036
10.00	198.8	121.4	106.49	7.6000	0.040
11.00	206.1	128.7	106.54	7.0000	0.042
12.00	212.7	135.2	106.59	6.5000	0.045
13.00	218.5	141.1	106.63	6.0769	0.048
14.00	223.6	146.1	106.69	5.7143	0.050
15.00	228.2	150.7	106.73	5.4000	0.052
16.00	232.4	154.9	106.78	5.1250	0.054
17.00	236.3	158.8	106.82	4.8824	0.056
18.00	239.8	162.4	106.85	4.6667	0.058
19.00	243.1	165.7	106.90	4.4737	0.059
20.00	246.3	168.9	106.94	4.3000	0.061
21.00	249.2	171.8	106.98	4.1429	0.062
22.00	252.0	174.6	107.02	4.0000	0.064
23.00	254.7	177.3	107.05	3.8696	0.065
24.00	257.1	179.6	107.09	3.7500	0.066
25.00	259.4	182.0	107.12	3.6400	0.067
26.00	261.7	184.3	107.15	3.5385	0.068
27.00	263.9	186.4	107.18	3.4444	0.070
28.00	265.9	188.5	107.21	3.3571	0.071
29.00	267.8	190.4	107.24	3.2759	0.072
30.00	269.6	192.2	107.28	3.2000	0.073
31.00	271.5	194.0	107.30	3.1290	0.074
32.00	273.3	195.8	107.33	3.0625	0.075
33.00	274.8	197.4	107.36	3.0000	0.076
34.00	276.4	199.0	107.37	2.9412	0.076
35.00	278.0	200.6	107.41	2.8857	0.077
36.00	279.6	202.2	107.44	2.8333	0.078
37.00	281.1	203.6	107.47	2.7838	0.079
38.00	282.4	205.0	107.48	2.7368	0.080
39.00	283.7	206.3	107.51	2.6923	0.081
40.00	285.1	207.7	107.52	2.6500	0.081
41.00	286.2	208.8	107.56	2.6098	0.082
42.00	287.6	210.1	107.58	2.5714	0.083
43.00	288.7	211.3	107.60	2.5349	0.083
44.00	289.7	212.3	107.62	2.5000	0.084
45.00	290.9	213.5	107.64	2.4667	0.085
46.00	292.0	214.6	107.66	2.4348	0.085
47.00	292.9	215.5	107.68	2.4043	0.086
48.00	294.0	216.6	107.70	2.3750	0.086
49.00	294.9	217.5	107.72	2.3469	0.087
50.00	295.9	218.5	107.74	2.3200	0.088
51.00	296.8	219.4	107.76	2.2941	0.088
52.00	297.6	220.2	107.78	2.2692	0.089
53.00	298.6	221.1	107.80	2.2453	0.089
54.00	299.3	221.9	107.81	2.2222	0.090

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: Tk #10428 DST #1 Matt Engel #36-1 Hal Porter

DATE: 01/14/98 TIME: 21:26:08

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
	55.00	300.1	222.7	107.84	2.2000	0.090
	56.00	300.9	223.5	107.86	2.1786	0.091
	57.00	301.7	224.3	107.87	2.1579	0.091
	58.00	302.4	225.0	107.89	2.1379	0.091
	59.00	303.1	225.7	107.91	2.1186	0.092
****** End Shut-in 2	60.00	303.9	226.5	107.92	2.1000	0.092
****** Final Hydro.	279.00	1753.6	0.0	108.07		

15-051-24985-00-00

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

№ 10428

Well Name & No. Matt Engel #36-1 Test No. 1 Date 1-14-98

Company Hal C. Porter Zone Tested I-J LKC

Address 10004 W 20th ST. N. Wichita, Ks. 67212 Elevation 2203 KB 2195 GL

Co. Rep / Geo. Randy Kilian Cont. Discovery #1 Est. Ft. of Pay ____ Por. ____ %

Location: Sec. 36 Twp. 13 Rge. 20 Co. Ellis State Ks

No. of Copies ____ Distribution Sheet (Y, N) ____ Turnkey (Y, N) ____ Evaluation (Y, N) ____

Interval Tested 3627 - 3675 Initial Str Wt./Lbs. 39,000 Unseated Str Wt./Lbs. 40,000

Anchor Length 48 Wt. Set Lbs. 30,000 Wt. Pulled Loose/Lbs. 50,000

Top Packer Depth 3622 Tool Weight 1000

Bottom Packer Depth 3627 Hole Size — 7 7/8" ____ Rubber Size — 6 3/4" ____

Total Depth 3675 Wt. Pipe Run ____ Drill Collar Run 30

Mud Wt. 9.3 LCM Y# Vis. 45 WL 9.8 Drill Pipe Size 4.5 XH Ft. Run 3591

Blow Description I.F. Weak- building to 12" fair blow

F.F. Weak- building to B.O.B in 25 min.

