

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

Operator: License # 4549

Name: ANADARKO PETROLEUM CORPORATION

Address P. O. BOX 351

City/State/Zip LIBERAL, KANSAS 67905-0351

Purchaser: NATIONAL COOPERATIVE REFINING ASSOCIATION

Operator Contact Person: DAVID W. KAPPLE

Phone (316) 624-6253

Contractor: Name: CHEYENNE DRILLING

License: 5382

Wellsite Geologist: _____

Designate Type of Completion

New Well Re-Entry Workover

Oil SWD SIOW Temp. Abd.

Gas ENHR SIGW

Dry Other (Core, SW Expl., Cathodic, etc)

*EVALUATING FOR CONVERSION TO INJECTION WELL.

If Workover:

Operator: _____

Well Name: _____

Comp. Date _____ Old Total Depth _____

Deepening Re-perf. Conv. to Inj/SWD

Plug Back PBTB

Commingled Docket No. _____

Dual Completion Docket No. _____

Other (SWD or Inj?) Docket No. E171053

7-17-97 7-29-97 10-15-97

Spud Date Date Reached TD Completion Date

API NO. 15- 175-21647-00-00

County SEWARD

NW - NW - SW - NW Sec. 14 Twp. 33 Rge. 34 E W

1450 Feet from (circle one) Line of Section

105 Feet from (circle one) Line of Section

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

Lease Name HITCH UNIT Well # 8-3

Field Name HITCH UNIT

Producing Formation L. CHESTER

Elevation: Ground 2896.0 KB _____

Total Depth 6393 PBTB 6238

Amount of Surface Pipe Set and Cemented at 1620 Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set _____ Feet

If Alternate II completion, cement circulated from _____

feet depth to _____ w/ _____ sx cmt.

Drilling Fluid Management Plan APP. 1, 4-14-98 etc.
(Data must be collected from the Reserve Pit)

Chloride content 1000 ppm Fluid volume 700 bbls

Dewatering method used DRY, BACKFILL & RESTORE LOCATION.

Location of fluid disposal if hauled offsite: _____

Operator Name 11-13-97

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, 130 S. Market - Room 2078, 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.

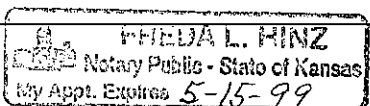
All requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature L. Marc Harvey
L. MARC HARVEY
Title DRILLING TECHNICAL ASSISTANT Date 11-11-97

Subscribed and sworn to before me this 11th day of December 1997.

Notary Public Freda L. Hinz

Date Commission Expires _____



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)

SIDE TWO

11-15-97

Operator Name ANADARKO PETROLEUM CORPORATION Lease Name HITCH UNIT Well # 8-3

Sec. 14 Twp. 33 Rge. 34 East County SEWARD
 West

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all drill stem tests giving 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 sheet if more space is needed. Attach copy of log.

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

Samples Sent to Geological Survey Yes No

Cores Taken Yes No

Electric Log Run Yes No
 (Submit Copy.)

List All E.Logs Run: SBT-CCL-GR, DIL, ML. CNL-LDT, LS SONIC, NGR, RFT.

3 CORE DESCRIPTIONS ATTACHED.

Log Formation (Top), Depth and Datums Sample

Name	Top	Datum
CHASE	2590	
COUNCIL GROVE	2948	
HEEBNER	4242	
TORONTO	4256	
LANSING	4374	
MARMATON	5026	
CHEROKEE	5254	
MORROW	5636	
CHESTER	5860	
ST. LOUIS	6316	

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	12-1/4"	8-5/8"	23.0	1620	P+ MIDCON 2/ P+	265/100	3%CC, 1/4#SK FLC/ 2%CC, 1/4#SK FLC.
PRODUCTION	7-7/8"	5-1/2"	15.5	6371	P+ MIDCON 2/ 50/50 POZ	50/140	3%CC, 1/4#SK FLC/ .75% HALAD 322, 10% SALT, 1/4#SK FLOCELE.

ADDITIONAL CEMENTING/SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	#Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Casing				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> 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
2	6302-6312, CIBP @ 6280.	ACID: 500 GAL 7 1/2% FeHCL. 6302-6312
6	6246-6256, RBP @ 6238.	ACID: 500 GAL 7 1/2% FeHCL. 6246-6256
6	6158-6173, SQZD.	NONE.
4	6184-6200	NONE.

