WELL FILE

GEOLOGICAL ANALYSIS OF CONVENTIONAL CORE FROM THE ANADARKO PETROLEUM CORPORATION YOUNGREN "J" 1-H WELL STEVENS COUNTY, KANSAS

Prepared

for

Anadarko Petroleum Corporation

Houston, Texas

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Petrography and Diagenesis

This section of the report presents the results of detailed petrographic analysis of 32 samples. In addition, diagenetic alterations that influence porosity and permeability are considered. These samples are broadly subdivided into two categories, Sandstone/Siltstone Samples and Carbonate Samples.

Sandstone/Siltstone Samples:

Ten sandstone/siltstone samples were subjected to detailed petrographic analysis (Table 2). All of the samples are siltstones or very fine–grained sandstones. The coarsest sample has an average grain size in the range of upper very fine sand (0.098 mm). All of the others have average grain sizes in the range of coarse silt to lower very fine sand (0.048–0.080 mm). All ten samples are either very well sorted or well sorted. Several of the samples contain a relative abundance of detrital clay (2802.6, 2805.2 and 2925.5 feet), roughly 20% by point count modal analysis. Most of these argillaceous samples are from the paleosol/coastal plain facies, while the "non clay–rich" samples are from the tidal flat facies. In the "non clay–rich" samples, sorting estimates and the amount of matrix material suggests that these sandstones probably had initial porosities in the range of 38% to 45%. Minus cement porosities are now in the range of 34% to 42%, suggesting that a loss of perhaps 3 to 7 porosity units can be attributed to compaction. This is consistent with **slight** to **moderate** compaction. **Angular** and **subangular** grain shapes predominate. This is a common attribute in fine–grained rocks such as these, and the angular shapes are generally not taken as a reliable indicator of energy conditions at the time of deposition, or as a means for evaluating the distance from the source area.

Quartz grains (40.0–54.4%) are the principal framework constituent in all of these samples. Potassium feldspar (0–10.4%) and plagioclase feldspar (1.2–5.2%) are also relatively common. Minor to trace amounts of chert, metamorphic rock fragments, heavy minerals, fossils/carbonate grains, argillaceous rock fragments and mica were also observed. Based on the relative proportions of quartz, feldspar and rock fragments, these sandstones and siltstones can be classified as **subarkoses** and

arkoses. XRD analysis of the sandstone samples show the following mineralogic compositions. Quartz (46–74%), potassium feldspar (0–35%), plagioclase feldspar (4–12%), calcite (0–14%), dolomite (0–14%), anhydrite (0–14%), and clay minerals (2–9%). The quartz and feldspar identified through XRD account for most of the framework grains. In general, petrographic observations indicate more calcite and dolomite than were found through X–ray diffraction. Part of this could be the limitations in distinguishing matrix material from its associated microporosity with the petrographic microscope. In addition, total clay volumes in the argillaceous samples tend to be much higher through thin section petrographic analysis than through X–ray diffraction. Here again, part of this discrepancy is undoubtedly attributed to microporosity within the matrix material, as well as the differences inherent in comparing volume (from point count analysis), with weight percent (from X–ray diffraction).

The principal pore–filling constituents in the sandstone samples are calcite matrix (0–4.4%), dolomite matrix (0–3.6%), calcite cement (0–14.8%), dolomite cement (0–12.8%), anhydrite cement (0–22.8%), authigenic clay (0–3.6%), and detrital clay matrix (0–21.2%). Relatively minor amounts of quartz cement (0–4.8%), feldspar cement (0–0.8%), iron oxide cement (0–3.2%), and pyrite cement (0–1.2%) were also identified. The tidal flat sandstones/siltstones with the least carbonate matrix and carbonate cement have the highest porosities and permeabilities, while the samples that are relatively rich in carbonate matrix and cement have the lowest porosities. Therefore, an important control in porosity distribution in the sandstone/siltstone samples is the amount of carbonate matrix and cement. Locally, anhydrite cement can also be a factor. Authigenic clay may also influence permeability. These clay minerals have replaced macropores with less effective micropores and attenuated pore throat apertures. SEM analysis and X–ray diffraction analysis of the clay fraction could help to better determine the effect that clay minerals have on porosity, permeability and reservoir potential.

Grain replacements are relatively uncommon; only minor to trace amounts of calcite, dolomite, anhydrite, and clay replacements noted.

Point count data indicate that intergranular pores (0–20.8%) and secondary leached grain pores (0–1.6%) are present. In nearly all of the "non clay–rich" (tidal flat) samples, primary intergranular pores account for roughly 90% of the macropore volume. Secondary pores from leached gains are relatively rare. Microporosity occurs in association with authigenic clay and matrix material. Several samples, such as from 2743.1, 2802.6, 2805.2 and 2925.5 feet, have little or no visible pore space; however, routine core analysis measurements for these four samples show measured porosity values ranging from 8.8% to 13.2%. Nearly all of the measured pore volume in these samples is in the form of microporosity. It is significant to note that these four samples all have permeability values below 0.036 md; these permeability values are consistent with pore system dominated by microporosity.

Carbonate Samples:

A total of 22 carbonate samples were analyzed in detail. All of the samples are grainstones or packstones from the shoal/shoal flank facies. Seventeen of these are limestones or dolomitic limestones, and five are dolomites.

Limestones:

Within most of the lime grainstones/packstones, peloids, skeletal fragments, and oncoids are the main allochemical constituents. The skeletal debris includes bryozoans, brachiopods, echinoderms, foraminifera, calcareous algae and pelecypods. Ooids are locally present, and in the samples from the Towanda Lime (Figures 14, 15 and 16), ooids are by far the dominant framework constituent.

The pore structure in the lime grainstones/packstones varies with depositional texture. In the grainstones, intergranular pores are augmented with 1) intragranular pores (mostly intraskeletal pores within foraminifera, bryozoans and calcareous algae), 2) moldic pores from leached and partially leached framework grains, and 3) microporous micritic grains. The ooid grainstones show a somewhat different pore structure, being dominated by moldic pores and subordinate amounts of intergranular pore space. Calcite cement is the primary pore–filling constituent in the grainstones. In the packstones, most of the macropore space is in the form of poorly interconnected

TABLE 1

STRATIGRAPHIC UNITS

ANADARKO PETROLEUM CORPORATION YOUNGREN "J" 1-H WELL*

Stratigraphic Unit	Core Depth (ft)
Herington	2478–2503
Krider	2503–2538
O'Dell	2538–2547
Winfield Sand	2547–2565
Winfield Dolomitic Lime	2565–2585
Gage	2585–2610
Towanda Sand	2610–2620
Towanda Carbonate	2620–2654
Holmesville	2654–2676
Upper Ft. Riley	2670–2710
Lower Ft. Riley	2710–2732
Upper Florence	2732–2743
Lower Florence	2743–2761
Wreford	2761–2784
Council Grove A	2784–2865
Council Grove B1	2865–2892
Council Grove B2	2892–2915
Council Grove B3	2915–2930
Council Grove B4	2930–2944
Council Grove B5	2944–2963

* Unit tops provided by Anadarko Petroleum Corporation.

TABLE 2

SANDSTONE THIN SECTION POINT COUNT DATA

ANADARKO PETROLEUM CORPORATION
YOUNGREN "J" 1-H WELL
STEVENS COUNTY, KANSAS

Depth (ft)	2481.8	2552.9	2613.2	2740.1	2743.1
Stratigraphic Unit	Herington	Winfield	Towanda	Upper Florence	Lower Florence
WWRC#	51416 : 46	52423 : 691	61414 : 472	62416 : 347	62447 : 674
Texture					
Average Grain Size (mm)	LVF Sand (0.065 mm)	LVF Sand (0.077 mm)	C. Silt (0.048 mm)	C. Silt (0.058 mm)	C. Silt (0.056 mm)
Sorting	Very Well	Well	Very Well	Well	Well
Framework Grains					
Quartz	40.0%	50.4%	49.6%	54.0%	54.4%
Plagioclase Feldspar	3.2	4.8	5.2	3.6	2.6
Potassium Feldspar	10.4	7.2	0.8	--	0.8
Chert	0.8	--	1.6	0.8	0.8
Metamorphic Rock Fragment	--	2.4	2.8	1.6	2.4
Heavy Minerals	0.4	0.8	0.4	0.8	1.6
Fossils/Carbonate Grains	8.8	--	--	1.6	1.6
Argillaceous Rock Fragments	--	--	0.4	--	0.4
Mica	--	--	0.8	0.4	0.8
Pore-Filling Constituents					
Matrix Clay	--%	3.6%	--%	0.4%	7.6%
Matrix Calcite	--	--	0.4	2.8	3.2
Matrix Dolomite	13.2	--	0.4	2.4	3.6
Calcite Cement	--	--	2.4	14.8	7.6
Dolomite Cement	3.6	--	10.8	4.8	4.6
Anhydrite Cement	0.4	0.8	2.4	3.6	--
Quartz Cement	0.4	2.0	1.6	0.8	2.4
Authigenic Clay	1.6	2.0	2.0	1.6	3.6
Feldspar Cement	--	0.4	--	--	--
Iron Oxide Cement	--	3.2	--	--	--
Pyrite Cement	--	--	--	1.2	0.4
Grain Replacements					
Calcite	--%	--%	Tr%	--%	0.4
Dolomite	--	--	--	--	--
Anhydrite	--	--	--	--	--
Clay	Tr	Tr	--	--	--
Pore Space					
Intergranular	16.0%	20.8%	17.2%	4.8%	0.8%
Leached Grain	1.2	1.6	1.2	Tr	0.4
Measured Porosity(%)	17.6	26.0	20.7	10.1	9.0
Measured Permeability(md)	10.1	144.	35.7	0.126	0.020

TABLE 2 (CONTINUED)

SANDSTONE THIN SECTION POINT COUNT DATA

ANADARKO PETROLEUM CORPORATION
YOUNGREN "J" 1-H WELL
STEVENS COUNTY, KANSAS

Depth (ft)	2793.5	2793.9	2802.6	2805.2	2925.5
Stratigraphic Unit	Coun. Grove A	Coun. Grove A	Coun. Grove A	Coun. Grove A	Coun. Grove B
WWRC#	52427 : 739	52417 : 731	61457 : 634	62457 : 643	62456 : 643
Texture					
Average Grain Size (mm)	LVF Sand (0.080 mm)	UVF Sand (0.098 mm)	C. Silt (0.058 mm)	C. Silt (0.060 mm)	C. Silt (0.058 mm)
Sorting	Well	Well	Very Well	Well	Well
Framework Grains					
Quartz	44.8%	46.0%	46.4%	48.0%	54.0%
Plagioclase Feldspar	4.4	3.2	1.2	2.8	4.0
Potassium Feldspar	2.4	6.0	2.4	2.0	--
Chert	--	0.4	1.2	0.8	--
Metamorphic Rock Fragment	1.2	0.8	0.8	--	0.4
Heavy Minerals	2.4	--	1.2	--	1.2
Fossils/Carbonate Grains	0.8	2.0	1.6	--	--
Argillaceous Rock Fragments	1.6	0.8	--	1.6	--
Mica	0.8	0.8	--	0.8	--
Pore-Filling Constituents					
Matrix Clay	1.2%	0.4%	19.6	21.2%	19.2%
Matrix Calcite	--	--	4.4	--	--
Matrix Dolomite	--	--	--	--	--
Calcite Cement	4.0	4.8	10.8	6.0	2.0
Dolomite Cement	2.4	--	7.2	12.8	12.8
Anhydrite Cement	16.0	22.8	0.4	2.8	2.0
Quartz Cement	3.2	4.8	--	--	--
Authigenic Clay	2.8	1.6	Tr	0.4	--
Feldspar Cement	0.8	--	--	--	--
Iron Oxide Cement	3.2	1.2	2.4	-	1.6
Pyrite Cement	--	--	--	0.4	1.2
Grain Replacements					
Calcite	0.4	--%	0.4	--%	--%
Dolomite	--	--	--	0.4	Tr
Anhydrite	--	--	--	--	--
Clay	Tr	Tr	--	--	--
Pore Space					
Intergranular	6.8%	4.0%	--	--	1.2%
Leached Grain	0.8	0.4	--	--	0.4
Measured Porosity(%)	9.5	8.3	8.8	9.3	13.2
Measured Permeability(md)	4.7	1.68	0.010	0.012	0.035

TABLE 3

MINERALOGICAL ANALYSIS BY X-RAY DIFFRACTION

ANADARKO PETROLEUM CORPORATION YOUNGREN "J" 1-H WELL
STEVENS COUNTY, KANSAS

Mineralogy of Whole Rock Sample

Relative Abundance in Percent

Depth (ft)	Unit	Qtz	Ksp	Plag	Cal	Dol	Anh	Clay	Total	Gd	
2481.8	HER	46	35	8	0	9	0	2	100	2.63	
2515.3	KRI	2	1	0	0	92	0	5	100	2.83	
2518.2	KRI	2	0	0	0	95	0	3	100	2.84	
2526.4	KRI	4	0	0	0	93	0	3	100	2.84	
2532.3	KRI	1	0	0	0	92	3	4	100	2.84	
2552.9	WS	74	11	12	0	0	0	3	100	2.64	
2573.5	WDL	5	0	1	11	68	11	4	100	2.82	Ank
2578.7	WDL	1	0	0	94	5	0	0	100	2.72	Ank
2613.2	TS	74	0	7	2	9	5	3	100	2.68	
2625.9	TL	2	0	0	83	1	14	0	100	2.74	Ank
2637.8	TL	2	0	0	96	0	2	0	100	2.71	
2638.2	TL	2	0	0	92	0	6	0	100	2.72	
2647.6	TL	18	0	6	47	23	2	4	100	2.73	Ank
2682.6	UFR	10	0	10	59	19	0	2	100	2.72	Ank
2704.7	UFR	8	1	1	62	8	18	2	100	2.75	Ank
2740.1	UF	74	0	4	14	2	0	6	100	2.66	Ank
2743.1	LF	71	3	8	9	2	0	7	100	2.65	Ank
2768.8	WRE	5	0	0	95	0	0	0	100	2.71	
2793.5	CGA	59	20	7	4	0	6	4	100	2.65	
2793.9	CGA	61	8	6	8	0	14	3	100	2.68	
2802.6	CGA	64	8	7	13	2	0	6	100	2.65	Ank
2805.2	CGA	73	0	8	7	3	0	9	100	2.66	Ank
2870.3	CGB1	3	0	0	74	0	23	0	100	2.76	
2878.9	CGB1	1	0	0	99	0	0	0	100	2.71	
2896.3	CGB2	3	0	0	97	0	0	0	100	2.71	
2897.6	CGB2	12	0	0	88	0	0	0	100	2.70	
2917.3	CGB3	3	0	0	97	0	0	0	100	2.71	
2918.1	CGB3	7	0	0	90	0	3	0	100	2.71	
2925.5	CGB3	74	0	5	0	14	0	7	100	2.68	Ank
2932.3	CGB4	2	0	0	95	0	3	0	100	2.72	
2951.5	CGB5	6	0	0	78	16	0	0	100	2.73	Ank
2952.3	CGB5	1	0	0	98	1	0	0	100	2.71	Ank
	Min	1	0	0	0	0	0	0		2.63	
	Max	74	35	12	99	95	23	9		2.84	
	Avg	24	3	3	47	17	3	2		2.72	

KEY:

HER = Herington
KRI = Krider
WS = Winfield Sand
WDL = Winfield Dol. Lime
TS = Towanda Sand
TL = Towanda Lime
UFR = Upper Ft. Riley
UF = Upper Florence
LF = Lower Florence

WRE = Wreford
CGA = Council Grove A
CGB1 = Council Grove B1
CGB2 = Council Grove B2
CGB3 = Council Grove B3
CGB4 = Council Grove B4
CGB4 = Council Grove B5

Qtz = quartz
Ksp = K-feldspar
Plag = plagioclase
Cal = calcite
Dol = dolomite
Anh = anhydrite
Clay = total clay
Gd = calculated grain density
Ank = contains ankerite/ferroan dolomite