Recovery — Total Feet 174 GIP 372 Ft. in DC 30 Ft. in DP 144

Rec. 50	Feet Of O+G C M	30 %gas	20 %oil	%water	50 %mud
Rec. 62	Feet Of O+G C M	40 %gas	15 %oil	%water	45 %mud
Rec. 62	Feet Of SLTY OC Mdy WTR	%gas	5 %oil	50 %water	45 %mud
Rec. ____	Feet Of ____	%gas	%oil	%water	%mud
Rec. ____	Feet Of ____	%gas	%oil	%water	%mud

BHT 108 °F Gravity ____ °API D@ ____ °F Corrected Gravity ____ °API

RW ____ @ ____ °F Chlorides ____ ppm Recovery Chlorides 6,000 ppm System

(A) Initial Hydrostatic Mud	1836	1771	PSI	Recorder No.	2341	T-Started	21:25
(B) First Initial Flow Pressure	49	31	PSI	(depth)	3639	T-Open	23:20
(C) First Final Flow Pressure	59	45	PSI	Recorder No.	13754	T-Pulled	02:05
(D) Initial Shut-in Pressure	275	292	PSI	(depth)	3672	T-Out	04:00
(E) Second Initial Flow Pressure	68	49	PSI	Recorder No.			
(F) Second Final Flow Pressure	88	77	PSI	(depth)			
(G) Final Shut-in Pressure	295	304	PSI	Initial Opening	30	Test	
(H) Final Hydrostatic Mud	1766	1754	PSI	Initial Shut-in	30	Jars	
	AK-1	Alpine		Final Flow	45	Safety Joint	
				Final Shut-in	60	Straddle	
						Circ. Sub	
						Sampler	
						Extra Packer	
						Elect. Rec. X	
						Other	

TRILOBITE TESTING L.L.C. SHALL NOT BE LIABLE FOR DAMAGE OF ANY KIND OF THE PROPERTY OR PERSONNEL OF THE ONE FOR WHOM A TEST IS MADE, OR FOR ANY LOSS SUFFERED OR SUSTAINED, DIRECTLY OR INDIRECTLY, THROUGH THE USE OF ITS EQUIPMENT, OR ITS STATEMENTS OR OPINION CONCERNING THE RESULTS OF ANY TEST. TOOLS LOST OR DAMAGED IN THE HOLE SHALL BE PAID FOR AT COST BY THE PARTY FOR WHOM THE TEST IS MADE.

Approved By ____

Our Representative R. P.

TRILOBITE TESTING L.L.C.

15-051-24985-00-00

OPERATOR : Hal C Porter DATE 1-15-98
WELL NAME: Matt Engel #36-1 KB 2203.00 ft TICKET NO: 10429 DST #2
LOCATION : 36-13S-20W Ellis Co Ks GR 2195.00 ft FORMATION: Arbuckle
INTERVAL : 3791.00 To 3826.00 ft TD 3826.00 ft TEST TYPE: CONV

RECORDER DATA

Mins		Field	1	2	3	4
PF 30	Rec.	13754	13754	2341		
SI 30	Range(Psi)	4000.0	4000.0	4995.0	0.0	0.0
SF 45	Clock(hrs)	12 Hr	12 Hr	Elect		
FS 60	Depth(ft)	3823.0	3823.0	3793.0	0.0	0.0

TIME DATA----------
PF Fr. 1937 to 2007 hr
IS Fr. 2007 to 2037 hr
SF Fr. 2037 to 2122 hr
FS Fr. 2122 to 2222 hr

	Field	1	2	3	4
A. Init Hydro	1906.0	1915.0	1911.0	0.0	0.0
B. First Flow	68.0	73.0	29.0	0.0	0.0
B1. Final Flow	196.0	205.0	212.0	0.0	0.0
C. In Shut-in	1136.0	1156.0	1163.0	0.0	0.0
D. Init Flow	226.0	246.0	224.0	0.0	0.0
E. Final Flow	423.0	436.0	438.0	0.0	0.0
F. Fl Shut-in	1156.0	1155.0	1163.0	0.0	0.0
G. Final Hydro	1636.0	1658.0	1796.0	0.0	0.0
Inside/Outside	O	O	I		