TUBING RECORD	Size 2 7/8"	Set At 6180	Packer At	Liner Run <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Date of First, Resumed Production, SWD or Inj. 9-20-97 Producing Method Flowing Pumping Gas Lift Other (Explain)

Estimated Production Per 24 Hours	Oil 0 Bbls.	Gas 0 Mcf	Water 680 Bbls.	Gas-Oil Ratio TSTM	Gravity
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Disposition of Gas: Vented Sold Used on Lease (If vented, submit ACO-18.) METHOD OF COMPLETION Open Hole Perf. Dually Comp. Commingled Other (Specify) _____ Production Interval 6184-6200



JOB LOG 4239-5

TICKET #	225246	TICKET DATE	1-31-97
REGION	North America	NW/COUNTRY	Wind Continent
MBU ID / EMP #	110110	BD / STATE	KOAHB
LOCATION	110110	PSL DEPARTMENT	5001
TICKET AMOUNT		CUSTOMER REP / PHONE	5011111
WELL LOCATION	110110	API / UWI #	
LEASE / WELL #	HIT 8-3	DEPARTMENT	ORIGINAL
		SEC / TWP / RNG	035

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
James W. H. 110110			
Bobley 110110			

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS		PRESS. (psi)		JOB DESCRIPTION / REMARKS
				T	C	Tbg	Csg	
	0730							Called out - Requested "1130"
	1015							ON LOG - L.I.D.I.P RUN Csg
	1315							On Bottom
	1718	3	✓	0/30				Hook-up to circ. Csg
	1732	2	✓	0/30				Hook up to Plug RAT " " " Plug mous
	1750	0-3	8	✓		0/200		Hook up to cmt Pump H ₂ O
		3	10	✓		200		Pump SUPER flush
		3	8	✓		200		Pump H ₂ O
	1800	3-6	28	✓		200		Pump Lead cmt @ 50 SKS MC 223 "C"
	1800	6	32	✓		200		Pump fail cmt @ 140 SKS 50% P ₀₂ /H
	1810	6-0		✓		200		Shut down - Drop plug - wash up
	1815	0-8	251	✓		0/100		Pump Displ.
	1845	8-4		✓		40%		Reduce RATE - Lost circ 500 2 mins
	1850	8-4		✓		50%		Pump Displ. & check float
	1854	0-3		✓		0/100		Pump Displ.
	1856	3-0		✓		100%		Plug Down
	1857			✓		110%		RELEASE PRESS - Float hold

Thank you!

Tom + Sterling + Clint



JOB SUMMARY 4239-1

TICKET # 234	TICKET DATE 10-7-99
BDA / STATE KANSAS	COUNTY SEWARD
PSL DEPARTMENT 5001	CUSTOMER REP / PHONE Bill Glick
API / UWI #	

REGION North America	NW/COUNTRY Mid Continent
MBU ID / EMP # 110104 / 48120	EMPLOYEE NAME Tam Poyers
LOCATION LIBERAL	COMPANY APC
TICKET AMOUNT	WELL TYPE

WELL LOCATION NW Liberal	DEPARTMENT Cement	JOB PURPOSE CODE
LEASE / WELL # Hitch 8-3	SEC / TWP / RNG	ORIGINAL

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
Wendy 102.5							
Rebley 44061							

HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES	HES UNIT NUMBERS	R/T MILES
420044							
53554-76900							
51984-77001							

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

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

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 _____	
Perpac Balls _____	Qty. _____	
Other		
Other		
Other		
Other		

DATE	CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
	10-7-99	10-7-99	10-7-99	10-7-99
TIME	0430	0730	0902	1030

WELL DATA						
	NEW/USED	WEIGHT	SIZE	FROM	TO	MAX ALLOW
Casing	1	23	7	KB		
Liner						
Liner						
Tbg/D.P.			278		6036	
Tbg/D.P.						
Open Hole				6158	10173	SHOTS/FT.
Perforations						
Perforations						
Perforations						