Youngsan J1H

CORE LEGEND

STRUCTURES

- RIPPLE CROSS-STRATIFICATION
- RIPPLE FORMS
- CROSS-STRATIFICATION
- LAMINATED
- WAVY BEDDING
- CONTORTED BEDDING
- BIOTURBATED
- BURROW
- ANHYDRITE NODULES
- DIFFUSE COMPACTION SEAMS/SHALY LAMINAE
- STYLOLITE
- M — MICROSTYLOLITE
- MICROFAULT W/ DISPLACEMENT
- MUDCRACKS
- ROOT CASTS
- V_B — BORED HARDGROUND
- f_A — FRACTURE (SUBSCRIPT: A = ANHYDRITE-FILLED, B = BITUMEN-FILLED, C = CALCITE-FILLED, D = DOLOMITE FILLED, O = OPEN NATURAL, CN = CLOSED NATURAL)
- ANHYDRITE NODULE/VUG
- FU — FINING UPWARD
- CU — COARSENING UPWARD
- SPREITE-FILLED BURROW

ACCESSORY CONSTITUENTS

- Py - PYRITE
- CALC. - CALCAREOUS
- SiO_2 - SILICEOUS
- DOL. - DOLOMITE
- ARG. - ARGILLACEOUS
- © - CLACITE-FILLED VUGS
- SSD - SOFT-SEDIMENT-DEFORMATION
- CARB. - CARBONACEOUS DEBRIS

CONTACTS

- SHARP
- GRADATIONAL
- UNDULATORY/IRREGULAR

SAMPLE LOCATIONS

- TS - THIN SECTION
- A-D - CLOSE CORE PHOTOGRAPH
- ■ - THIN SECTION, XRD, SCAL SAMPLE

CARBONATE GRAIN VARIETIES

- PELECYPODS
- BRACHIOPODS
- GASTROPODS
- ECHINODERMS
- CALCAREOUS ALGAE (UNDIFFERENTIATED)
- R — CALCAREOUS RED ALGAE
- BRYOZOANS
- FORAMINIFERA
- CORAL
- OOIDS
- ONCOIDS/ALGAL-COATED GRAINS
- PELOIDS
- PELLETS
- INTRACLASTS

LITHOLOGY

- SANDSTONE — ⊥ CALCITIC
- SILTSTONE — ∠ DOLOMITIC
- SHALE — -·- SILTY
- LIMESTONE — --- SHALY
- DOLOSTONE — ····· SANDY
- ANHYDRITE — + ANHYDRITIC

FIGURE 2

ANADARKO PETROLEUM CORPORATION
YOUNGREN J 1-H
STEVENS COUNTY, KANSAS

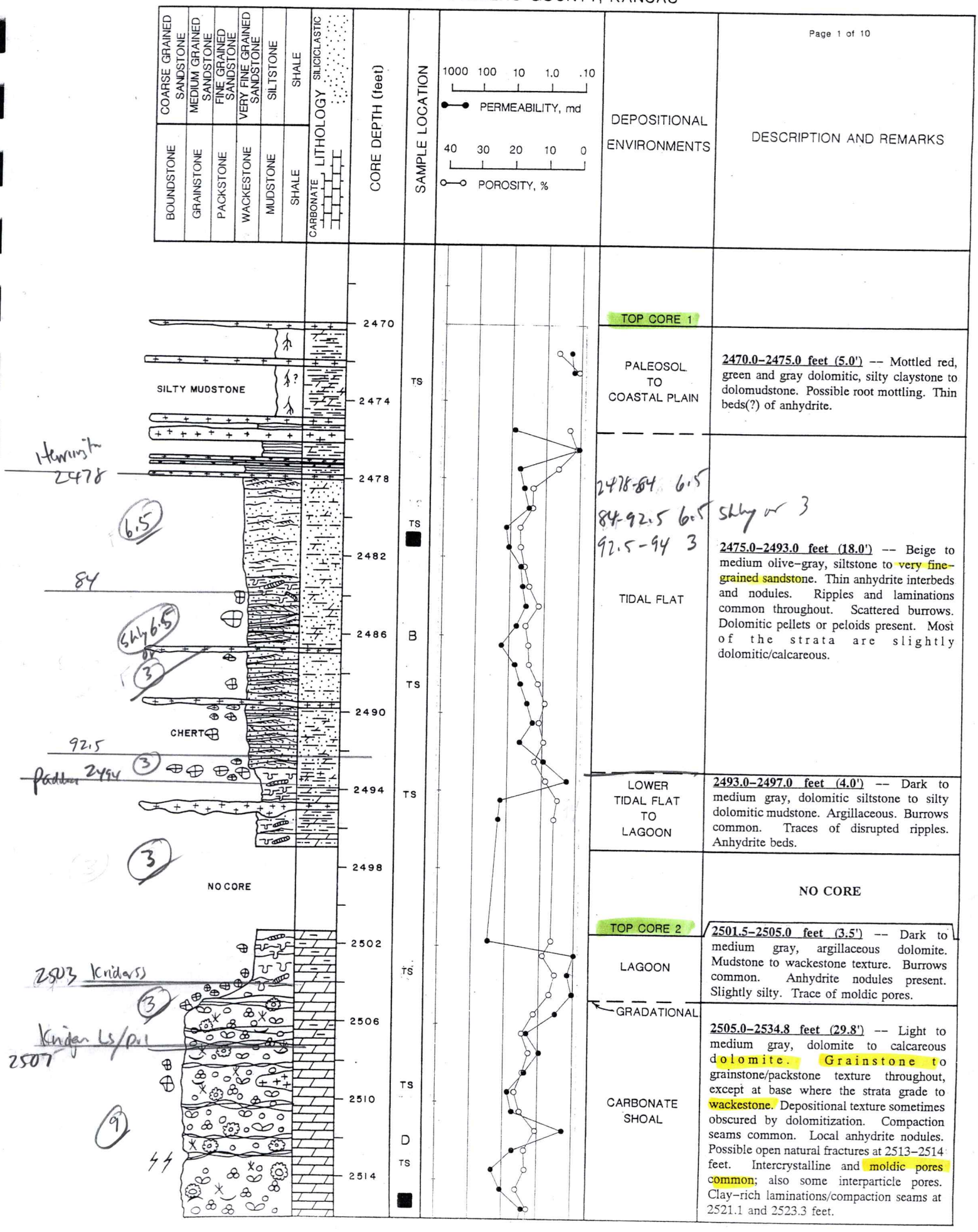
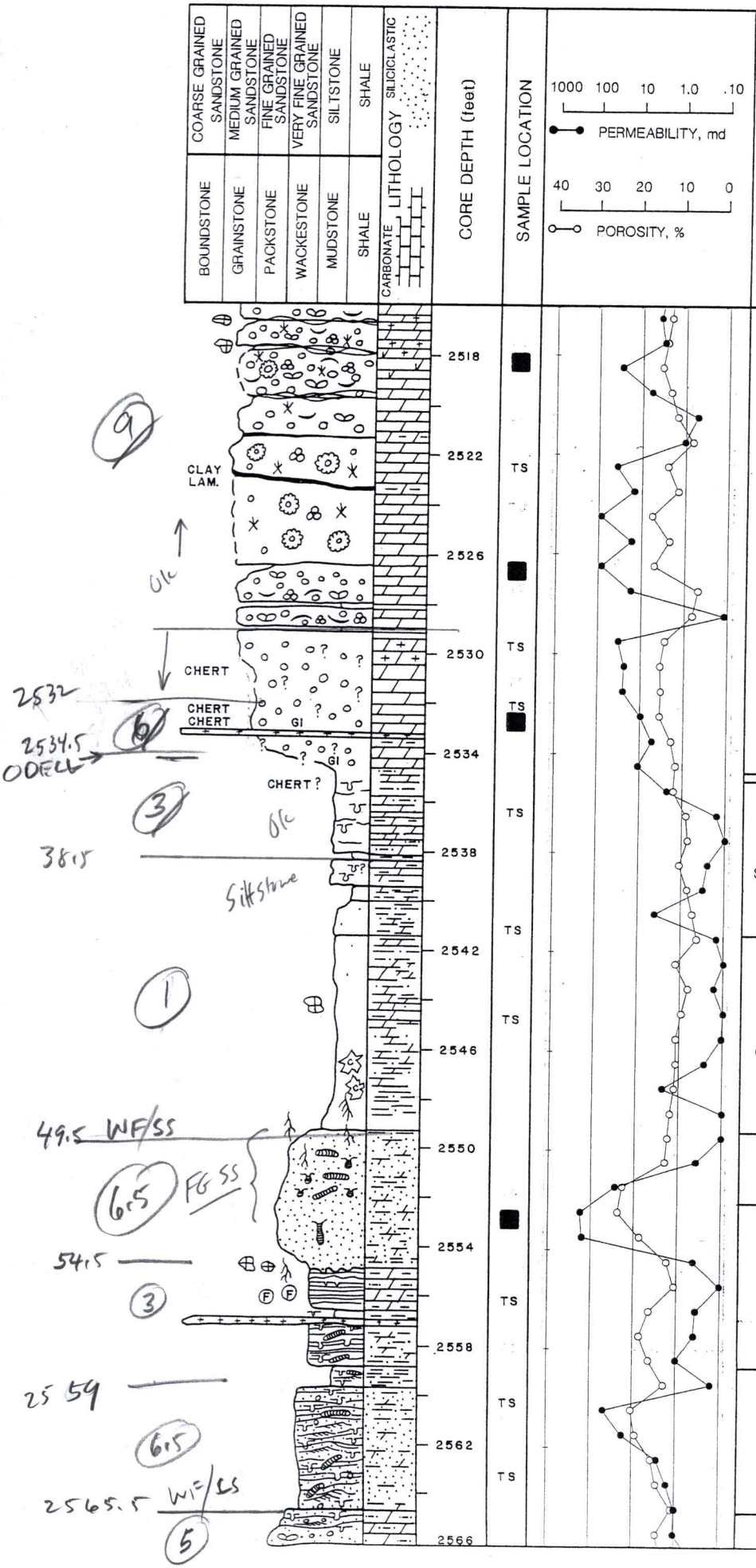


FIGURE 2 CONTINUED

ANADARKO PETROLEUM CORPORATION

YOUNGREN J 1-H

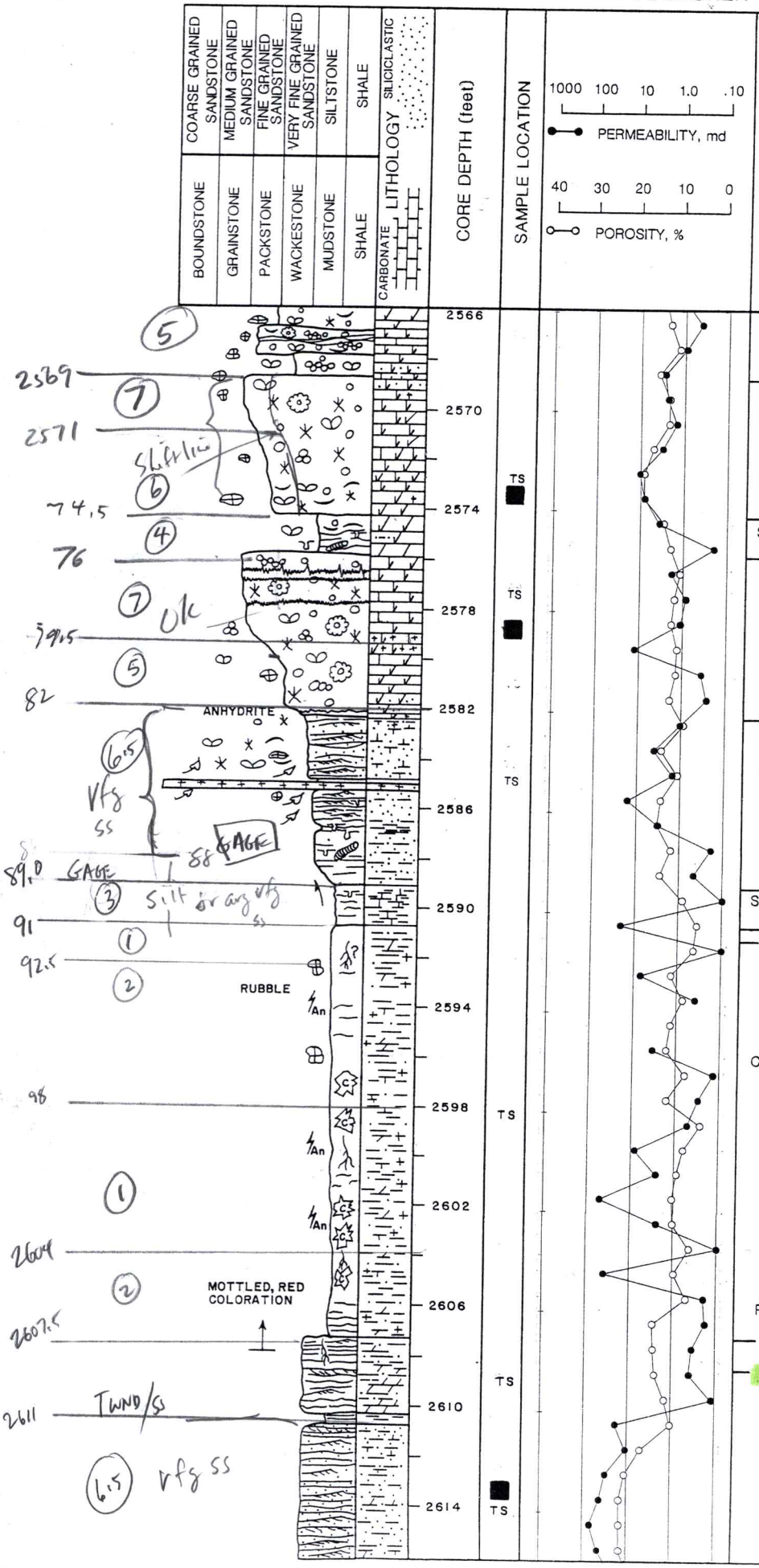


DEPOSITIONAL ENVIRONMENTS	DESCRIPTION AND REMARKS
CARBONATE SHOAL TO SHOAL FLANK	**CONTINUED FROM ABOVE**
TOP CORE 3	
LAGOON OR SHALLOW SHELF	**2534.8–2541.8 feet (7.0')** -- Medium gray silty dolomite (mudstone) to dolomitic siltstone. Bioturbated. Thin claystone beds. Chert(?) nodule at 2535.2 feet. Scattered moldic and interparticle pores. Less porous toward the base.
PALEOSOL TO COASTAL PLAIN	**2541.8–2549.5 feet (7.7')** -- Brick-red to medium-dark olive-gray, argillaceous/silty, dolomitic mudstone. Caliche nodules and root mottling at base. Minor anhydrite nodules. Little visible pore space.
TOP CORE 4	**2549.5–2557.0 feet (7.5')** -- Pink, beige and greenish, laminated dolomite (mudstone), overlain by tan to brick-red and pale green, dolomitic siltstone to very fine-grained sandstone. The siltstone is burrowed to root mottled. Fenestral pores (filled) and possible mudcracks in dolomite.
TIDAL FLAT	
TOP CORE 5	**2557.0–2565.1 feet (8.1')** -- Medium to light gray, dolomitic siltstone/very fine-grained sandstone. Ripples and laminations present throughout, except where burrows are present. Grading to dolomitic claystone between 2559 and 2560 feet.
TIDAL FLAT TO LAGOON	**2565.1–2568.5 feet (3.4')** -- Medium gray dolomitic limestone to calcareous dolomite. Wackestone/packstone texture. Anhydrite nodules. Moldic and intercrystalline pores present.