T STARTED 1805 hr
T ON BOTM 1935 hr
T OPEN 1937 hr
T PULLED 2222 hr
T OUT 0115 hr

RECOVERY
Tot Fluid 1094.00 ft of 30.00 ft in DC and 1064.00 ft in DP
412.00 ft of Clean gassy oil 30%g 70%o
186.00 ft of Slightly water & mud cut gassy oil
0.00 ft of 20%g 70%o 5%w 5%m
186.00 ft of Water & mud cut gassy oil 20%g 70%o 5%w 5%m
124.00 ft of Slightly oil cut muddy gassy water
0.00 ft of 20%g 5%o 35%w 40%m
186.00 ft of Slightly mud cut water 95%w 5%m
248.00 ft of Gas in pipe
SALINITY 25000.00 P.P.M. A.P.I. Gravity 34.00

TOOL DATA----------

Tool Wt.	1000.00 lbs
Wt Set On Packer	30000.00 lbs
Wt Pulled Loose	50000.00 lbs
Initial Str Wt	40000.00 lbs
Unseated Str Wt	44000.00 lbs
Bot Choke	0.75 in
Hole Size	7.88 in
D Col. ID	2.25 in
D. Pipe ID	3.80 in
D.C. Length	30.00 ft
D.P. Length	3747.00 ft

BLOW DESCRIPTION

Initial blow - Strong bottom of bucket in 5 min

Final blow - Strong bottom of bucket in 8 min

MUD DATA----------

Mud Type	Chemical
Weight	9.30 lb/cf
Vis.	45.00 S/L
W.L.	8.00 in3
F.C.	0.00 in
Mud Drop	N
Amt. of fill	0.00 ft
Btm. H. Temp.	121.00 F
Hole Condition	Good
% Porosity	0.00
Packer Size	6.75 in
No. of Packers	2
Cushion Amt.	0.00
Cushion Type	
Reversed Out	N
Tool Chased	N
Tester	Dan Bangle
Co. Rep.	Randy Kilian
Contr.	Discovery
Rig #	1
Unit #	
Pump T.	

SAMPLES:
SENT TO:

Test Successful: Y

*** TOOL DIAGRAM *** CONV

)ELL NAME: Matt Engel #36-1

)OCATION : 36-13S-20W Ellis Co Ks

'ICKET No. 10429 D.S.T. No. 2 DATE 1-15-98

'OTAL TOOL TO BOTTOM OF TOP PACKERS 20

NTERVAL TOOL .....

)OTTOM PACKERS AND ANCHOR 35

'OTAL TOOL 55

)RILL COLLAR ANCHOR IN INTERVAL .....

).C. ANCHOR STND.Stands Single Total

).P. ANCHOR STND.Stands Single Total

'OTAL ASSEMBLY 55

).C. ABOVE TOOLS.Stands Single 1 Total 30

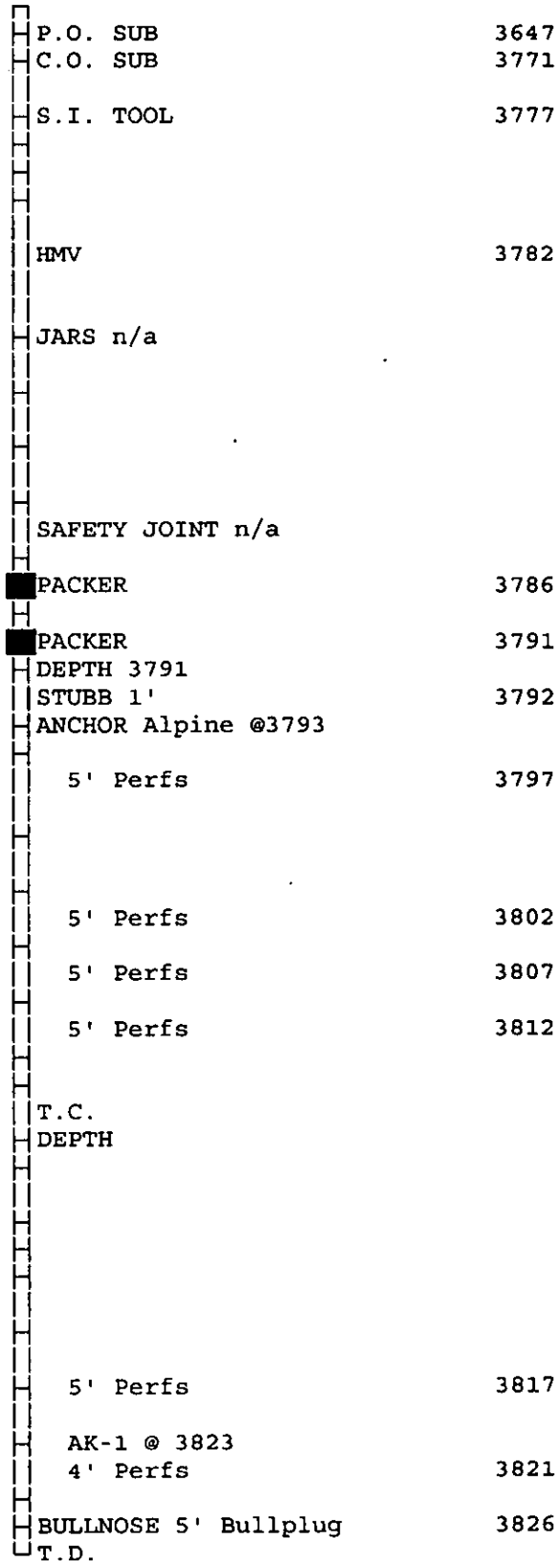
).P. ABOVE TOOLS.Stands61 Single 1 Total 3747