HOURS ON LOCATION		OPERATING HOURS		DESCRIPTION OF JOB
DATE	HOURS	DATE	HOURS	
TOTAL		TOTAL		

HYDRAULIC HORSEPOWER
 ORDERED _____ Avail. _____ Used _____
 TREATED _____ AVERAGE RATES IN BPM _____ Overall _____
 FEET **122** CEMENT LEFT IN PIPE _____
 Reason **Drill out on SQUEEZE**

STAGE	SACKS	CEMENT	BULK/SKS	ADDITIVES	YIELD	LBS/GAL
	50	P+	B	Half rd 322, 90%	1.32	14.8
	50	H	B	1/2 Floccle	1.06	16.4

Circulating _____ Displacement _____ Preflush: Gal - BBI _____ Type _____
 Breakdown _____ Maximum _____ Load & Bkdn: Gal - BBI _____ Pad: BBI - Gal _____
 Average _____ Frac Gradient _____ Treatment Gal - BBI _____ Dis: BBI - Gal **2.52**
 Shut In: Instant _____ 5 Min _____ 15 Min _____ Cement Slurr Gal - BBI **2.0**
 Total Volume Gal - BBI _____



JOB LOG 4239-5

TICKET #	224	TICKET DATE	10-7-99
BDA / STATE	KW AK AS	COUNTY	SF United
PSL DEPARTMENT	521		
CUSTOMER REP / PHONE	Bill Clark		
API / UWI #			

REGION	North America	NW/COUNTRY	Mexico
MBU ID / EMP #	11204 / 145120	EMPLOYEE NAME	Tom Payne
LOCATION	11204	COMPANY	APC
TICKET AMOUNT		WELL TYPE	

WELL LOCATION	11204	DEPARTMENT	APC
LEASE / WELL #	11204-5-2	SEC / TWP / RND	

ORIGINAL

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
11204 145120 11-21			
11204 145120 11-21			

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL)(GAL)	PUMPS		PRESS. (psi)		JOB DESCRIPTION / REMARKS
				T	C	Tbg	Csg	
0430								Called out - REV OPD
0730								on loc - Rig up
0902	0-3	36		✓		0/500		Load Back side
0917	3-0			✓		500		Shut down
0919	0-2	5		✓		0/600		Injection Rate (29m @ 600psi)
0928	0-2 1/2	20.7		✓		0/500		Pump out Lead & Tail
0929	3-0			✓		150/0		Shut down - WASH up
0939	0-3 1/2			✓		0/500		Pump Displ.
0945	3 1/2-1	22		✓		5 1/2 500		Load up
0956	1/2	3.5				0/500		Stage in @ 1000 to 1500 psi
0958	0-2 1/4					100/0		Shut down @ 2 1/2 bbls total
1016	0-0	40		✓		350/0		REV. out
1017				✓		0/1100		Shut down
1019				✓		1100		TEST SCHEDULE
								Good test

Thank you!

James & Woody & CREW

ORIGINAL

Table 1

CONVENTIONAL CORE ANALYSIS

Anardarko Petroleum Corporation
 APC Hitch Unit No. 8-3 Well
 Hitch Unit Field
 Seward Co., Kansas
 SRS 2382/RSR 3742