FIGURE 2 CONTINUED

ANADARKO PETROLEUM CORPORATION

YOUNGREN J 1-H

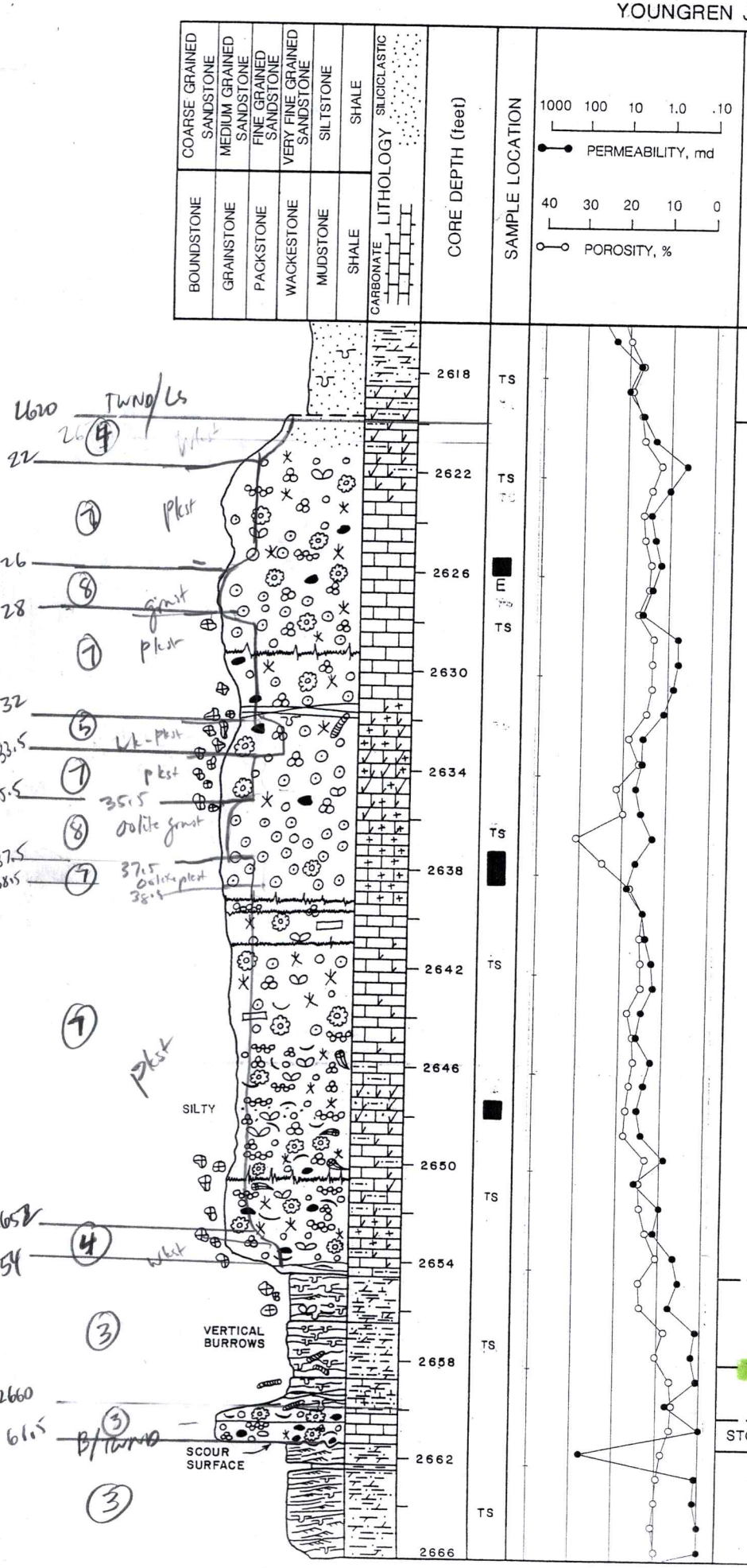


DEPOSITIONAL ENVIRONMENTS	DESCRIPTION AND REMARKS
LAGOON TO SHOAL FLANK	**2568.5–2574.3 feet (5.8')** -- Medium gray, calcareous dolomite, grading upward to dolomitic limestone. Matrix-selective dolomitization. Texture grades upward from wackestone/packstone at base to grainstone at top. Scattered anhydrite nodules. Moldic pores, intercrystalline pores and interparticle pores present.
CARBONATE SHOAL TO SHOAL FLANK	
SHALLOW SHELF (?)	**2574.3–2575.9 feet (1.6')** -- Medium gray dolomite. Mudstone to wackestone texture. Burrows common. Trace of moldic pores.
CARBONATE SHOAL TO SHOAL FLANK	**2575.9–2582.5 feet (6.6')** -- Light gray to beige, calcareous dolomite, grading upward to dolomitic limestone. Depositional texture grades upward from wackestone/packstone to grainstone. Appears to be matrix selective dolomitization. Interparticle, intraparticle macropores and microporosity in micritic grains.
TIDAL FLAT	**2582.5–2590.8 feet (8.3')** -- Grading upward from olive-gray calcareous claystone, to light gray calcareous siltstone/very fine-grained sandstone. Burrowed at base, ripple cross-stratified at top. Minor carbonaceous debris and anhydrite nodules/replacement crystals. Carbonate grains (fossils) common at top. Anhydrite bed(?) at 2585.5 feet.
SHALLOW SHELF OR LAGOON	
TOP CORE 6	
PALEOSOL/ COASTAL PLAIN	**2590.8–2607.3 feet (16.5')** -- Mottled brick-red to green, dolomitic/calcareous, argillaceous siltstone to silty claystone. Caliche nodules, root mottling, anhydrite nodules and anhydrite-filled fractures present. No open natural fractures preserved.
PALEOSOL TO TIDAL FLAT	
TOP CORE 7	
TIDAL FLAT TO LAGOON	**2607.3–2619.8 feet (12.5')** -- Grading upward from light to medium gray, silty dolomudstone to dolomitic siltstone. Most of the strata are calcareous. Above 2616 feet siltstones appear to predominate.

FIGURE 2 CONTINUED

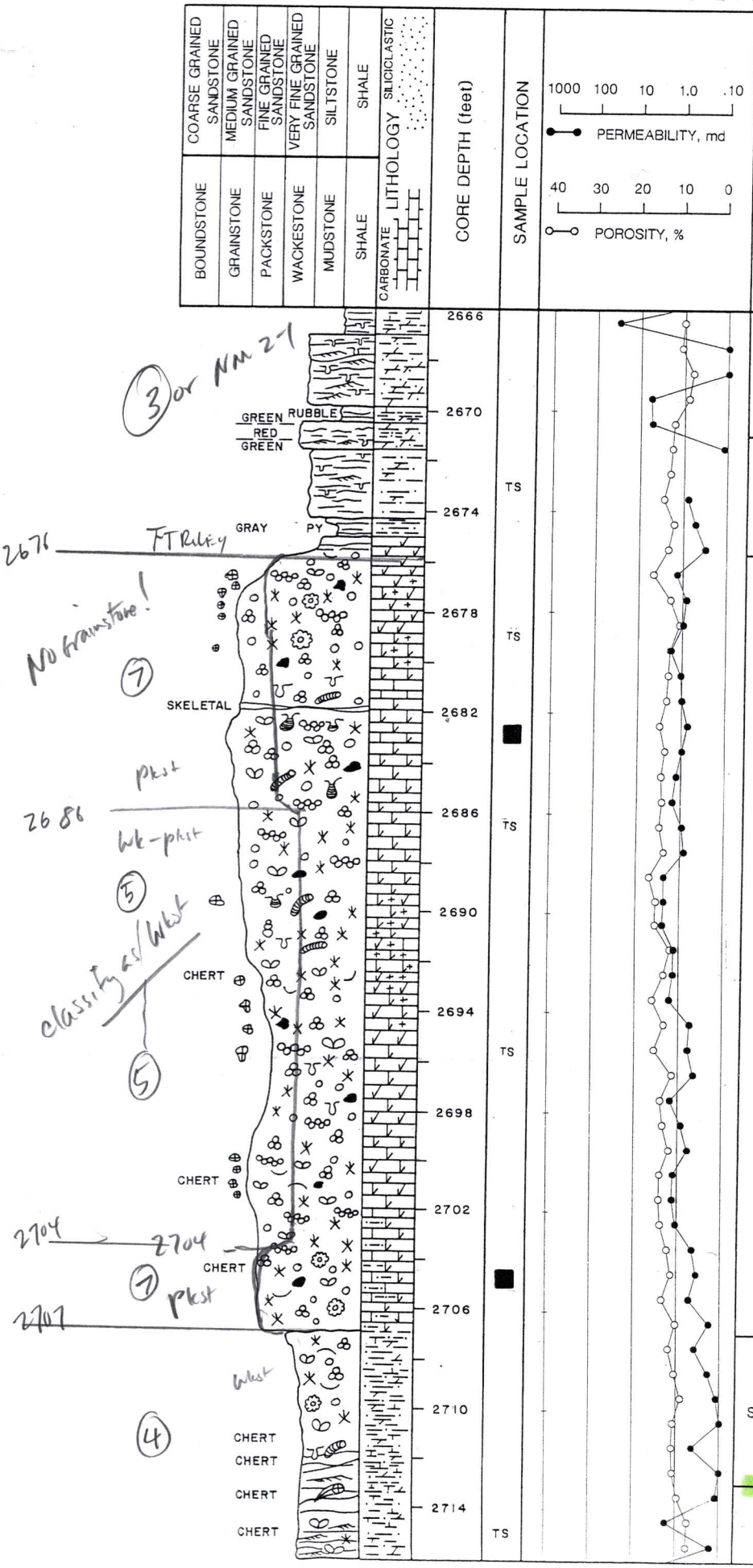
ANADARKO PETROLEUM CORPORATION

YOUNGREN J 1-H



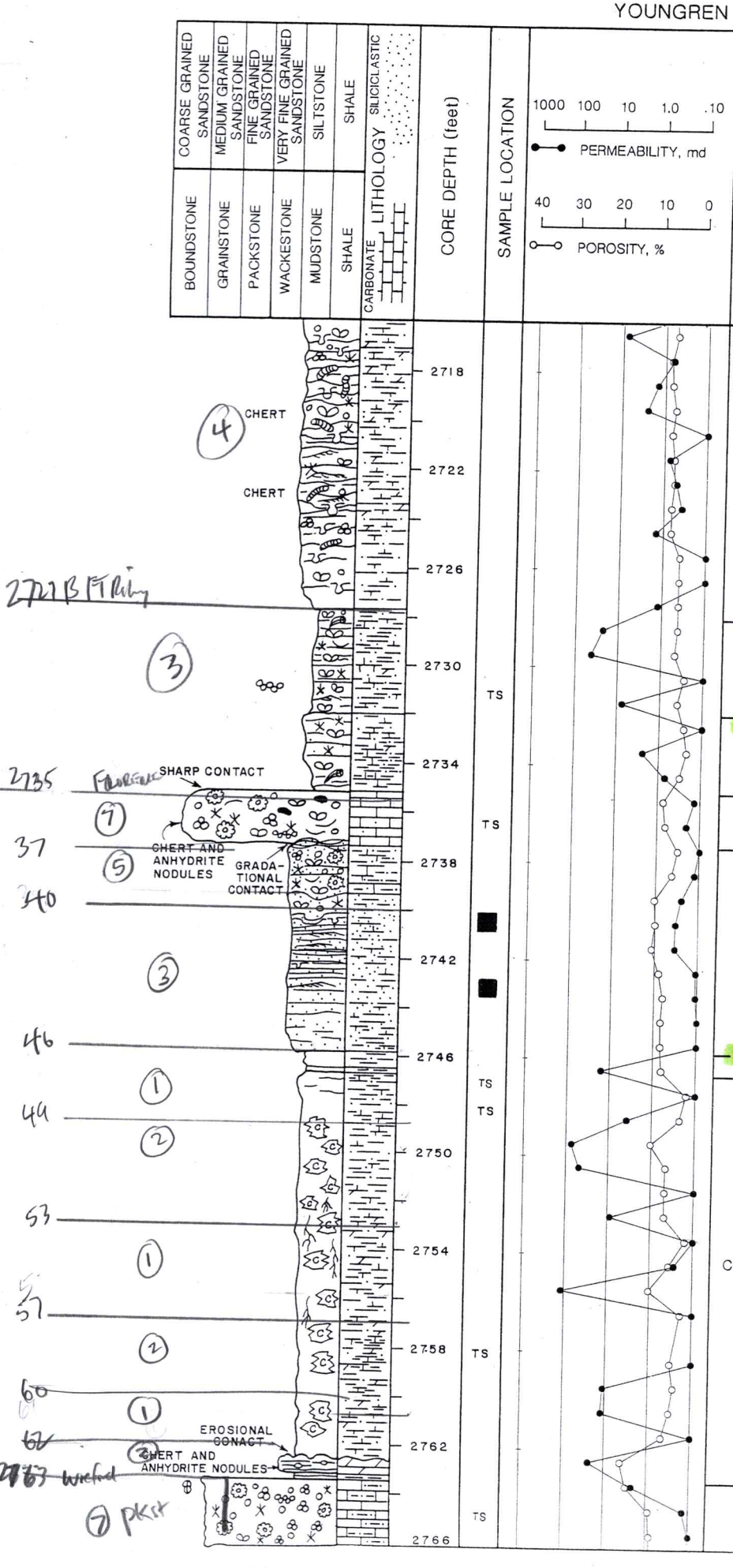
DEPOSITIONAL ENVIRONMENTS	DESCRIPTION AND REMARKS
TIDAL FLAT TO LAGOON	**CONTINUED FROM ABOVE**
CARBONATE SHOAL	**2619.8–2654.5 feet (34.7')** -- Light to medium gray and tan–gray, limestone to dolomitic limestone with some calcareous dolomite. Local anhydrite nodules and replacement crystals, especially near the middle and base of the interval. Grainstone and packstone textures throughout. Skeletal grains, ooids, peloids and intraclasts present. Parts are skeletal–dominated, parts are ooid–dominated. Scattered stylolites and compaction seams. Pore system consists of a mixture of interparticle, moldic and intercrystalline pores. Pore types vary throughout the interval. Some microporous grains.
TIDAL FLAT TO LAGOON TOP CORE 8	**2654.5–2660.2 feet (5.7')** Light to medium gray, calcareous/dolomitic siltstone to silty dolomudstone. Ripples and laminations common, except where burrows are present. Several anhydrite nodules.
STORM DEPOSIT	**2660.2–2661.5 feet (1.3')** -- Light gray limestone. Scoured base. Fining–upward sequence. Peloids, oncoids and skeletal grains. No visible pores.
TIDAL FLAT TO LAGOON	

FIGURE 2 CONTINUED
ANADARKO PETROLEUM CORPORATION
YOUNGREN J 1-H



DEPOSITIONAL ENVIRONMENTS	DESCRIPTION AND REMARKS
TIDAL FLAT TO LAGOON TOP CORE 9	**CONTINUED FROM ABOVE** **2661.5–2675.8 feet (14.3')** -- Light to medium gray and reddish-brown, dolomitic/calcareous siltstone interbedded with silty dolomudstone. Laminations and ripples common; burrows have locally disrupted bedding. Thin beds of argillaceous dolomudstone at 2666.0 to 2666.5 feet and 2670.2 to 2670.6 feet.
CARBONATE SHOAL TO SHOAL FLANK	**2675.8–2707.0 feet (31.2')** -- Light gray to tan, dolomitic limestone to calcareous dolomite. Grainstone and packstone textures predominate, grading to packstone/wackestone near 2694.0 feet. Appears to be some matrix-selective dolomitization. Skeletal debris, peloids, oncoids and intraclasts noted. Bryozoans, echinoderms, forams, brachiopods and pelecypods present. In the limestones, intraskeletal, moldic, and interparticle pores are present, as well as microporous grains and matrix. In the dolomites, intercrystalline, intergranular and moldic pores predominate. Pore types vary although porosity and permeability are rather uniform.
LAGOON OR SHALLOW SHELF TOP CORE 10	**2707.0–2735.1 feet (28.1')** -- Medium to dark gray, argillaceous/silty, dolomudstone to dolomitic siltstone/silty claystone. Carbonate matrix varies from calcite to dolomite. Brachiopods, echinoderms, corals and forams are present. Chert nodules and silica replacement of fossils common. Burrows also common, with some faintly preserved laminations and ripples.