'OTAL DRILL COLLARS DRILL PIPE & TOOLS .. 3832

'OTAL DEPTH 3826

'OTAL DRILL PIPE ABOVE K.B. 6

:EMARKS:



TEST HISTORY

Tk #10429 DST #2 Matt Engel #36-1 Hal Porter

15-051-24985-00-00

Flag Points

	t(Min.)	P(PSIg)
A:	0.00	1911.06
B:	0.00	29.35
C:	29.00	212.25
D:	30.00	1162.65
E:	0.00	223.64
F:	44.00	437.90
G:	61.00	1162.55
Q:	0.00	1795.74

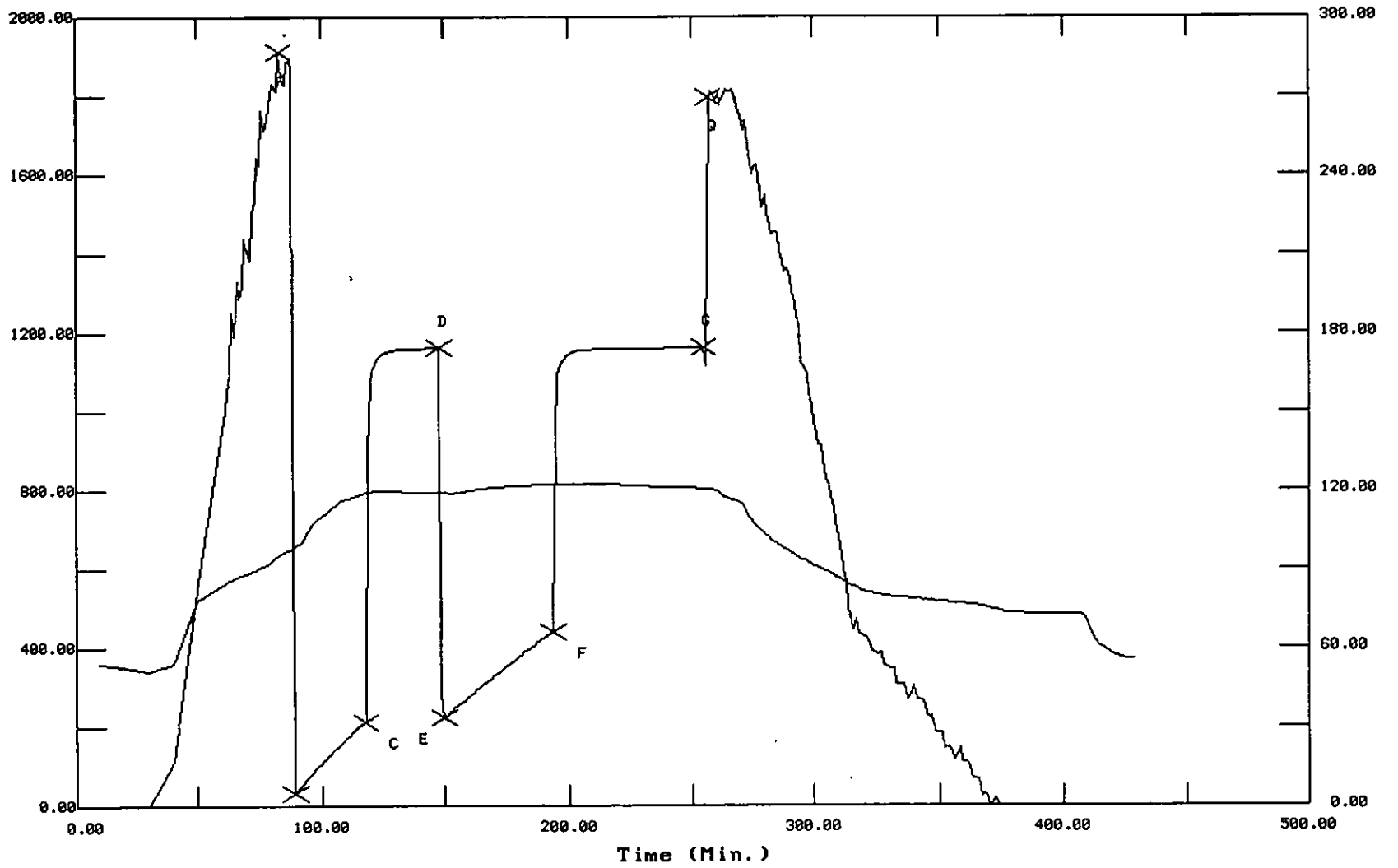
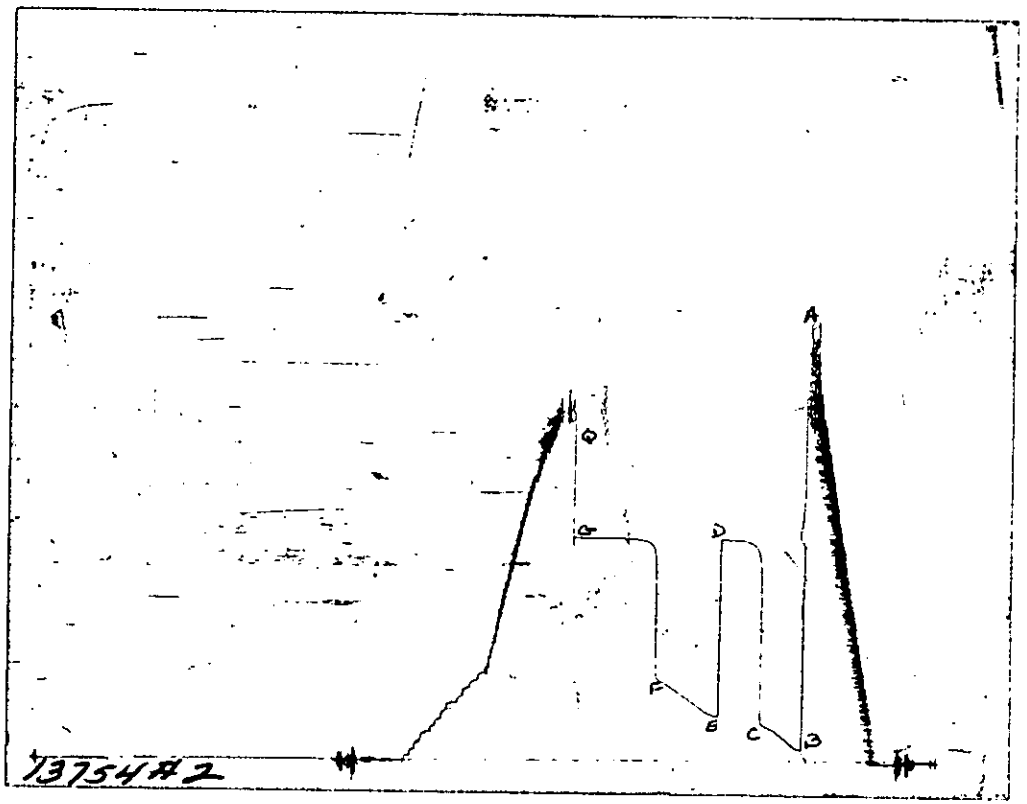


CHART PAGE



This is a photocopy of the actual AK-1 recorder chart

15:051-24985:00:00

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING
TEST: Tk #10429 DST #2 Matt Engel #36-1 Hal Porter
DATE: 01/15/98 TIME: 18:05:51