Core Number: 1
 Depth Interval: 6,147.0 - 6,178.0 ft

Sample	Depth (ft)	Porosity (%BV)	Permeability to Gas (md)	Grain Density (g/cc)	Saturation (%PV)			Lithological Description
					Water	Oil	Gas	
T044	6147.8	1.1	0.015	2.74	85.7	10.3	4.0	Ls lt gry dns abd foss incl sdy I.P. calc incl sh lams tr pyr
T045	6148.8	3.2	0.008	2.88	50.3	14.0	35.7	Sst lt gry vfgr wvl consol sl calc
T046	6149.4	4.4	0.019	2.86	56.4	18.4	25.2	Sst lt gry vfgr wvl consol sml calc incl sl calc
T047	6150.5	3.4	0.084	2.89	46.6	13.5	39.9	Sst lt gry vfgr wvl consol abd calc incl sml sh incl tr pyr
T048	6151.6	16.4	718.	2.65	66.5	16.1	17.4	Sst lt gnsh gry f-mgr wl consol
T049	6152.3	17.3	790.	2.65	65.4	25.5	9.1	Sst lt gnsh gry fgr wl consol
T050	6153.4	10.5	53.0	2.86	48.6	21.4	30.0	Sst lt gnsh gry fgr wl consol thn sh lams tr pyr lam frac
T051	6154.5	16.2	764.	2.85	54.2	28.7	17.1	Sst lt yel gry fgr wl consol
T052	6155.5	16.8	761.	2.65	54.8	28.9	16.3	Sst lt yel gry fgr wl consol
T053	6156.4	13.1	315.	2.62	42.3	18.4	39.3	Sst lt yel gry fgr wl consol
T054	6157.3	12.5	225.	2.65	50.4	22.4	27.2	Sst gnsh gry fgr wl consol sl calc
T055	6158.7	16.3	719.	2.85	52.6	30.4	17.0	Sst gnsh gry fgr vfgr I.P. wl consol
T056	6159.5	17.1	726.	2.64	58.7	22.1	19.2	Sst gnsh gry fgr vfgr I.P. wl consol
T057	6160.4	15.9	686.	2.64	59.1	23.4	17.5	Sst gnsh gry fgr wl consol
T058	6161.5	15.8	600.	2.64	58.6	17.4	23.0	Sst gnsh gry fgr wl consol
T059	6162.5	14.3	492.	2.65	48.4	22.1	29.5	Sst gnsh gry fgr vfgr I.P. wl consol lam frac
T060	6163.6	15.7	738.	2.64	49.6	33.7	16.7	Sst gnsh gry fgr vfgr I.P. wl consol thn sh lam
T061	6164.5	10.4	90.9	2.65	32.5	19.8	47.9	Sst lt gnsh gry vf-fgr wl consol
T062	6165.6	9.8	82.5	2.65	26.8	18.6	54.6	Sst lt gnsh gry vf-fgr wl consol tr pyr
T063	6166.4	15.2	508.	2.64	49.1	27.9	23.0	Sst gnsh gry fgr occ vfgr wl consol
T064	6167.3	13.8	414.	2.64	42.9	26.0	31.1	Sst gnsh gry vf-fgr mod consol
T065	6168.5	16.1	627.	2.64	45.6	23.7	30.7	Sst gnsh gry vf-fgr wl consol
T066	6169.4	11.1	115.	2.65	36.8	19.1	44.1	Sst lt gnsh gry fgr vfgr I.P. wl consol thn sh lams tr pyr
T067	6170.3	11.1	125.	2.64	27.7	21.7	50.6	Sst lt gnsh gry fgr vfgr I.P. wl consol thn sh lams tr pyr

* Sample contains fracture(s). Permeability to gas may be anomalously high
 ** Broken/non-cylindrical sample. Permeability to gas indeterminate



Table 1

CONVENTIONAL CORE ANALYSIS

Anardarko Petroleum Corporation
 APC Hitch Unit No. 8-3 Well
 Hitch Unit Field
 Seward Co., Kansas
 SRS 2382/RSR 3742

Core Number: 1

Depth Interval: 6,147.0 - 6,178.0 ft

Sample	Depth (ft)	Porosity (%BV)	Permeability to Gas (md)	Grain Density (g/cc)	Saturation (%PV)			Lithological Description
					Water	Oil	Gas	
T068	6171.5	7.4	8.01	2.64	26.9	29.3	43.8	Sst lt gnsh gry vfgr wl consol thn sh lams
T069	6172.7	9.8	8.94	2.63	41.7	24.1	34.2	Sst lt gnsh gry vfgr wl consol
T072	6173.8	12.7	86.9	2.64	39.7	19.5	40.8	Sst lt yel gry vfgr wl consol
T071	6174.7	13.9	118.	2.64	45.1	18.4	36.5	Sst lt gnsh gry vfgr wl consol
T070	6175.6	9.9	18.9	2.60	32.8	20.5	46.7	Sst gnsh gry vfgr wl consol
T073	6176.4	14.8	142.	2.64	42.4	17.0	40.6	Sst lt gnsh gry vfgr wl consol
T074	6177.3	13.7	107.	2.64	34.9	14.7	50.4	Sst lt yel gry vfgr wl consol sml thn sh incl

ORIGINAL

* Sample contains fracture(s). Permeability to gas may be anomalously high

** Broken/non-cylindrical sample. Permeability to gas indeterminate

Reservoirs

Use.