FIGURE 2 CONTINUED
ANADARKO PETROLEUM CORPORATION
YOUNGREN J 1-H



DEPOSITIONAL ENVIRONMENTS

DESCRIPTION AND REMARKS

LAGOON OR SHALLOW SHELF

CONTINUED FROM ABOVE

TOP CORE 11

TOP CORE 12

CARBONATE SHOAL ?

2735.1–2737.5 feet (2.4') -- Light gray lime grainstone. Oncoids, echinoderms, forams, intraclasts, pelecypods and peloids present. Moldic and intraskeletal macropores noted, as well as small interparticle pores and microporous grains.

TIDAL FLAT

2737.5–2746.8 feet (9.3') -- Light gray to greenish gray, calcareous siltstone to very fine-grained sandstone. Locally argillaceous. Laminated and rippled in places; minor burrowing. Carbonate grains at top.

TOP CORE 13

Gradational contact.

PALEOSOL/ COASTAL PLAIN

2746.8–2762.9 feet (16.1') -- Brick-red to gray, anhydritic, dolomitic/calcareous siltstone to silty claystone. Caliche nodules and root mottling common.

CARBONATE SHOAL

2762.9–2771.1 feet (8.2') -- Tan to light gray, lime grainstone to packstone. Peloids, micritized forams, echinoderms, bryozoans, oncoids and brachiopods present.

FIGURE 2 CONTINUED

ANADARKO PETROLEUM CORPORATION

YOUNGREN J 1-H

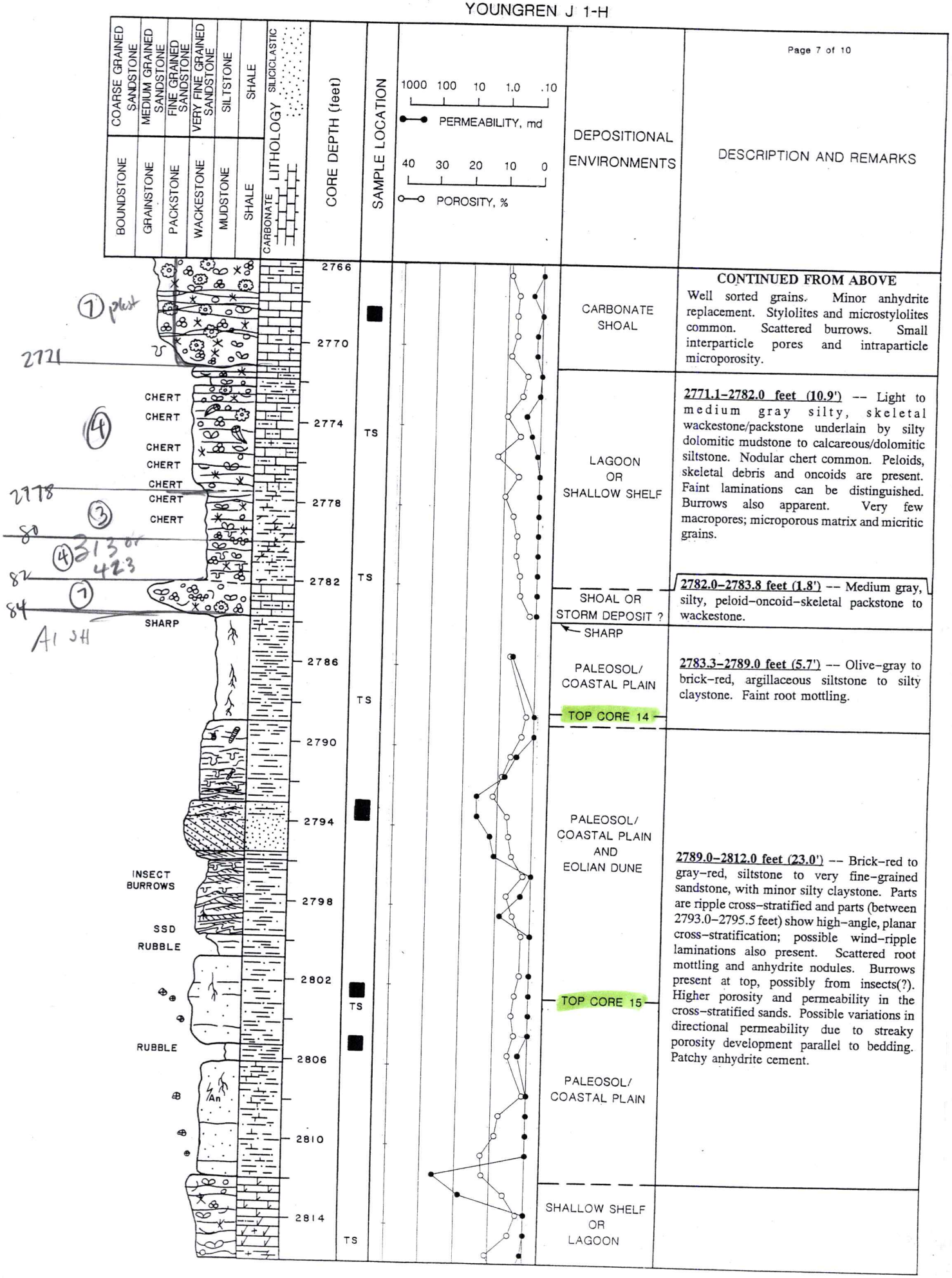
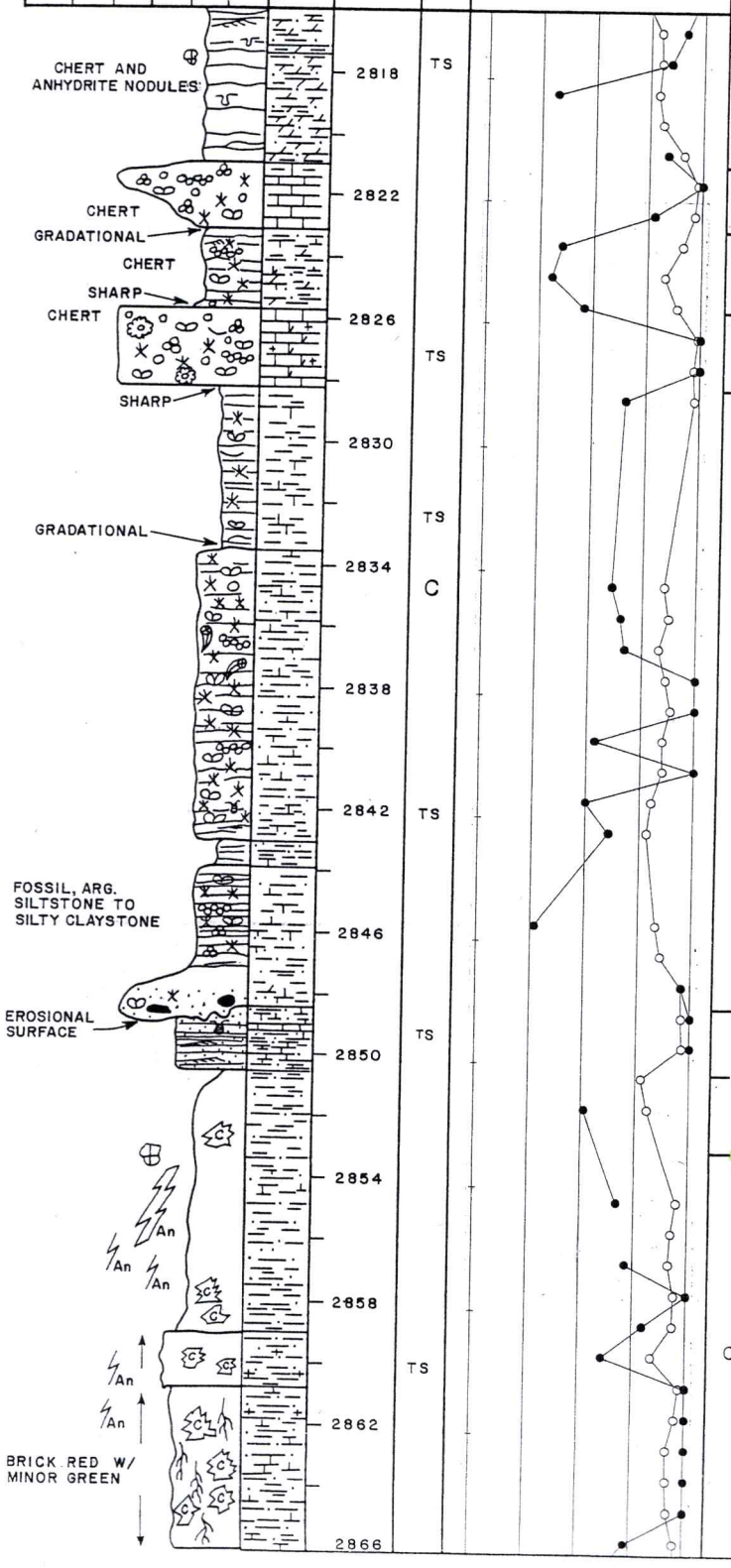


FIGURE 2 CONTINUED

ANADARKO PETROLEUM CORPORATION

YOUNGREN J 1-H



DEPOSITIONAL ENVIRONMENTS	DESCRIPTION AND REMARKS
SHALLOW SHELF OR LAGOON	**2812.0–2821.0 feet (9.0')** –– Tan to olive-gray, mudstone/wackestone underlain by silty dolomudstone and dolomitic siltstone. Chert and anhydrite nodules common. Vestiges of laminations. Little visible porosity.
SHOAL OR STORM DEPOSIT	**2821.0–2828.2 feet (7.2')** –– Tan to gray, lime packstone/grainstone, interbedded with dolomitic, argillaceous siltstone. The siltstone has brachiopods, bryozoans, echinoderms and other skeletal constituents. Little visible porosity.
SHALLOW SHELF OR LAGOON	
SHOAL OR STORM DEPOSIT	
LAGOON OR SHALLOW SHELF	**2828.2–2848.3 feet (20.1')** Medium olive-gray to dark gray, calcareous shale to argillaceous siltstone/very fine-grained sandstone. Skeletal debris common, including: brachiopods, corals, bryozoans and echinoderms. Many of the fossils are partially silicified. Some indication of burrowing, but platy fossils are aligned roughly parallel to bedding.
	Erosional surface.
TIDAL FLAT	**2848.3–2850.5 feet (2.2')** –– Grayish tan, finely laminated to ripple cross-stratified, calcareous siltstone to very fine-grained sandstone.
TOP CORE 16	
PALEOSOL/ COASTAL PLAIN	**2850.5–2866.8 feet (16.3')** – Medium greenish gray, brick-red and pale green calcareous, argillaceous siltstone. Caliche nodules common. Numerous anhydrite-filled fractures; one long, vertical, 2 cm-wide, anhydrite-filled fracture at 2853.0–2855.0 feet. Scattered root mottling and mudcracks.

FIGURE 2 CONTINUED

ANADARKO PETROLEUM CORPORATION

YOUNGREN J 1-H

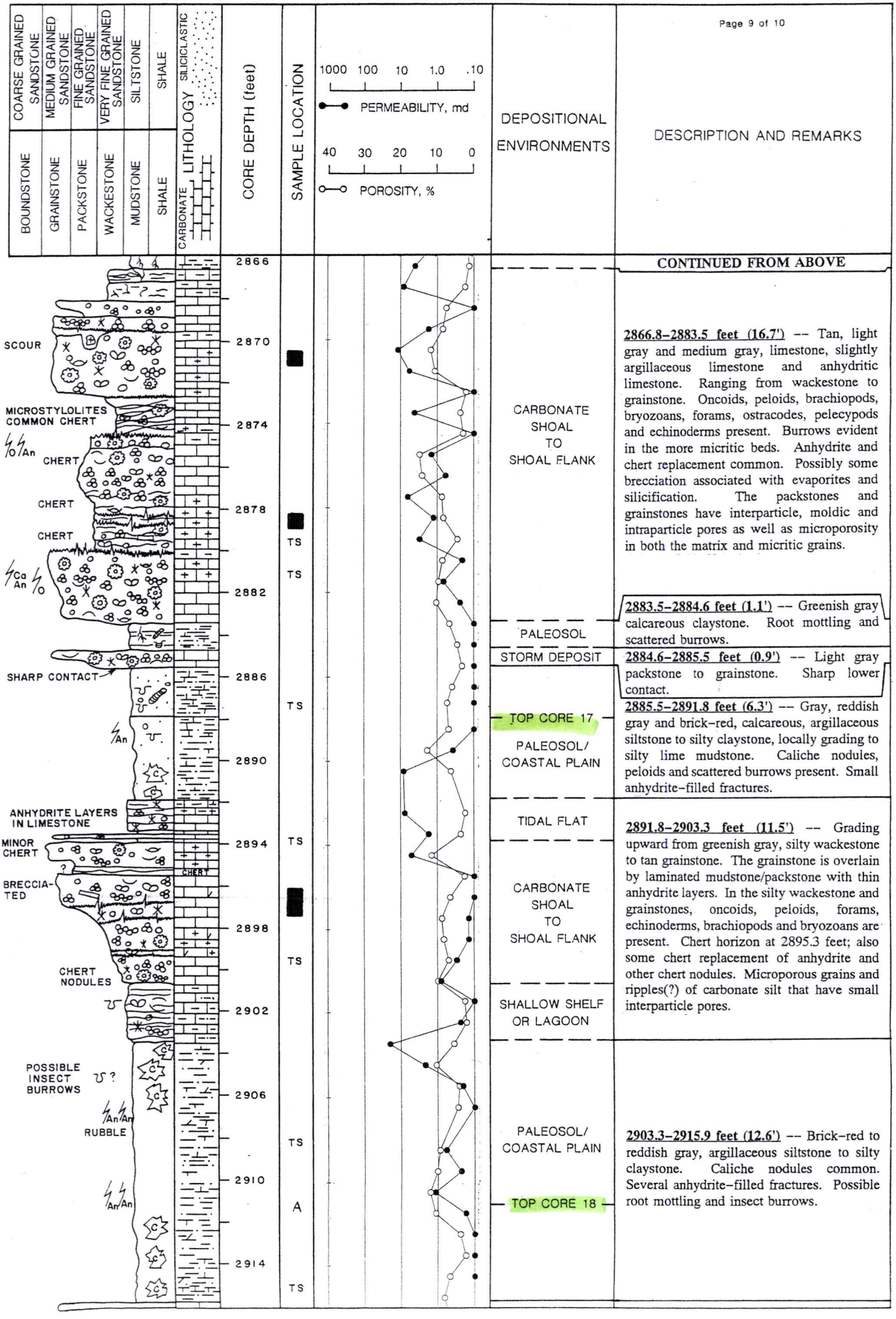
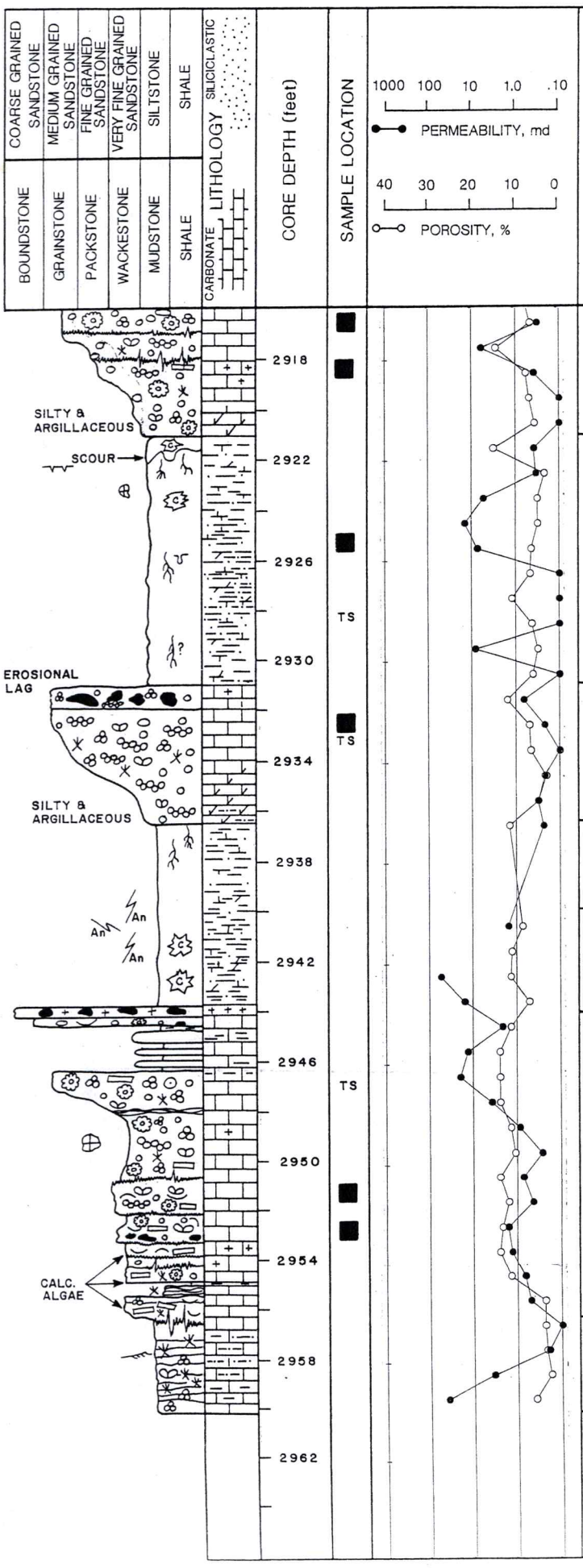