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
****** Initial Hydro.	83.00	1911.1	0.0	95.33		
****** Start Flow 1	0.00	29.3	0.0	98.32		
	1.00	35.9	6.6	98.85		
	2.00	46.7	17.4	99.72		
	3.00	54.7	25.3	100.92		
	4.00	61.6	32.2	102.50		
	5.00	69.5	40.1	104.16		
	6.00	76.4	47.1	105.68		
	7.00	84.5	55.2	107.02		
	8.00	91.3	61.9	108.07		
	9.00	98.1	68.8	108.89		
	10.00	103.3	73.9	109.53		
	11.00	109.2	79.8	110.16		
	12.00	116.4	87.1	110.92		
	13.00	121.8	92.5	111.73		
	14.00	127.1	97.8	112.59		
	15.00	135.3	105.9	113.42		
	16.00	141.7	112.4	114.19		
	17.00	147.9	118.5	114.88		
	18.00	152.4	123.1	115.50		
	19.00	158.6	129.3	116.03		
	20.00	164.5	135.2	116.44		
	21.00	170.1	140.7	116.82		
	22.00	176.2	146.9	117.15		
	23.00	182.2	152.9	117.47		
	24.00	187.6	158.3	117.77		
	25.00	192.8	163.5	118.08		
	26.00	197.5	168.2	118.35		
	27.00	202.5	173.1	118.61		
	28.00	207.5	178.2	118.84		
****** End Flow 1	29.00	212.3	182.9	119.07		
****** Start Shutin 1	0.00	212.3	0.0	119.07	0.0000	0.045
	1.00	897.4	685.1	119.29	30.0000	0.805
	2.00	1076.1	863.9	119.50	15.5000	1.158
	3.00	1107.4	895.1	119.66	10.6667	1.226
	4.00	1124.3	912.0	119.70	8.2500	1.264
	5.00	1134.8	922.6	119.68	6.8000	1.288
	6.00	1142.0	929.7	119.65	5.8333	1.304
	7.00	1146.9	934.7	119.64	5.1429	1.315
	8.00	1150.4	938.2	119.64	4.6250	1.324
	9.00	1153.0	940.8	119.63	4.2222	1.329
	10.00	1154.9	942.6	119.64	3.9000	1.334
	11.00	1156.3	944.1	119.63	3.6364	1.337
	12.00	1157.4	945.1	119.63	3.4167	1.339
	13.00	1158.3	946.0	119.62	3.2308	1.342
	14.00	1159.0	946.7	119.62	3.0714	1.343
	15.00	1159.5	947.2	119.61	2.9333	1.344
	16.00	1159.9	947.7	119.59	2.8125	1.345
	17.00	1160.3	948.0	119.60	2.7059	1.346
	18.00	1160.6	948.4	119.59	2.6111	1.347
	19.00	1161.0	948.7	119.58	2.5263	1.348

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: Tk #10429 DST #2 Matt Engel #36-1 Hal Porter

DATE: 01/15/98 TIME: 18:05:51

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
	20.00	1161.2	949.0	119.57	2.4500	1.348
	21.00	1161.4	949.1	119.56	2.3810	1.349
	22.00	1161.6	949.3	119.55	2.3182	1.349
	23.00	1161.8	949.5	119.53	2.2609	1.350
	24.00	1161.9	949.7	119.52	2.2083	1.350
	25.00	1162.1	949.8	119.51	2.1600	1.350
	26.00	1162.2	950.0	119.49	2.1154	1.351
	27.00	1162.3	950.0	119.48	2.0741	1.351
	28.00	1162.4	950.2	119.46	2.0357	1.351
	29.00	1162.5	950.3	119.44	2.0000	1.352
****** End Shut-in 1	30.00	1162.7	950.4	119.43	1.9667	1.352
****** Start Flow 2	0.00	223.6	0.0	119.30		
	1.00	228.4	4.8	119.10		
	2.00	233.3	9.7	118.94		
	3.00	239.8	16.2	118.92		
	4.00	245.4	21.8	118.98		
	5.00	250.3	26.7	119.09		
	6.00	255.1	31.4	119.22		
	7.00	259.9	36.3	119.37		
	8.00	264.7	41.0	119.53		
	9.00	269.0	45.4	119.68		
	10.00	273.9	50.3	119.83		
	11.00	279.3	55.7	119.97		
	12.00	284.6	61.0	120.11		
	13.00	290.2	66.6	120.25		
	14.00	295.9	72.3	120.38		
	15.00	301.5	77.8	120.51		
	16.00	307.1	83.4	120.63		
	17.00	312.0	88.3	120.75		
	18.00	316.5	92.9	120.86		
	19.00	320.4	96.8	120.96		
	20.00	324.9	101.2	121.06		
	21.00	330.0	106.4	121.14		
	22.00	335.4	111.7	121.23		
	23.00	340.1	116.4	121.31		
	24.00	344.9	121.3	121.38		
	25.00	349.7	126.1	121.46		
	26.00	354.9	131.2	121.52		
	27.00	359.5	135.8	121.60		
	28.00	364.5	140.9	121.66		
	29.00	369.9	146.2	121.72		
	30.00	375.0	151.3	121.78		
	31.00	380.0	156.4	121.83		
	32.00	385.0	161.3	121.88		
	33.00	390.2	166.6	121.92		
	34.00	394.2	170.5	121.97		
	35.00	399.7	176.1	122.01		
	36.00	404.8	181.2	122.06		
	37.00	409.1	185.4	122.09		
	38.00	413.0	189.3	122.13		
	39.00	417.4	193.7	122.16		