Table 2

CONVENTIONAL CORE ANALYSIS

Anadarko Petroleum Corporation
 APC Hitch Unit No. 8-3 Well
 Hitch Unit Field
 Seward Co., Kansas
 SRS 2382/RSR 3742

Core Number: 2
 Depth Interval: 6,178.0 - 6,236.0 ft

Sample	Depth (ft)	Porosity (%BV)	Permeability to Gas (md)	Grain Density (g/cc)	Saturation (%PV)			Lithological Description
					Water	Oil	Gas	
T075	6178.0	14.4	156.	2.64	43.2	21.0	35.8	Sst lt yel gry vfgr wl consol
T076	6179.1	13.8	157.	2.64	41.2	18.3	40.5	Sst lt yel gry vfgr wl consol
T077	6180.3	14.9	174.	2.64	45.5	11.5	43.0	Sst lt yel gry vfgr wl consol
T078	6181.2	14.4	200.	2.64	40.5	18.9	40.6	Sst lt yel gry vfgr wl consol
T079	6182.4	15.3	212.	2.64	48.5	18.2	33.3	Sst lt yel gry vfgr wl consol tr pyr
T080	6183.6	14.7	84.4	2.64	43.9	18.9	37.2	Sst lt yel gry vfgr wl consol tr pyr
T081	6184.1	15.3	104.	2.65	42.8	16.8	40.4	Sst lt yel gry vfgr wl consol tr pyr
T083	6184.9	15.4	109.	2.65	42.0	15.5	42.5	Sst lt yel gry vfgr wl consol sml thn sh lams
T082	6185.8	15.0	98.1	2.65	43.4	15.5	41.1	Sst lt yel gry vfgr wl consol
T084	6186.9	15.8	161.	2.65	41.0	17.7	41.3	Sst lt yel gry vfgr wl consol
T085	6187.8	17.2	199.	2.64	40.5	17.8	41.7	Sst lt yel gry vfgr wl consol
T086	6189.0	18.0	272.	2.64	59.8	18.2	22.0	Sst lt yel gry vfgr wl consol
T087	6190.0	16.3	160.	2.65	61.8	12.6	25.6	Sst lt yel gry vfgr wl consol
T088	6191.1	15.2	122.	2.65	50.5	20.1	29.4	Sst lt yel gry vfgr wl consol sml thn sh inclc tr pyr
T088	6192.1	14.3	78.8	2.65	46.0	18.5	34.5	Sst lt yel gry vfgr wl consol sml thn sh inclc tr pyr
T090	6193.1	15.9	142.	2.65	53.1	16.9	30.0	Sst lt yel gry vfgr wl consol sml thn sh inclc tr pyr
T091	6194.1	14.3	87.8	2.65	46.7	27.0	26.3	Sst lt yel gry vfgr wl consol
T092	6195.0	15.1	94.9	2.65	56.5	18.5	25.0	Sst lt yel gry vfgr wl consol
T093	6196.0	15.6	125.	2.65	52.5	15.4	32.1	Sst lt yel gry vfgr wl consol
T094	6197.1	14.7	93.6	2.65	49.9	15.7	34.4	Sst lt yel gry vfgr wl consol
T095	6198.0	14.2	72.5	2.65	45.1	14.0	40.9	Sst lt yel gry vfgr wl consol
T096	6199.2	12.6	48.8	2.63	42.2	12.4	45.4	Sst lt yel gry vfgr wl consol
T097	6199.9	14.4	95.1	2.64	34.5	29.7	35.8	Sst gnsh gry vfgr wl consol
T098	6201.0	14.8	111.	2.65	42.6	22.4	35.0	Sst gnsh gry vfgr wl consol

ORIGINAL

* Sample contains fracture(s). Permeability to gas may be anomalously high
 ** Broken/non-cylindrical sample. Permeability to gas indeterminate

Table 2

CONVENTIONAL CORE ANALYSIS

Anardarko Petroleum Corporation
 APC Hitch Unit No. 8-3 Well
 Hitch Unit Field
 Seward Co., Kansas
 SRS 2382/RSR 3742