FIGURE 2 CONTINUED

ANADARKO PETROLEUM CORPORATION

YOUNGREN J 1-H



DEPOSITIONAL ENVIRONMENTS	DESCRIPTION AND REMARKS
CARBONATE SHOAL TO SHOAL FLANK	**2915.9–2920.8 feet (4.9')** -- Grading upward from green and red dolomitic lime wackestone to tan lime grainstone. Oncoids, peloids, bryozoans, echinoderms, forams and brachiopods present. Some anhydrite replacement near 2918 feet. Interparticle pores, intraparticle pores, microporous grains.
PALEOSOL/ COASTAL PLAIN	**2920.8–2931.0 feet (10.2')** -- Brick-red, argillaceous, calcareous siltstone. Minor root mottling. A few caliche nodules. Possible mudcracks near top of unit. Scattered anhydrite nodules. Perhaps a few insect burrows. Scour surface at 2921.6 feet. No visible pore space.
CARBONATE SHOAL TO SHOAL FLANK	**2931.0–2936.4 feet (5.4')** -- Tan and reddish/greenish tan wackestone, grading up to grainstone. Limestone, dolomitic limestone and calcareous dolomite present. Bryozoans, peloids, echinoderms and brachiopods common. Limestone intraclasts at top of unit. Microporous grains and matrix. Minor intraskeletal macropores.
TOP CORE 19 PALEOSOL/ COASTAL PLAIN	**2936.4–2944.1 feet (7.7')** -- Brick-red, argillaceous, calcareous/dolomitic siltstone. Caliche nodules at base, root mottling at top. Numerous anhydrite-filled fractures. Anhydrite-cemented, clay-clast breccia at base of unit.
TIDAL FLAT ? SHOAL FLANK TO SHALLOW SHELF	**2944.1–2956.6 feet (12.5')** -- Light gray to tan limestone with scattered anhydrite nodules. Grading upward from wackestone/packstone to grainstone. Oncoids, forams, peloids, calcareous algae, pelecypods and brachiopods present. Stylolites and microstylolites common. Patchy moldic, interparticle and intraskeletal macropores. Some microporous grains.
SHALLOW SHELF OR LAGOON	**2956.6–2960.1 feet (3.5')** -- Medium gray, argillaceous, silty, lime mudstone to wackestone. Echinoderm fragments and fusulinid forams present. Laminations common. Scattered burrows. Little visible pore space.

ANADARKO PETROLEUM **DATE: 07-09-94**
WELL: YOUNGREN 'J' 1-H **ANALYST: DAVID FLOYD**
FULL DIAMETER CORE ANALYSIS

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax	K90	Kvert	Grain Density (g/cc)	LITHOLOGY	Depth (ft.)	Porosity (%)	neability (Kmax
	2,470.5	TBFA	TBFA	TBFA	TBFA	TBFA	SH SL SLTY FRAC	2470.5		
2	2,471.5	6.6	0.200	0.150	0.120	2.78	SH SL SLTY SL SDY TR ANHY	2471.5	6.63	0.2
3	2,472.5	0.7	0.170	0.170	0.020	2.96	ANHY SH PTG DNS	2472.5	0.68	0.17
	2,473.5	TBFA	TBFA	TBFA	TBFA	TBFA	SH SL SLTY SL SDY	2473.5		
	2,474.5	TBFA	TBFA	TBFA	TBFA	TBFA	SH SL SLTY SL SDY	2474.5		
5	2,475.5	3.3	8.29	7.55	0.520	2.93	ANHY MOD SHLY SL SLTY	2475.5	3.3	8.29
6	2,476.5	1.0	0.110	0.060	0.020	2.93	ANHY SH PTG DNS	2476.5	1	0.11
7	2,477.5	6.4	5.78	5.37	0.320	6.30	SH SLTY LAM ANHY INCL	2477.5	6.4	5.78
8	2,478.5	13.7	4.29	2.16	0.730	2.73	SS VFGR SL DOL SL SLTY INTGR POR	2478.5	13.68	4.29
9	2,479.5	13.8	3.10	3.02	0.630	2.75	SS VFGR SL DOL SL SLTY INTGR POR	2479.5	13.75	3.1
10	2,480.5	17.3	13.52	11.83	12.85	2.70	SS VFGR SL DOL TR SLTY INTGR POR	2480.5	17.29	13.52
11	2,481.5	17.1	11.20	10.60	8.24	2.71	SS VFGR SL DOL TR SLTY INTGR POR	2481.5	17.1	11.2
12	2,482.5	15.9	4.94	4.85	1.87	2.69	SS VFGR SL DOL TR SLTY INTGR POR	2482.5	15.9	4.94
13	2,483.5	14.5	4.36	2.91	0.890	2.69	SS VFGR SL DOL TR SLTY INTGR POR	2483.5	14.5	4.36
14	2,484.5	11.7	3.46	3.09	0.190	2.72	SS VFGR SL DOL TR SLTY INTGR POR	2484.5	11.7	3.46
15	2,485.5	15.4	6.28	3.55	0.130	2.67	SH SL SLTY TR SDY	2485.5	15.4	6.28
16	2,486.5	14.5	16.98	12.08	0.390	2.71	SH ANHY INCL SL SLTY TR SDY	2486.5	14.5	16.98
17	2,487.5	14.2	6.71	5.90	0.310	2.74	SS VFGR SH LAM SL SLTY INTGR POR	2487.5	14.2	6.71
18	2,488.5	11.5	4.60	2.29	0.150	2.73	SH SL SDY SL SLTY	2488.5	11.5	4.6
19	2,489.5	9.4	2.93	2.60	0.130	2.74	SS VFGR SH PTG SLTY INTGR POR	2489.5	9.4	2.93
20	2,490.5	11.1	1.97	1.42	0.230	2.74	SS VFGR SL-MOD SHLY INTGR POR	2490.5	11.1	1.97
21	2,491.5	9.7	4.56	4.36	0.320	2.77	SS VFGR SL-MOD SHLY INTGR POR	2491.5	9.68	4.56
22	2,492.5	12.2	0.920	0.650	0.210	2.75	SS VFGR SL DOL SL SLTY INTGR POR	2492.5	12.2	0.92
23	2,493.5	8.9	0.190	0.140	0.090	2.82	SS VFGR SHLY SL SLTY TR INTGR POR	2493.5	8.94	0.19
24	2,494.5	5.4	15.58	14.84	2.49	2.75	SH TR SLTY TR SDY FRAC	2494.5	5.36	15.58
25	2,495.5	6.3	17.70	5.85	0.470	2.83	SH LG ANHY INCL SL SLTY FRAC	2495.5	6.3	17.7
26	2,501.8	6.7	32.19	0.930	0.060	2.76	SH TR SLTY TR SDY FRAC	2501.75	6.68	32.19
27	2,502.5	9.1	0.050	PLUG	N/A	2.83	SH ANHY INCL SLTY	2502.5	9.08	0.1
28	2,503.5	5.6	0.150	0.120	0.060	2.80	SH ANHY INCL SLTY	2503.5	5.6	0.15
29	2,504.5	7.0	0.110	0.110	0.080	2.84	DOL ANHY INCL MOD SLTY TR PPP	2504.5	7	0.11
30	2,505.5	11.5	0.330	0.290	0.280	2.84	DOL SL ANHY SL SLTY SCT PPP	2505.5	11.5	0.33
31	2,506.5	14.8	2.23	1.83	3.54	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2506.5	14.81	2.23
32	2,507.5	12.9	0.950	0.900	0.900	2.84	DOL SL ANHY SL SLTY TR FOS SCT PPP	2507.5	12.85	0.95
33	2,508.5	14.5	2.48	2.37	1.23	2.84	DOL ANHY INCL SL SLTY SH PTG SCT PPP	2508.5	14.5	2.48
34	2,509.5	16.7	7.41	7.26	7.56	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2509.5	16.66	7.41
35	2,510.5	15.1	5.48	5.34	5.88	2.84	DOL SL ANHY SL SLTY TR FOS SCT PPP	2510.5	15.1	5.48
36	2,511.5	10.6	0.190	0.170	0.150	2.85	DOL SL ANHY SL SLTY TR FOS SCT PPP	2511.5	10.6	0.19
37	2,512.5	13.8	5.29	4.80	2.36	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2512.5	13.77	5.29
38	2,513.5	13.5	21.20	7.18	35.74	2.84	DOL SL ANHY SL SLTY FRAC SCT PPP	2513.5	13.5	21.2
39	2,514.5	16.0	11.47	11.18	8.70	2.84	DOL SL ANHY SL SLTY TR FOS SCT PPP	2514.5	16	11.47
40	2,515.5	12.8	2.68	2.30	1.29	2.84	DOL SL ANHY SL SLTY TR FOS SCT PPP	2515.5	12.8	2.68
41	2,516.5	13.3	3.75	3.51	3.30	2.84	DOL SL SLTY TR ANHY TR FOS SCT PPP	2516.5	13.3	3.75
42	2,517.5	14.2	3.10	2.87	0.570	2.84	DOL SL SLTY TR ANHY TR FOS SCT PPP	2517.5	14.2	3.1
43	2,518.5	15.3	29.50	29.00	23.89	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2518.5	15.3	29.5
44	2,519.5	13.4	6.17	3.52	4.12	2.84	DOL SL ANHY SL SLTY TR FOS SCT PPP	2519.5	13.4	6.17
45	2,520.5	11.8	0.550	0.450	0.300	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2520.5	11.8	0.55
46	2,521.5	8.4	1.06	0.440	1.25	2.85	DOL ANHY INCL SL-MOD SLTY TR PPP	2521.5	8.4	1.06
47	2,522.5	14.0	38.31	12.80	43.56	2.85	DOL ANHY INCL SL SLTY FOS FRAC SCT PPP	2522.5	14	38.31
48	2,523.5	11.6	15.23	11.77	6.37	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2523.5	11.6	15.23
49	2,524.5	17.6	88.50	83.80	5.16	2.84	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2524.5	17.6	88.5
50	2,525.5	13.5	17.19	15.19	11.49	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2525.5	13.5	17.19
51	2,526.5	17.1	85.58	85.05	15.98	2.84	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2526.5	17.1	85.58
52	2,527.5	7.0	17.36	15.44	0.180	2.85	DOL SL SLTY ANHY INCL TR PPP	2527.5	7	17.36
53	2,528.5	8.3	0.120	0.110	0.080	2.86	DOL SL SLTY ANHY INCL TR PPP	2528.5	8.3	0.12
54	2,529.5	14.5	33.34	31.88	22.40	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2529.5	14.5	33.34
55	2,530.5	15.5	24.14	22.76	19.25	2.84	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2530.5	15.5	24.14
56	2,531.5	15.3	25.59	24.11	12.44	2.85	DOL ANHY INCL SL SLTY TR FOS SCT PPP	2531.5	15.3	25.59
57	2,532.5	15.5	9.86	9.83	4.05	2.82	DOL SL SLTY SL ANHY TR FOS SCT PPP	2532.5	15.47	9.86
58	2,533.5	12.8	5.36	4.82	1.08	2.84	DOL SL SLTY SL ANHY TR FOS SCT PPP	2533.5	12.8	5.36
59	2,534.5	11.7	10.93	9.33	0.290	2.84	DOL SL SLTY SL ANHY TR FOS SCT PPP	2534.5	11.7	10.93
60	2,535.5	12.1	2.28	1.18	0.610	2.84	DOL SL SLTY SL ANHY TR FOS SCT PPP	2535.5	12.1	2.28
61	2,536.5	9.1	0.160	0.120	0.110	2.83	DOL SL-MOD SLTY TR ANHY TR PPP	2536.5	9.1	0.16
62	2,537.5	8.7	0.049	Kplug	N/A	2.83	DOL SL-MOD SLTY TR ANHY TR PPP	2537.5	8.7	0.1
63	2,538.5	10.5	0.260	0.140	0.110	2.81	SS SL-MOD SLTY SL DOL SL ANHY INTGR POR	2538.5	10.5	0.26
64	2,539.5	8.7	0.330	0.190	5.32	2.80	SS SL-MOD SLTY SL DOL SL ANHY TR POR	2539.5	8.7	0.33
65	2,540.5	7.5	4.13	2.69	0.280	2.70	SS SL-MOD SLTY SL DOL SL SHLY TR POR	2540.5	7.45	4.13
66	2,541.5	6.4	0.150	0.130	0.080	2.69	SS SL-MOD SLTY SL DOL SL SHLY TR POR	2541.5	6.39	0.15
67	2,542.5	11.1	0.076	0.073	0.245	2.76	RDBD SHLY SLTY TR SDY	2542.5	11.06	0.1
68	2,543.5	8.3	0.170	0.131	0.080	2.73	RDBD SHLY SLTY TR SDY	2543.5	8.26	0.17
69	2,544.5	9.7	0.077	0.065	0.037	2.75	RDBD SHLY SLTY TR SDY	2544.5	9.66	0.1
70	2,545.5	10.8	0.108	0.105	0.096	2.78	RDBD SHLY SLTY TR SDY	2545.5	10.83	0.108
71	2,546.5	10.8	0.278	0.117	0.026	2.79	RDBD SHLY SLTY TR SDY	2546.5	10.79	0.278
72	2,547.5	11.1	2.418	0.111	0.156	2.75	RDBD SHLY SLTY TR SDY	2547.5	11.1	2.418
73	2,548.5	11.9	0.053 *	0.046 *	0.043	2.75	RDBD SHLY SLTY TR SDY	2548.5	11.94	0.1
74	2,549.5	12.4	0.102	0.082	0.116	2.70	RDBD SHLY SLTY TR SDY	2549.5	12.43	0.102