15:051:24985:00:00

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING
TEST: Tk #10429 DST #2 Matt Engel #36-1 Hal Porter
DATE: 01/15/98 TIME: 18:05:51

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
	40.00	422.4	198.8	122.19		
	41.00	426.1	202.5	122.22		
	42.00	430.1	206.5	122.25		
	43.00	434.8	211.2	122.27		
****** End Flow 2	44.00	437.9	214.3	122.30		
****** Start Shutin 2	0.00	437.9	0.0	122.30	0.0000	0.192
	1.00	944.3	506.4	122.34	74.0000	0.892
	2.00	1094.9	657.0	122.40	37.5000	1.199
	3.00	1118.0	680.1	122.46	25.3333	1.250
	4.00	1130.5	692.6	122.50	19.2500	1.278
	5.00	1138.7	700.8	122.54	15.6000	1.297
	6.00	1144.1	706.2	122.54	13.1667	1.309
	7.00	1147.9	710.0	122.53	11.4286	1.318
	8.00	1150.6	712.7	122.53	10.1250	1.324
	9.00	1152.7	714.8	122.50	9.1111	1.329
	10.00	1154.1	716.2	122.47	8.3000	1.332
	11.00	1155.3	717.4	122.44	7.6364	1.335
	12.00	1156.2	718.3	122.41	7.0833	1.337
	13.00	1156.8	718.9	122.38	6.6154	1.338
	14.00	1157.4	719.5	122.35	6.2143	1.340
	15.00	1157.9	720.0	122.32	5.8667	1.341
	16.00	1158.3	720.4	122.29	5.5625	1.342
	17.00	1158.6	720.7	122.27	5.2941	1.342
	18.00	1159.0	721.1	122.25	5.0556	1.343
	19.00	1159.1	721.2	122.23	4.8421	1.344
	20.00	1159.4	721.5	122.22	4.6500	1.344
	21.00	1159.6	721.7	122.20	4.4762	1.345
	22.00	1159.8	721.9	122.17	4.3182	1.345
	23.00	1159.9	722.0	122.14	4.1739	1.345
	24.00	1160.0	722.1	122.10	4.0417	1.346
	25.00	1160.2	722.3	122.06	3.9200	1.346
	26.00	1160.4	722.5	122.03	3.8077	1.346
	27.00	1160.5	722.6	121.98	3.7037	1.347
	28.00	1160.6	722.7	121.94	3.6071	1.347
	29.00	1160.8	722.9	121.89	3.5172	1.347
	30.00	1160.8	722.9	121.85	3.4333	1.348
	31.00	1160.9	723.0	121.80	3.3548	1.348
	32.00	1161.0	723.1	121.75	3.2812	1.348
	33.00	1161.1	723.2	121.70	3.2121	1.348
	34.00	1161.2	723.3	121.66	3.1471	1.348
	35.00	1161.3	723.4	121.60	3.0857	1.349
	36.00	1161.3	723.4	121.54	3.0278	1.349
	37.00	1161.4	723.5	121.49	2.9730	1.349
	38.00	1161.5	723.6	121.44	2.9211	1.349
	39.00	1161.6	723.7	121.38	2.8718	1.349
	40.00	1161.6	723.7	121.32	2.8250	1.349
	41.00	1161.6	723.7	121.26	2.7805	1.349
	42.00	1161.7	723.8	121.21	2.7381	1.350
	43.00	1161.8	723.9	121.18	2.6977	1.350
	44.00	1161.8	723.9	121.16	2.6591	1.350
	45.00	1161.8	723.9	121.15	2.6222	1.350