Core Number: 2
 Depth Interval: 6,176.0 - 6,236.0 ft

Sample	Depth (ft)	Porosity (%BV)	Permeability to Gas (md)	Grain Density (g/cc)	Saturation (%PV)			Lithological Description
					Water	Oil	Gas	
T099	6202.2	13.2	55.4	2.65	41.2	18.6	40.2	Sst gnsh gry vfgr wl consol
T100	6203.1	12.2	34.4	2.64	46.4	16.1	37.5	Sst gnsh gry vfgr wl consol thn sh lams
T101	6204.0	13.8	64.8	2.65	39.4	22.6	38.0	Sst yel gry vfgr wl consol
T102	6205.0	13.4	53.3	2.65	53.2	14.3	32.5	Sst yel gry vfgr wl consol sml thn sh lams
T103	6205.9	11.5	27.7	2.64	50.1	17.2	32.7	Sst yel gry vfgr wl consol sml thn sh lams
T104	6206.9	9.3	6.33	2.64	34.3	13.8	51.8	Sst yel gry vfgr wl consol
T105	6208.1	11.0	40.1	2.64	32.1	17.9	50.0	Sst yel gry vfgr wl consol thn sh lams
T106	6209.2	11.7	18.9	2.64	33.6	18.3	48.1	Sst lt yel gry vfgr wl consol
T107	6210.1	11.6	15.9	2.63	30.7	18.3	51.0	Sst lt yel gry vfgr wl consol
T108	6210.9	6.7	0.843	2.56	39.1	16.8	44.1	Sst yel gry vfgr wl consol
T109	6211.8	9.5	3.65	2.61	32.1	12.4	55.5	Sst yel gry vfgr wl consol
T110	6213.1	8.0	4.74	2.60	36.2	13.0	50.8	Sst yel gry vfgr wl consol
T111	6213.2	8.2	2.11	2.59	52.9	18.0	29.1	Sst dk gry vfgr wl consol thn calc lams
T112	6214.8	3.3	0.041	2.58	51.1	18.6	30.3	Sst dk gry vfgr wwl consol
T113	6216.0	4.7	0.388	2.58	61.2	9.3	29.5	Sst dk gry vfgr wwl consol sml sh lams
T114	6217.1	5.9	0.190	2.58	51.3	12.7	36.0	Sst dk gry vfgr wwl consol sml sh lams
T115	6217.9	4.8	0.529	2.57	63.1	23.3	13.6	Sst dk gry vfgr wwl consol abd thn sh lams
T116	6219.1	5.7	0.262	2.58	43.4	12.0	44.6	Sst dk gry vfgr wwl consol abd thn sh lams
T117	6220.1	6.9	0.507	2.60	31.6	13.6	54.8	Sst gnsh gry vfgr wl consol
T118	6221.1	8.4	1.80	2.56	32.7	17.0	50.3	Sst gnsh gry vfgr wl consol
T119	6221.7	4.8	0.185	2.56	45.6	28.6	25.8	Sst gnsh gry vfgr wl consol thn sh lams
T120	6223.3	5.8	4.87	2.54	42.7	36.2	21.1	Sst dk gnsh gry vfgr wl consol sh lams frac
T121	6224.0	8.5	2.02	2.57	29.0	24.3	46.7	Sst gnsh gry vfgr wl consol sml sh incl
T122	6225.3	1.5	0.012	2.68	47.9	35.2	16.9	Sst wh w/gry I.P. vfgr wwl consol

ORIGINAL

* Sample contains fracture(s). Permeability to gas may be anomalously high
 ** Broken/non-cylindrical sample. Permeability to gas indeterminate

Requ...
 Inc.

Table 2

CONVENTIONAL CORE ANALYSIS

Anadarko Petroleum Corporation
 APC Hitch Unit No. 8-3 Well
 Hitch Unit Field
 Seward Co., Kansas
 SRS 2382/RSR 3742