ANADARKO PETROLEUM **DATE: 07-09-94**
WELL: YOUNGREN 'J' 1-H **ANALYST: DAVID FLOYD**
FULL DIAMETER CORE ANALYSIS

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax	K90	Kvert	Grain Density (g/cc)	LITHOLOGY	Depth (ft.)	Porosity (%)	neability (Kmax
75	2,550.5	13.0	0.400	0.280	0.150	2.73	SS VFGR SL DOL TR SLTY INTGR POR	2550.5	13	0.4
76	2,551.5	22.8	28.38	27.38	24.02	2.67	SS VFGR TR SLTY INTGR POR	2551.5	22.78	28.38
77	2,552.5	23.9	180.447	179.413	160.893	2.65	RDBD V SDY SLTY SHLY	2552.5	23.85	180.447
78	2,553.5	18.8	164.387	161.764	102.63	2.64	RDBD V SDY SLTY SHLY	2553.5	18.75	164.387
79	2,554.5	12.4	0.440	0.390	0.140	2.82	DOL ANHY INCL SL SLTY SCT PPP	2554.5	12.36	0.44
80	2,555.5	10.6	0.105	0.080	0.055	2.74	SH TR RDBD SL SDY SLTY	2555.5	10.61	0.105
81	2,556.5	16.5	0.376	0.359	0.216	2.77	SH RDBD LAM SL SDY SLTY	2556.5	16.48	0.376
82	2,557.5	18.6	0.410	0.410	0.190	2.77	SH TR RDBD LAM SL SDY SLTY TR CALC	2557.5	18.58	0.41
83	2,558.5	16.4	1.02	1.01	0.550	2.75	SS VFGR MOD SLTY SL CALC LAM INTGR POR	2558.5	16.41	1.02
84	2,559.5	12.8	0.167	PLUG	N/A	2.69	SS VFGR SL CALC SL SLTY INTGR POR	2559.5	12.84	0.167
85	2,560.5	20.3	48.15	47.65	13.93	2.66	SS VFGR TR CALC SL SLTY INTGR POR	2560.5	20.27	48.15
86	2,561.5	19.3	17.54	15.86	1.56	2.65	SS VFGR TR CALC SL SLTY INTGR POR	2561.5	19.34	17.54
87	2,562.5	15.7	2.73	2.69	0.410	2.68	SS VFGR TR CALC SL SLTY INTGR POR	2562.5	15.69	2.73
88	2,563.5	14.5	1.59	1.50	0.300	2.68	SS VFGR TR CALC SL SLTY INTGR POR	2563.5	14.46	1.59
89	2,564.5	10.9	1.03	0.490	0.260	2.71	SS VFGR SL CALC SL SLTY INTGR POR	2564.5	10.89	1.03
90	2,565.5	14.5	1.08	1.01	0.380	2.77	LS SL SLTY TR SDY SL FOS SCT PPP	2565.5	14.46	1.08
91	2,566.5	13.3	0.420	0.410	0.230	2.83	DOL SL SLTY SL ANHY TR FOS SCT PPP	2566.5	13.29	0.42
92	2,567.5	11.2	0.940	0.900	0.220	2.76	LS SL DOL TR SDY SL FOS SCT PPP	2567.5	11.23	0.94
93	2,568.5	15.8	2.83	2.80	2.53	2.74	LS SL SLTY TR SDY SL FOS SCT PPP	2568.5	15.76	2.83
94	2,569.5	13.4	2.42	2.38	1.54	2.75	LS SL SLTY TR SDY SL FOS SCT PPP	2569.5	13.41	2.42
95	2,570.5	13.5	1.51	1.45	0.790	2.73	LS SL SLTY TR SDY SL FOS SCT PPP	2570.5	13.49	1.51
96	2,571.5	17.1	3.13	3.12	2.75	2.77	LS SL SLTY TR SDY SL ANHY SCT PPP	2571.5	17.05	3.13
97	2,572.5	19.2	10.60	10.31	7.94	2.84	DOL SL SLTY SL ANHY TR FOS SCT PPP	2572.5	19.15	10.6
98	2,573.5	19.1	8.02	7.36	5.94	2.83	DOL SL SLTY SL ANHY TR FOS SCT PPP	2573.5	19.08	8.02
99	2,574.5	14.5	3.62	0.380	0.390	2.81	DOL SL SLTY SL ANHY TR FOS SCT PPP	2574.5	14.52	3.62
100	2,575.5	12.9	0.200	0.130	0.060	2.81	DOL SL SLTY SL ANHY TR FOS SCT PPP	2575.5	12.86	0.2
101	2,576.5	10.7	1.82	1.64	0.880	2.70	LS TR SLTY TR STYL FOS SCT PPP	2576.5	10.69	1.82
102	2,577.5	11.9	0.860	0.840	0.520	2.72	LS TR SLTY TR STYL FOS SCT PPP	2577.5	11.92	0.86
103	2,578.5	12.6	1.13	1.11	1.05	2.71	LS TR SLTY FOS SCT PPP	2578.5	12.56	1.13
104	2,579.5	11.2	12.82	5.10	13.87	2.75	LS TR SLTY TR ANHY FOS SCT PPP	2579.5	11.18	12.82
105	2,580.5	11.5	0.370	0.360	0.210	2.77	LS TR SLTY ANHY INCL FOS SCT PPP	2580.5	11.48	0.37
106	2,581.5	12.8	0.270	0.270	0.190	2.78	LS TR SLTY ANHY INCL FOS SCT PPP	2581.5	12.77	0.27
107	2,582.5	9.5	1.06	1.01	0.130	2.74	LS SLTY SHLY SLTY LAM TR-SCT PPP	2582.5	9.46	1.06
108	2,583.5	14.4	4.08	3.91	2.28	2.71	LS SL SLTY SL SDY TR FOS SCT PPP	2583.5	14.37	4.08
109	2,584.5	10.7	1.52	1.33	0.270	2.69	LS SL SLTY SL SDY TR FOS SCT PPP	2584.5	10.66	1.52
110	2,585.5	14.4	16.35	14.96	2.39	2.76	SS VFGR SL CALC SLTY LAM INTGR POR	2585.5	14.43	16.35
111	2,586.5	15.2	3.16	3.12	0.600	2.73	SS VFGR SL CALC SLTY LAM INTGR POR	2586.5	15.16	3.16
112	2,587.5	12.0	0.190	0.180	0.140	2.74	SS VFGR SL CALC SLTY LAM INTGR POR	2587.5	11.96	0.19
113	2,588.5	14.4	0.470	0.440	0.290	2.69	LS SL SLTY SL SDY TR FOS SCT PPP	2588.5	14.4	0.47
114	2,589.5	9.1	0.049	PLUG	N/A	2.69	LS SL SLTY SL SDY TR FOS TR-SCT PPP	2589.5	9.1	0.1
115	2,590.5	5.7	20.98	13.34	0.410	2.70	SH DKGY SLTY SL CALC SL ANHY	2590.5	5.73	20.98
116	2,591.5	6.5	0.085 *	0.070 *	TBFA	2.67	RDBD SLTY LAM SL SDY SH LAM	2591.5	6.45	0.1
117	2,592.5	11.4	6.93	PLUG	N/A	2.74	RDBD SHLY SLTY TR SDY	2592.5	11.41	6.93
118	2,593.5	8.7	0.390	PLUG	N/A	2.80	RDBD SHLY SLTY TR SDY	2593.5	8.69	0.39
119	2,594.5	11.4	0.000	PLUG	N/A	2.77	RDBD SHLY SLTY TR SDY	2594.5	11.35	
120	2,595.5	12.2	3.48	PLUG	N/A	2.80	RDBD SHLY SLTY TR SDY	2595.5	12.23	3.48
121	2,596.5	8.0	0.139	0.139	0.006	2.69	RDBD SHLY SLTY TR SDY	2596.5	8.01	0.139
122	2,597.5	12.0	0.302	0.134	4.291	2.75	RDBD SHLY SLTY TR SDY FRAC	2597.5	12.04	0.302
123	2,598.5	4.2	0.527	0.413	0.016	2.66	RDBD SHLY SLTY SL-MOD SDY	2598.5	4.23	0.527
124	2,599.5	8.1	8.212	2.205	0.005	2.68	RDBD SHLY SLTY TR SDY	2599.5	8.07	8.212
125	2,600.5	9.5	2.646	2.429	0.673	2.66	RDBD SHLY SLTY SL-MOD SDY	2600.5	9.46	2.646
126	2,601.5	10.4	51.267	36.543	7.695	2.73	RDBD SHLY SLTY TR SDY FRAC	2601.5	10.43	51.267
127	2,602.5	10.1	2.457	1.298	0.250	2.68	RDBD SHLY SLTY TR SDY	2602.5	10.11	2.457
128	2,603.5	6.4	0.093	0.055	0.013	2.69	RDBD GY SH INCL SLTY TR SDY	2603.5	6.38	0.1
129	2,604.5	9.7	39.423	15.252	12.432	2.71	RDBD SLTY SHLY GY SH INCL STYL FRAC	2604.5	9.71	39.423
130	2,605.5	6.9	0.193	0.104	0.007	2.65	RDBD SHLY SLTY SL-MOD SDY	2605.5	6.94	0.193
131	2,606.5	14.5	0.176	0.164	0.123	2.72	SS VFGR SL CALC RDBD LAM INTGR POR	2606.5	14.46	0.176
132	2,607.5	14.3	0.348	0.331	0.149	2.72	SS VFGR SL CALC RDBD LAM INTGR POR	2607.5	14.28	0.348
133	2,608.5	13.9	0.400	0.390	0.090	2.72	SS VFGR SL CALC SLTY LAM INTGR POR	2608.5	13.89	0.4
134	2,609.5	11.6	0.120	0.100	0.100	2.70	SS VFGR SLTY SL CALC INTGR POR	2609.5	11.55	0.12
135	2,610.5	10.2	19.03	10.05	**	2.69	SH SLTY SL SDY TR CALC	2610.5	10.16	19.03
136	2,611.5	17.0	10.99	10.76	1.83	2.71	SS SL-MOD CALC SL SLTY INTGR POR	2611.5	16.97	10.99
137	2,612.5	20.6	31.46	31.12	28.72	2.70	SS SL-MOD CALC SL SLTY INTGR POR	2612.5	20.55	31.46
138	2,613.5	21.7	42.84	42.55	40.39	2.69	SS SL-MOD CALC SL SLTY INTGR POR	2613.5	21.74	42.84
139	2,614.5	21.7	69.91	60.75	41.03	2.69	SS SL-MOD CALC SL SLTY INTGR POR	2614.5	21.71	69.91
140	2,615.5	21.7	46.45	46.31	**	2.69	SS SL-MOD CALC SL SLTY INTGR POR	2615.5	21.69	46.45
141	2,616.5	19.8	20.99	20.77	14.66	2.71	LS SL-MOD SDY SL SLTY SCT PPP	2616.5	19.77	20.99
142	2,617.5	16.9	5.50	5.41	3.54	2.75	LS SL-MOD SDY SL SLTY SCT PPP	2617.5	16.88	5.5
143	2,618.5	19.1	10.06	9.98	6.12	2.75	LS SL-MOD SDY SL SLTY SCT PPP	2618.5	19.13	10.06
144	2,619.5	17.0	4.60	4.54	3.03	2.74	LS SL-MOD SDY SL SLTY SCT PPP	2619.5	16.97	4.6
145	2,620.5	16.2	2.33	2.33	1.78	2.75	LS SL-MOD SDY SL SLTY SCT PPP	2620.5	16.23	2.33
146	2,621.5	12.3	0.440	0.430	0.250	2.74	LS SL-MOD SDY SL SLTY SCT PPP	2621.5	12.26	0.44
147	2,622.5	14.4	1.07	1.07	0.900	2.73	LS SL-MOD SDY SL SLTY SCT PPP	2622.5	14.44	1.07
148	2,623.5	16.3	2.82	2.75	2.34	2.73	LS SL-MOD SDY SL SLTY SCT PPP	2623.5	16.25	2.82
149	2,624.5	15.8	2.22	2.01	1.54	2.74	LS SL SLTY SL SDY SL FOS SCT PPP	2624.5	15.8	2.22