ALPINE SUBSURFACE ELECTRONICS PROBE INCREMENTS LISTING

TEST: Tk #10429 DST #2 Matt Engel #36-1 Hal Porter

DATE: 01/15/98 TIME: 18:05:51

	Time	Pressure PSIg	delta P PSIg	Temp. DEG F	(T+dT)/dT	P^2/10^6
	46.00	1162.0	724.1	121.15	2.5870	1.350
	47.00	1162.0	724.1	121.14	2.5532	1.350
	48.00	1162.0	724.1	121.13	2.5208	1.350
	49.00	1162.0	724.1	121.11	2.4898	1.350
	50.00	1162.1	724.2	121.09	2.4600	1.350
	51.00	1162.1	724.2	121.06	2.4314	1.351
	52.00	1162.2	724.3	121.03	2.4038	1.351
	53.00	1162.2	724.3	120.99	2.3774	1.351
	54.00	1162.3	724.4	120.95	2.3519	1.351
	55.00	1162.3	724.4	120.91	2.3273	1.351
	56.00	1162.4	724.5	120.88	2.3036	1.351
	57.00	1162.4	724.5	120.83	2.2807	1.351
	58.00	1162.4	724.5	120.78	2.2586	1.351
	59.00	1162.4	724.5	120.75	2.2373	1.351
	60.00	1162.5	724.6	120.72	2.2167	1.351
****** End Shut-in 2	61.00	1162.6	724.7	120.66	2.1967	1.352
****** Final Hydro.	257.00	1795.7	0.0	120.62		

TRILOBITE TESTING L.L.C.

P.O. Box 362 • Hays, Kansas 67601

Test Ticket

№ 10429

15-051-24985-00-00

Well Name & No. Matt Engel #36-1 Test No. 2 Date 1-15-98

Company Hal C. Porter Zone Tested Arbuckle

Address _____ Elevation 2203 KB 2195 GL

Co. Rep / Geo. Randy Kilian Cont. Discovery #1 Est. Ft. of Pay ____ Por. ____ %

Location: Sec. 36 Twp. 13 Rge. 20 Co. Ellis State Ks

No. of Copies 5 Distribution Sheet (Y, N) N Turnkey (Y, N) N Evaluation (Y, N) N

Interval Tested 3791-3826 Initial Str Wt./Lbs. 40,000 Unseated Str Wt./Lbs. 44,000

Anchor Length 35 Wt. Set Lbs. 30,000 Wt. Pulled Loose/Lbs. 50,000

Top Packer Depth 3786 Tool Weight 1000

Bottom Packer Depth 3791 Hole Size — 7 7/8" ____ Rubber Size — 6 3/4" ____

Total Depth 3826 Wt. Pipe Run ____ Drill Collar Run 30

Mud Wt. 9.3 LCM ____ Vis. 45 WL 8 Drill Pipe Size 4-5 XH Ft. Run 3747

Blow Description I.F. Strong - B.O.B in 5 min.

F.F. Strong - B.O.B in 8 min.

Recovery — Total Feet 1094 GIP 248 Ft. in DC 30 Ft. in DP 1064

Rec. 412	Feet Of	CGsy O	30	%gas	70	%oil		%water	%mud
Rec. 186	Feet Of	SltyWt+mCGsy O	20	%gas	70	%oil	5	%water	5 %mud
Rec. 186	Feet Of	Wt+mCGsy O	25	%gas	35	%oil	20	%water	20 %mud
Rec. 124	Feet Of	SltyOCMdyGsyW	20	%gas	5	%oil	35	%water	40 %mud
Rec. 186	Feet Of	SltymCWtr		%gas		%oil	95	%water	5 %mud

BHT 121 °F Gravity ____ °API D@ ____ °F Corrected Gravity 34 °API

RW .25 @ 80 °F Chlorides 25,000 ppm Recovery Chlorides 5000 ppm System

(A) Initial Hydrostatic Mud	1906	1911	PSI	Recorder No.	23411	T-Started	18:05
(B) First Initial Flow Pressure	68	29	PSI	(depth)	3793	T-Open	19:37
(C) First Final Flow Pressure	196	212	PSI	Recorder No.	13754	T-Pulled	22:22
(D) Initial Shut-in Pressure	1136	1163	PSI	(depth)	3823	T-Out	01:15
(E) Second Initial Flow Pressure	226	224	PSI	Recorder No.			
(F) Second Final Flow Pressure	423	438	PSI	(depth)			
(G) Final Shut-in Pressure	1156	1163	PSI	Initial Opening	30	Test	
(H) Final Hydrostatic Mud	1636	1796	PSI	Initial Shut-in	30	Jars	
	AK-1	Alpine		Final Flow	45	Safety Joint	
				Final Shut-in	60	Straddle	
						Circ. Sub	
						Sampler	
						Extra Packer	
						Elect. Rec. ✓	
						Other	

Approved By _____