Core Number: 2

Depth Interval: 6,178.0 - 6,238.0 ft

Sample	Depth (ft)	Porosity (%BV)	Permeability to Gas (md)	Grain Density (g/cc)	Saturation (%PV)			Lithological Description
					Water	Oil	Gas	
T123	6226.2	5.6	0.200	2.60	24.2	31.0	44.8	Sst gnsh gry vfgr wl consol
T124	6226.9	6.7	0.412	2.59	22.1	36.8	41.3	Sst gnsh gry vfgr wl consol
T125	6228.2	8.0	0.948	2.58	23.3	28.9	47.8	Sst gnsh gry vfgr wl consol
T126	6229.3	7.1	0.904	2.57	28.8	29.8	41.4	Sst gnsh gry vfgr wl consol thn sh lams
T127	6230.1	7.3	1.15	2.58	24.7	31.6	43.7	Sst gnsh gry vfgr wl consol thn sh lams
T128	6231.2	6.6	0.007	2.64	46.4	27.5	26.1	Sst gnsh gry vfgr wl consol thn sh lams
T129	6232.2	7.4	1.68	2.56	35.3	26.6	38.1	Sst dk gry vfgr wl consol thn sh lams sh incl
T130	6233.1	8.6	2.94	2.59	36.4	20.5	43.1	Sst dk gry vfgr wl consol thn sh lams sh incl
T131	6234.1	8.3	1.21	2.62	40.1	19.7	40.2	Sst dk gry vfgr wl consol thn sh lams sh incl
T132	6235.1	5.2	0.231	2.60	41.6	22.2	36.2	Sst gnsh gry vfgr wl consol abd thn sh lams sh incl

ORIGINAL

* Sample contains fracture(s). Permeability to gas may be anomalously high
 ** Broken/non-cylindrical sample. Permeability to gas indeterminable



Table 3

CONVENTIONAL CORE ANALYSIS

Anardarko Petroleum Corporation
 APC Hitch Unit No. 8-3 Well
 Hitch Unit Field
 Seward Co., Kansas
 SRS 2382/RSB 3742

Core Number: 3
 Depth Interval: 8,236.0 - 8,258.0 ft

Sample	Depth (ft)	Porosity [%BV]	Permeability to Gas (md)	Grain Density (g/cc)	Saturation (%PV)			Lithological Description
					Water	Oil	Gas	
T133	6236.6	5.6	1.19	2.61	50.4	16.1	33.5	Sst gnsh gry vfgr wl consol abd thn sh lams sh incls
T134	6237.6	7.9	0.578	2.64	35.3	13.9	50.8	Sst lt yel gry vfgr wl consol thn sh incls
T135	6238.6	10.0	6.18	2.64	36.5	13.1	50.4	Sst lt yel gry vfgr wl consol thn sh incls
T136	6239.7	12.0	41.1	2.64	42.3	19.4	38.3	Sst yel wh vfgr wl consol sml sh incls
T137	6240.6	12.1	34.6	2.64	39.2	16.0	44.8	Sst yel wh vfgr wl consol sml sh incls
T138	6241.6	12.0	46.6	2.64	29.8	18.0	52.2	Sst yel wh vfgr wl consol sml sh incls
T139	6242.6	12.2	35.7	2.64	30.0	17.4	52.6	Sst yel wh vfgr wl consol sml sh incls
T140	6243.5	12.1	32.3	2.64	30.2	15.8	54.0	Sst yel wh vfgr wl consol sml sh incls
T141	6244.3	12.1	44.3	2.64	28.7	24.6	46.7	Sst yel wh vfgr wl consol sml sh incls
T142	6245.5	10.7	58.7	2.64	32.4	19.7	47.9	Sst yel wh vfgr wl consol sml sh incls
T143	6246.5	9.1	16.1	2.64	28.5	13.4	58.1	Sst yel wh vfgr wl consol tr pyr
T144	6247.6	5.6	0.207*	2.64	75.3	3.2	21.5	Sst yel gry vfgr wl consol abd sh lams fracs
T145	6248.2	7.1	0.544*	2.66	80.7	2.7	16.6	Sst lt yel gry vfgr wl consol abd sh lams
T146	6249.7	7.1	0.820*	2.63	81.6	2.9	15.5	Sst yel gry vfgr wl consol abd thn sh lams fracs
T147	6250.7	7.9	0.187	2.64	87.4	1.4	11.2	Sst yel gry vfgr wl consol abd thn sh lams
T148	6254.7	2.1	0.018	2.69	79.1	0.8	20.1	Sst yel gry vfgr wl consol abd thn sh lams calc
T149	6255.9	5.8	**	2.70	81.9	0.8	17.3	Sst yel gry vfgr sily wl consol shly abd sh lams pyr

ORIGINAL

* Sample contains fracture(s). Permeability to gas may be anomalously high
 ** Broken/non-cylindrical sample. Permeability to gas indeterminate