ANADARKO PETROLEUM **DATE: 07-09-94**
WELL: YOUNGREN 'J' 1-H **ANALYST: DAVID FLOYD**
FULL DIAMETER CORE ANALYSIS

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax	K90	Kvert	Grain Density (g/cc)	LITHOLOGY	Depth (ft.)	Porosity (%)	neability (Kmax
150	2,625.5	14.3	1.61	1.58	1.57	2.71	LS SL SLTY SL SDY SL FOS SCT PPP	2625.5	14.33	1.61
151	2,626.5	14.7	2.48	2.36	1.62	2.71	LS SL SLTY SL SDY SL FOS SCT PPP	2626.5	14.71	2.48
152	2,627.5	17.1	4.06	4.01	4.54	2.71	LS SL SLTY SL SDY SL FOS SCT PPP	2627.5	17.05	4.06
153	2,628.5	13.5	0.620	0.610	0.520	2.71	LS SL SLTY SL SDY SL FOS SCT PPP	2628.5	13.48	0.62
154	2,629.5	13.7	0.600	0.600	0.520	2.71	LS SL SLTY SL SDY SL FOS SCT PPP	2629.5	13.73	0.6
155	2,630.5	13.7	0.760	0.760	0.530	2.71	LS SL SLTY SL SDY SL FOS SCT PPP	2630.5	13.71	0.76
156	2,631.5	14.9	1.25	1.18	0.460	2.74	LS SL-MOD SLTY SL FOS SCT PPP	2631.5	14.91	1.25
157	2,632.5	18.8	3.66	3.65	3.63	2.78	LS SL SLTY SL ANHY SL FOS SCT PPP	2632.5	18.81	3.66
158	2,633.5	16.4	3.73	3.70	2.84	2.82	LS SL SLTY ANHY INCL SL FOS SCT PPP	2633.5	16.42	3.73
159	2,634.5	21.6	5.08	5.02	5.75	2.81	LS SL SLTY ANHY INCL SL FOS SCT PPP	2634.5	21.58	5.08
160	2,635.5	19.9	3.83	3.38	2.41	2.80	LS SL SLTY ANHY INCL SL FOS SCT PPP	2635.5	19.92	3.83
161	2,636.5	30.8	2.07	1.99	0.450	2.73	LS TR SLTY FOS V ABNT SCT PPP	2636.5	30.81	2.07
162	2,637.5	24.6	4.92	4.41	2.87	2.70	LS TR SLTY FOS ABNT SCT PPP	2637.5	24.6	4.92
163	2,638.5	18.0	7.48	6.08	1.01	2.71	LS TR SLTY FOS ABNT SCT PPP	2638.5	18.01	7.48
164	2,639.5	15.0	3.18	3.11	1.40	2.71	LS SL SLTY SL FOS SCT PPP	2639.5	14.96	3.18
165	2,640.5	15.5	2.69	2.67	2.37	2.70	LS SL SLTY SL FOS SCT PPP	2640.5	15.54	2.69
166	2,641.5	15.3	1.91	1.89	1.70	2.70	LS SL SLTY SL FOS SCT PPP	2641.5	15.27	1.91
167	2,642.5	15.1	1.71	1.71	1.09	2.71	LS SL SLTY SL FOS SCT PPP	2642.5	15.14	1.71
168	2,643.5	18.1	3.14	3.03	3.56	2.74	LS SL SLTY SL FOS SCT PPP	2643.5	18.06	3.14
169	2,644.5	16.8	3.97	3.82	3.33	2.73	LS SL SLTY SL FOS SCT PPP	2644.5	16.78	3.97
170	2,645.5	16.5	1.83	1.81	0.870	2.75	LS SL SLTY SL FOS TR ANHY SCT PPP	2645.5	16.51	1.83
171	2,646.5	17.3	2.55	2.49	2.18	2.74	LS SL SLTY SL FOS SCT PPP	2646.5	17.31	2.55
172	2,647.5	18.0	3.48	3.45	3.62	2.74	LS SL SLTY SL FOS SCT PPP	2647.5	18.01	3.48
173	2,648.5	18.4	2.77	2.70	2.83	2.76	LS SL SLTY SL FOS TR ANHY SCT PPP	2648.5	18.39	2.77
174	2,649.5	13.4	0.810	0.790	0.470	2.74	LS SL SLTY SL FOS TR ANHY SCT PPP	2649.5	13.42	0.81
175	2,650.5	14.8	3.79	3.68	1.64	2.75	LS SL SLTY SL FOS TR ANHY SCT PPP	2650.5	14.76	3.79
176	2,651.5	14.5	1.00	0.980	0.790	2.73	LS SL SLTY SL FOS SCT PPP	2651.5	14.51	1
177	2,652.5	13.1	1.35	1.20	0.940	2.74	LS SL SLTY SL FOS SCT PPP	2652.5	13.08	1.35
178	2,653.5	10.6	0.460	0.450	0.170	2.75	LS SL SLTY SL FOS SL ANHY SCT PPP	2653.5	10.64	0.46
179	2,654.5	14.4	0.350	0.350	0.170	2.76	LS SL SLTY SL FOS SL ANHY SCT PPP	2654.5	14.43	0.35
180	2,655.5	14.1	0.570	0.550	0.410	2.75	LS MOD SLTY TR FOS SL ANHY SCT PPP	2655.5	14.1	0.57
181	2,656.5	8.5	0.130	0.050	0.010	2.76	LS MOD SLTY TR FOS SL ANHY TR PPP	2656.5	8.49	0.13
182	2,657.5	10.4	0.160	0.160	0.100	2.71	LS MOD SLTY TR FOS SL ANHY SCT PPP	2657.5	10.38	0.16
183	2,658.5	6.9	0.120	0.070	0.040	2.70	LS MOD SLTY SL SHLY TR FOS TR PPP	2658.5	6.94	0.12
184	2,659.5	6.5	0.610	0.120	0.050	2.70	LS MOD SLTY SL SHLY TR FOS TR PPP	2659.5	6.45	0.61
185	2,660.5	6.8	0.100	0.070	0.100	2.71	LS MOD SLTY SL SHLY TR FOS TR PPP	2660.5	6.8	0.1
186	2,661.5	8.7	60.32	1.50	0.120	2.71	LS MOD SLTY SL SHLY FRAC TR PPP	2661.5	8.68	60.32
187	2,662.5	9.7	0.120	0.090	0.100	2.72	LS SL-MOD SLTY STYL SHLY SCT PPP	2662.5	9.66	0.12
188	2,663.5	10.1	0.130	0.100	0.140	2.70	LS TR SLTY SL SDY SCT PPP	2663.5	10.09	0.13
189	2,664.5	10.8	0.100	0.090	0.120	2.71	LS TR SLTY SL SDY SCT PPP	2664.5	10.75	0.1
190	2,665.5	9.9	0.080	0.070	0.130	2.71	LS TR SLTY SL SDY SCT PPP	2665.5	9.93	0.1
191	2,666.5	10.2	32.12	0.050	0.020	2.70	SH GYGN LTGY SLTY FRAC SL SDY	2666.5	10.19	32.12
192	2,667.5	10.7	0.070	0.060	0.060	2.68	SH GYGN LTGY SLTY SL SDY	2667.5	10.68	0.1
193	2,668.5	8.1	0.030	0.030	0.030	2.64	SH GYGN LTGY SLTY TR SDY	2668.5	8.06	0.1
194	2,669.5	9.0	5.88	0.640	0.050	2.69	SH LTGY-GY SLTY SL SDY FRAC	2669.5	9.02	5.88
195	2,670.5	12.3	5.571	0.120	0.535	2.70	SH LTGYGN TR RDBRN SLTY SL SDY FRAC	2670.5	12.31	5.571
196	2,671.5	12.7	0.123	0.108	0.051	2.71	SH LT RDBRN-GYGN SLTY SL SDY	2671.5	12.73	0.123
197	2,672.5	13.1	TBFA	TBFA	0.090	2.70	SS VFGR SHLY SLTY INTGR POR			
198	2,673.5	14.6	0.800	0.750	0.170	2.69	SS VFGR SLTY INTGR POR			
199	2,674.5	12.2	0.540	0.530 **		2.69	SS VFGR SLTY INTGR POR			
200	2,675.5	13.5	0.310	0.230	0.080	2.78	SS VFGR SLTY INTGR POR			
201	2,676.5	16.8	1.38	1.22	0.820	2.80	LS SL DOL LG ANHY INCL SL SDY SCT POR			
202	2,677.5	12.8	0.830	0.830	0.180	2.79	LS SL DOL LG ANHY INCL SL SDY SCT POR			
203	2,678.5	10.7	0.960	0.790	0.190	2.72	LS SL-MOD SLTY TR ANHY TR SDY SCT POR			
204	2,679.5	12.8	1.80	1.71	0.390	2.71	LS SL-MOD SLTY TR ANHY TR SDY SCT POR			
205	2,680.5	13.1	1.08	1.07	0.680	2.72	LS SL-MOD SLTY TR ANHY TR SDY SCT POR			
206	2,681.5	13.5	1.01	1.00	0.650	2.72	LS SL-MOD SLTY TR ANHY TR SDY SCT POR			
207	2,682.5	15.0	0.730	0.720	0.560	2.74	LS SL-MOD SLTY TR ANHY TR SDY SCT POR			
208	2,683.5	13.8	0.980	0.980	0.840	2.72	LS SL-MOD SLTY TR ANHY TR SDY SCT POR			
209	2,684.5	14.6	1.31	1.30	1.30	2.73	LS SL-MOD SLTY TR ANHY TR SDY SCT POR			
210	2,685.5	14.4	1.56	1.55	1.42	2.74	LS SL-MOD SLTY ANHY INCL SCT POR			
211	2,686.5	14.9	0.940	0.930	0.870	2.72	LS SL-MOD SLTY TR ANHY SCT POR			
212	2,687.5	13.8	0.820	0.810	0.580	2.72	LS SL-MOD SLTY TR ANHY SCT POR			
213	2,688.5	17.0	2.36	2.32	2.32	2.74	LS SL-MOD SLTY TR ANHY SCT POR			
214	2,689.5	15.5	2.31	2.29	2.15	2.74	LS SL-MOD SLTY TR ANHY SCT POR			
215	2,690.5	15.6	2.47	2.46	2.25	2.74	LS SL-MOD SLTY TR ANHY SCT POR			
216	2,691.5	12.1	1.32	1.31	0.560	2.77	LS SL-MOD SLTY ANHY INCL SCT POR			
217	2,692.5	13.5	1.37	1.36	1.01	2.76	LS SL-MOD SLTY ANHY INCL SCT POR			
218	2,693.5	16.0	1.67	1.60	0.980	2.77	LS SL-MOD SLTY ANHY INCL SCT POR			
219	2,694.5	13.4	0.560	0.530	0.320	2.76	LS SL-MOD SLTY ANHY INCL SCT POR			
220	2,695.5	15.6	0.610	0.600	0.550	2.76	LS SL-MOD SLTY ANHY INCL SCT POR			
221	2,696.5	11.4	0.450	0.450	0.260	2.74	LS SL-MOD SLTY TR ANHY SCT POR			
222	2,697.5	14.1	1.50	1.40	1.30	2.74	LS SL-MOD SLTY TR ANHY SCT POR			
223	2,698.5	13.5	0.850	0.850	0.610	2.72	LS SL-MOD SLTY TR ANHY SCT POR			

ANADARKO PETROLEUM **DATE: 07-09-94**
WELL: YOUNGREN 'J' 1-H **ANALYST: DAVID FLOYD**
FULL DIAMETER CORE ANALYSIS

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax	K90	Kvert	Grain Density (g/cc)	LITHOLOGY
224	2,699.5	12.1	0.600	0.570	0.400	2.76	LS SL-MOD SLTY ANHY INCL SCT POR
225	2,700.5	14.1	1.26	1.21	0.970	2.75	LS SL-MOD SLTY TR ANHY SCT POR
226	2,701.5	14.3	1.32	1.31	1.04	2.75	LS SL-MOD SLTY TR ANHY SCT POR
227	2,702.5	13.9	1.09	0.960	0.840	2.72	LS SL-MOD SLTY TR ANHY SCT POR
228	2,703.5	12.3	0.450	0.390	0.320	2.74	LS SL-MOD SLTY TR ANHY SCT POR
229	2,704.5	11.4	0.360	0.270	0.250	2.72	LS SL-MOD SLTY TR ANHY SCT POR
230	2,705.5	13.5	0.530	0.520	0.430	2.74	LS SL-MOD SLTY TR ANHY SCT POR
231	2,706.5	10.3	0.180	0.160	0.120	2.73	LS SL-MOD SLTY TR ANHY SCT POR
232	2,707.5	11.9	0.390	0.380	0.300	2.71	LS SL-MOD SLTY TR ANHY SCT POR
233	2,708.5	10.5	0.190	0.170	0.120	2.72	LS SL-MOD SLTY TR ANHY SCT POR
234	2,709.5	9.0	0.120	0.120	0.090	2.74	LS SL-MOD SLTY TR ANHY SCT POR
235	2,710.5	10.7	0.090	0.080	0.110	2.76	LS MOD SLTY TR-SL ANHY SCT POR
236	2,711.5	11.0	0.440	0.060	0.060	2.75	LS MOD SLTY TR-SL ANHY SCT POR
237	2,712.5	10.8	0.060	0.060	0.090	2.74	LS MOD SLTY TR ANHY SCT POR
238	2,713.5	9.7	0.120	0.100	0.100	2.70	LS SLTY SHLY TR ANHY SCT-TR POR
239	2,714.5	7.3	1.75	0.150	0.040	2.72	LS SLTY SHLY TR ANHY SCT-TR POR
240	2,715.5	7.5	0.160	0.080	0.040	2.67	LS SLTY SHLY TR ANHY SCT-TR POR
241	2,716.5	7.2	7.82	4.09	0.060	2.68	LS SLTY SHLY TR ANHY SCT-TR POR
242	2,717.5	8.5	0.650	0.580	0.030	2.66	LS SLTY SHLY TR ANHY SCT-TR POR
243	2,718.5	8.3	1.50	0.100	0.040	2.69	LS MOD SLTY TR SHLY TR-SCT POR
244	2,719.5	7.5	2.60	2.13	0.030	2.66	LS SLTY SL SHLY TR-SCT PPP
245	2,720.5	8.3	0.080	0.040	0.060	2.66	LS SLTY SL SHLY TR-SCT PPP
246	2,721.5	7.7	0.750	0.270	0.060	2.65	LS SLTY SL SHLY TR-SCT PPP
247	2,722.5	7.6	0.510	0.480	0.100	2.66	LS SLTY SL SHLY TR-SCT PPP
248	2,723.5	8.0	0.380	0.070	0.060	2.67	LS MOD SLTY TR SHLY TR-SCT POR
249	2,724.5	8.2	1.51	0.880	0.050	2.66	LS SLTY SL SHLY TR-SCT PPP
250	2,725.5	6.1	0.050	0.050	0.120	2.65	LS SLTY SL SHLY TR-SCT PPP
251	2,726.5	6.1	0.060	0.060	0.150	2.63	SH LTGY-GY SLTY TR SDY
252	2,727.5	6.2	1.26	0.770	0.060	2.65	LS SLTY SL SHLY TR-SCT PPP
253	2,728.5	6.2	23.16	15.30	0.150	2.68	LS SLTY SL SHLY TR-SCT PPP
254	2,729.5	6.8	42.50	27.90	1.25	2.69	LS MOD SLTY TR SHLY TR-SCT POR
255	2,730.5	4.5	0.040	0.030	0.030	2.66	LS SLTY SL SHLY TR-SCT PPP
256	2,731.5	5.9	7.65	6.61	0.170	2.68	LS MOD SLTY TR SHLY TR-SCT POR
257	2,732.5	4.3	0.090	0.060	0.080	2.68	LS MOD SLTY TR SHLY TR-SCT POR
258	2,733.5	3.6	2.42	2.11	0.030	2.67	LS MOD SLTY TR SHLY TR-SCT POR
259	2,734.5	5.0	0.710	0.390	0.120	2.70	LS MOD SLTY TR SHLY TR-SCT POR
260	2,735.5	8.7	0.140	0.130	0.120	2.72	LS MOD SLTY TR SHLY TR-SCT POR
261	2,736.5	8.1	0.210	0.200	0.230	2.73	LS MOD SLTY TR SHLY TR-SCT POR
262	2,737.5	5.1	0.080	0.070	0.100	2.69	LS MOD SLTY TR SHLY TR-SCT POR
263	2,738.5	6.3	0.130	0.060	0.120	2.70	LS MOD SLTY TR SHLY TR-SCT POR
264	2,739.5	10.3	0.250	0.240	0.130	2.68	SS VFGR SLTY TR CALC INTGR POR
265	2,740.5	10.1	0.340	0.340	0.120	2.68	SS VFGR SLTY TR CALC INTGR POR
266	2,741.5	10.8	0.350	0.330	0.130	2.68	SS VFGR SLTY TR CALC INTGR POR
267	2,742.5	9.0	0.110	0.090	0.090	2.69	SS VFGR SLTY TR CALC INTGR POR
268	2,743.5	8.0	0.110	0.090	0.100	2.67	SS VFGR SLTY TR CALC TR INTGR POR
269	2,744.5	8.5	0.080	0.080	0.120	2.67	SS VFGR SLTY TR CALC TR INTGR POR
270	2,745.5	8.4	0.070	0.060	0.050	2.67	SS VFGR SLTY TR CALC TR INTGR POR
271	2,746.5	8.1	16.40	8.69	0.070	2.67	SS VFGR SLTY TR CALC TR INTGR POR
272	2,747.5	2.9	0.076	0.031	0.024	2.62	RDBD SLTY SL SDY SL CALC
273	2,748.5	3.5	3.902	0.126	0.083	2.62	RDBD SLTY SL SDY SL CALC
274	2,749.5						RDBD SLTY TR SDY SHLY
275	2,750.5	10.1	49.681	35.321	1.005	2.69	RDBD SLTY TR SDY SHLY
276	2,751.5	8.8	0.037 *	0.035	15.116	2.70	RDBD SLTY TR SDY SHLY
277	2,752.5	9.6	8.814	7.563	0.096	2.71	RDBD SLTY TR SDY SHLY
278	2,753.5	2.4	0.024	0.023	0.011	2.62	RDBD SLTY TR SDY SHLY
279	2,754.5	6.5	0.274	0.041	0.048	2.69	RDBD SLTY TR SDY SHLY
280	2,755.5	13.6	121.044	74.737	43.214	2.72	RDBD SLTY TR SDY SHLY
281	2,756.5	2.4	0.079	0.037	0.020	2.64	RDBD SLTY TR SDY SHLY
282	2,758.5	5.3	0.028	0.014	2.331	2.67	RDBD SLTY TR SDY SHLY
283	2,759.5	4.3	11.332	4.272	0.060	2.66	RDBD SLTY TR SDY SHLY
285	2,761.5	7.0	0.020	0.020	0.010	2.64	SH GY-LTGY SLTY TR SDY
286	2,762.5	16.2	23.848	12.841	3.288	2.81	RDBD SLTY TR SDY SHLY
287	2,763.5	14.9	2.26	0.920	0.410	2.80	
288	2,764.5	9.5	0.140	0.140	0.140	2.73	LS SL-MOD SLTY TR ANHY SCT POR
289	2,765.5	9.2	0.100	0.100	0.140	2.72	LS SL SLTY TR ANHY SCT POR
290	2,766.5	9.1	0.080	0.070	0.090	2.71	LS SL SLTY TR ANHY SCT POR
291	2,767.5	6.8	0.190	0.090	0.110	2.70	LS SL SLTY TR ANHY SCT POR
292	2,768.5	7.3	0.080	0.070	0.090	2.70	LS SL SLTY TR ANHY SCT POR
293	2,769.5	7.3	0.140	0.070	0.100	2.72	LS SL SLTY TR ANHY SCT POR
294	2,770.5	8.8	0.140	0.120	0.100	2.70	LS SL SLTY TR ANHY SCT POR
295	2,771.5	4.1	0.040	0.030	0.030	2.70	LS SL SLTY TR ANHY SCT POR
296	2,772.5	5.4	0.110	0.040	0.100	2.69	LS SL SLTY TR ANHY SCT POR
297	2,773.5	9.7	0.260	0.150	0.050	2.67	LS SL SLTY SL SHLY TR POR
298	2,774.5	5.8	0.180	0.160	0.070	2.70	LS SL SLTY TR ANHY SCT POR
299	2,775.5	12.2	0.120	0.120	0.090	2.68	LS SL SLTY TR ANHY SCT POR

Depth (ft.)	Porosity (%)	neability (Kmax

ANADARKO PETROLEUM **DATE: 07-09-94**
WELL: YOUNGREN 'J' 1-H **ANALYST: DAVID FLOYD**
FULL DIAMETER CORE ANALYSIS

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax	K90	Kvert	Grain Density (g/cc)	LITHOLOGY
300	2,776.5	6.0	0.010	< 0.010	0.020	2.56	
301	2,777.5	9.8	0.090	0.080	0.080	2.70	LS SL SLTY TR ANHY SCT POR
302	2,778.5	7.2	0.090	0.060	0.100	2.70	LS SL SLTY TR ANHY TR-SCT POR
303	2,779.5	6.0	0.060	0.050	0.040	2.69	LS SL SLTY TR ANHY TR POR
304	2,780.5	6.1	0.070	0.050	0.060	2.70	LS SL SLTY TR ANHY TR POR
305	2,781.5	5.0	0.050	0.050	0.030	2.69	LS SL SLTY TR ANHY TR POR
306	2,782.5	4.8	0.030	0.030	0.030	2.72	LS SL SLTY TR ANHY TR POR
307	2,783.5	2.0	0.030	0.020	0.020	2.67	LS SL SLTY SL SHLY TR POR
308	2,784.5	TBFA	TBFA	TBFA	TBFA	TBFA	SH GY SL SLTY BRITTLE
309	2,785.5	7.3	0.443	PLUG	N/A	2.73	RDBD SLTY SL SDY SL CALC

Depth (ft.)	Porosity (%)	neability (Kmax

* - Permeability measured prior to extraction
** - Irregularly shaped sample

TABLE 4

FULL DIAMETER CORE ANALYSIS
ANADARKO YOUNGREN 'J' NO. 1-H WELL

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax		K90	Kvert	Grain Density (g/cc)	Fluids (%) Water	Oil	Dep. Facies
294	2,770.5	8.8	0.14		0.12	0.10	2.70	68.2	0.0	4
295	2,771.5	4.1	0.04		0.03	0.03	2.70	92.9	0.0	3
296	2,772.5	5.4	0.11		0.04	0.10	2.69	89.3	0.0	3
297	2,773.5	9.7	0.26		0.15	0.05	2.67	81.1	0.0	3
298	2,774.5	5.8	0.18		0.16	0.07	2.70	83.7	0.0	3
299	2,775.5	12.2	0.12		0.12	0.09	2.68	80.5	0.0	3
300	2,776.5	6.0	0.01		< 0.01	0.02	2.56	97.6	0.0	3
301	2,777.5	9.8	0.09		0.08	0.08	2.70	78.0	0.0	3
302	2,778.5	7.2	0.09		0.06	0.10	2.70	84.7	0.0	3
303	2,779.5	6.0	0.06		0.05	0.04	2.69	84.8	0.0	3
304	2,780.5	6.1	0.07		0.05	0.06	2.70	88.4	0.0	3
305	2,781.5	5.0	0.05		0.05	0.03	2.69	77.7	0.0	3
306	2,782.5	4.8	0.03		0.03	0.03	2.72	79.5	0.0	3
307	2,783.5	2.0	0.03		0.02	0.02	2.67	96.1	0.0	3
308	2,784.5									1
309	2,785.5	7.3	0.443		[3]		2.73	98.4	0.0	1
310	2,788.5	2.3	0.046		0.037	0.009	2.57	97.0	0.0	1
311	2,789.5	3.5	0.05		0.045	0.018	2.59	93.6	0.0	1
312	2,790.5	6.6	0.305		0.208	0.146	2.60	55.3	0.0	1
313	2,791.5	8.9	0.649		0.597	0.165	2.60	47.9	0.0	1
314	2,792.5	11.4	4.027		3.831	1.151	2.71	45.2	0.0	1
315	2,793.5	7.2	3.891		3.886	0.349	2.66	44.7	0.0	1
316	2,794.5	6.7	1.606		1.371	0.324	2.70	55.5	0.0	1
317	2,795.5	5.7	1.185		1.184	0.237	2.68	53.6	0.0	1
318	2,796.5	2.3	0.076		0.075	0.012	2.54	84.8	0.0	1
319	2,797.5	7.0	0.196		0.178	0.144	2.62	58.5	0.0	1
320	2,798.5	5.1	0.756		0.684	0.023	2.64	73.9	0.0	1
321	2,799.5	2.5	0.059		0.057	0.036	2.63	76.5	0.0	1
322	2,801.5	2.7	0.029		0.027	0.06	2.57	81.4	0.0	1
323	2,802.5	4.0	0.045		0.043	0.063	2.60	65.5	0.0	1
324	2,803.5	4.8	0.043		0.038	0.07	2.61	76.9	0.0	1
325	2,804.5	3.9	0.056		0.054	0.006	2.64	84.6	0.0	1
326	2,805.5	5.7	0.185		0.077	0.017	2.67	64.2	0.0	1
327	2,807.5	1.3	0.065		0.064	0.031	2.57	94.4	0.0	1
328	2,808.5	7.8	0.04		[3]		2.73	83.9	0.0	1
329	2,809.5	8.8	0.05		[3]		2.78	88.8	0.0	1
330	2,810.5	12.7	0.03		[3]		2.79	90.0	0.0	1
331	2,811.5	12.3	44.48	F	0.68	1.454	2.81	92.9	0.0	1
332	2,812.5	6.1	7.71	F	6.29	0.131	2.76	92.7	0.0	3
333	2,813.5	2.3	0.10		0.03	0.01	2.78	90.3	0.0	3
334	2,814.5	4.5	0.08		0.07	0.07	2.80	88.6	0.0	3
335	2,815.5	10.9	0.12		0.11	0.11	2.81	91.1	0.0	3

TABLE 4

FULL DIAMETER CORE ANALYSIS
ANADARKO YOUNGREN 'J' NO. 1-H WELL

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax		K90		Kvert	Grain Density (g/cc)	Fluids (%) Water	Oil	Dep. Facies
336	2,816.5	8.0	0.22		0.08		0.05	2.78	87.7	0.0	3
337	2,817.5	7.9	0.41		0.38		0.05	2.76	88.7	0.0	3
338	2,818.5	8.4	52.15	F	34.94		0.026	2.76	91.3	0.0	3
339	2,819.5	7.5				[2]	0.259	2.68	85.8	0.0	3
340	2,820.5	3.6	0.45		0.28	<	0.01	2.69	87.9	0.0	3
341	2,821.5	0.8	0.05		0.03		4.00	2.68	96.2	0.0	3
342	2,822.5	1.4	0.77		0.05		0.05	2.70	94.2	0.0	3
343	2,823.5	3.5	39.46	F	9.64		0.013	2.66	92.3	0.0	3
344	2,824.5	6.8	59.82	F	52.45		0.096	2.73	87.0	0.0	3
345	2,825.5	4.5	14.96	F	2.45		0.02	2.69	92.3	0.0	3
346	2,826.5	0.5	0.02		0.02		0.02	2.67	97.8	0.0	3
347	2,827.5	1.1	0.02		0.02	<	0.01	2.69	93.0	0.0	3
348	2,828.5	0.9	2.38	F	0.11		0.02	2.66	95.1	0.0	3
349	2,834.5	5.9	3.78	F	2.91		0.03	2.66	84.9	0.0	3
350	2,835.5	5.1	2.58	F	1.11		0.02	2.65	85.6	0.0	3
351	2,836.5	6.9	2.14	F	1.72		0.12	2.65	84.6	0.0	3
352	2,837.5	5.5	0.09		0.05		0.02	2.59	85.5	0.0	3
353	2,838.5	4.5	0.04		0.03		0.02	2.62	90.4	0.0	3
354	2,839.5	5.9	7.06	F		[2]	0.009	2.67	86.2	0.0	3
355	2,840.5	5.9	0.013			[2]	0.014	2.66	85.7	0.0	3
356	2,841.5	7.9	10.16	F	8.94		0.06	2.64	86.7	0.0	3
357	2,842.5	8.7	3.80	F	2.57		0.05	2.65	90.1	0.0	3
358	2,845.5	6.8	85.93	F	38.01		4.01	2.71	86.0	0.0	3
359	2,846.5	5.8				[2]	0.02	2.68	86.3	0.0	3
360	2,847.5	1.8	0.15		0.14		0.01	2.65	86.8	0.0	3
361	2,848.5	1.7	0.01		0.01	<	0.01	2.68	92.1	0.0	2
362	2,849.5	1.6	0.06		0.02	<	0.01	2.68	92.0	0.0	2
363	2,850.5	9.0				[2]		2.68	90.3	0.0	1
364	2,851.5	7.8	8.956	F		[2]	4.013	2.75	94.8	0.0	1
365	2,854.5	2.1	2.156	F	0.614		2.228	2.62	95.2	0.0	1
366	2,855.5	3.0				[2]		2.62	96.4	0.0	1
367	2,856.5	3.4	1.427	F	0.241		0.29	2.58	91.4	0.0	1
368	2,857.5	2.3	0.087			[2]		2.57	96.5	0.0	1
369	2,858.5	2.5	0.654		0.368			2.66	94.6	0.0	1
370	2,859.5	6.4	3.68	F	0.85		0.14	2.71	98.2	0.0	1
371	2,860.5	1.2	0.025		0.013		0.025	2.61	94.6	0.0	1
372	2,861.5	1.9	0.025		0.022		0.011	2.64	96.0	0.0	1
373	2,862.5	3.4	0.031		0.028		0.099	2.61	50.3	0.0	1
374	2,863.5	3.3	0.029		0.027		0.021	2.57	71.2	0.0	1
375	2,864.5	3.0	0.059			[2]	0.027	2.56	91.7	0.0	1
376	2,865.5	1.8	1.268	[1]	0.47	[1]	0.02	2.60	94.9	0.0	1
377	2,866.5	1.4	4.102	F	0.921		0.06	2.61	96.0	0.0	1

BISH

BILM

TABLE 4

FULL DIAMETER CORE ANALYSIS
ANADARKO YOUNGREN 'J' NO. 1-H WELL

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax		K90	Kvert	Grain Density (g/cc)	Fluids (%) Water	Oil	Dep. Facies
462	2,956.5	3.7	0.04		0.04	0.03	2.71	66.5	0.0	4
463	2,957.5	3.3	0.19		0.08	0.24	2.67	92.1	0.0	3
464	2,958.5	2.4	3.57	F	1.52	< 0.01	2.68	94.0	0.0	3
465	2,959.5	5.9	39.01	F	37.27	1.39	2.72	91.0	0.0	3
	Min.	0.5	0.009		0.007	0.002	2.54	15.3	0.0	
	Max.	30.8	180.447		179.413	160.893	2.96	99.0	0.0	
	Avg.	10.0	6.405		4.784	2.98	2.72	66.8	0.0	

[1] - Permeability prior to extraction

[2] - Permeability from plug sample

[3] - Plug Analysis

Depositional Facies

1 = Paleosol/Coastal Plain

2 = Tidal Flat

3 = Lagoon/Shallow Shelf

4 = Carbonate Shoal to Shoal Flank

TABLE 4

FULL DIAMETER CORE ANALYSIS
ANADARKO YOUNGREN 'J' NO. 1-H WELL

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax		K90		Kvert	Grain Density (g/cc)	Fluids (%) Water	Oil	Dep. Facies
378	2,867.5	2.5	8.49		1.70		0.01	2.69	93.4	0.0	4
379	2,868.5	7.5	0.05		0.05		0.04	2.70	73.8	0.0	4
380	2,869.5	8.5	1.77		1.75		0.88	2.71	41.7	0.0	4
381	2,870.5	11.8	11.93		11.29		12.38	2.72	38.0	0.0	4
382	2,871.5	10.8	5.87		5.87		5.38	2.73	39.3	0.0	4
383	2,872.5	2.1	0.04		0.03		0.04	2.71	71.8	0.0	4
384	2,873.5	3.7	4.21		2.64		0.05	2.70	81.1	0.0	4
385	2,874.5	2.9	0.07		0.05		0.02	2.70	85.2	0.0	4
386	2,875.5	14.8	1.47		0.90		0.71	2.67	72.3	0.0	4
387	2,876.5	14.2	0.59		0.57		0.28	2.71	54.7	0.0	4
388	2,877.5	8.7	6.42		5.64		0.47	2.79	45.3	0.0	4
389	2,878.5	8.3	1.29		1.03		0.37	2.72	55.3	0.0	4
390	2,879.5	4.5	3.06		2.73		0.12	2.80	56.2	0.0	4
391	2,880.5	8.6	0.21		0.20		9.70	2.71	55.3	0.0	4
392	2,881.5	9.7	0.67		0.38		0.93	2.72	50.3	0.0	4
393	2,882.5	10.3	0.24		0.18		0.28	2.72	71.0	0.0	4
394	2,883.5	6.7	0.09		0.06		0.10	2.71	77.7	0.0	1
395	2,884.5	4.6	0.06		0.06		0.04	2.72	77.8	0.0	1
396	2,885.5	3.2	0.08		0.05		0.09	2.70	84.9	0.0	1
397	2,886.5	6.0	0.03		[3]			2.71	90.8	0.0	1
398	2,887.3	7.3	0.04		[3]			2.73	92.3	0.0	1
399	2,888.5	6.9	0.036		[3]			2.73	80.1	0.0	1
400	2,889.5	12.8	0.375		[3]			2.73	86.8	0.0	1
401	2,890.5	6.3	8.424	F	2.849		0.065	2.65	96.9	0.0	1
402	2,892.5	2.4	7.80	F	6.33		0.11	2.79	76.7	0.0	2
403	2,893.5	3.7	1.76	F	1.72		0.04	2.75	79.4	0.0	2
404	2,894.5	11.7	5.14	F	5.03		2.19	2.74	42.1	0.0	4
405	2,895.5	2.6	0.07		0.07		0.08	2.75	75.8	0.0	4
406	2,896.5	6.6	0.05		0.05		0.06	2.69	87.5	0.0	4
407	2,897.5	8.8	0.14		0.13		0.13	2.70	90.5	0.0	4
408	2,898.5	8.3	0.14		0.13		0.11	2.72	87.2	0.0	4
409	2,899.5	7.0	0.30		0.23		0.10	2.70	86.3	0.0	4
410	2,900.5	9.9	0.80		0.54		1.15	2.69	82.4	0.0	4
411	2,901.5	2.6	0.04		0.04		0.02	2.69	86.9	0.0	3
412	2,902.5	2.1	0.24		0.05		0.02	2.66	96.0	0.0	3
413	2,903.5	5.5	20.28	F	0.15		0.02	2.68	94.0	0.0	1
414	2,904.5	10.4	2.223		0.275		0.133	2.74	87.5	0.0	1
415	2,905.5	4.1	0.204		0.064		0.028	2.66	94.3	0.0	1
416	2,906.5	4.5	0.043		0.035		0.016	2.67	93.8	0.0	1
417	2,908.5	9.4	0.587		0.314		0.65	2.63	89.9	0.0	1
418	2,909.5	10.1	0.233		0.135		0.223	2.65	84.7	0.0	1
419	2,910.5	12.1	1.162			[2]	103.379	2.69	87.6	0.0	1

TABLE 4

FULL DIAMETER CORE ANALYSIS
ANADARKO YOUNGREN 'J' NO. 1-H WELL

Sample #	Depth (ft.)	Porosity (%)	Permeability (md) Kmax	K90	Kvert	Grain Density (g/cc)	Fluids (%) Water	Oil	Dep. Facies	
420	2,911.5	10.6	0.174	0.146	0.151	2.65	91.9	0.0	1	
421	2,912.5	3.8	0.024	0.017	0.053	2.61	94.4	0.0	1	
422	2,913.5	2.4	0.009	0.007	0.008	2.58	96.9	0.0	1	
423	2,914.5	6.7	0.067	[2]	0.021	2.65	98.8	0.0	1	
424	2,915.5	8.2		[3]		2.72	84.5	0.0	1	
425	2,916.5	6.6	0.32	0.31	0.08	2.71	56.3	0.0	4	B3 LM
426	2,917.5	14.6	6.04	5.21	2.88	2.71	36.5	0.0	4	
427	2,918.5	7.6	0.38	0.32	0.29	2.76	52.0	0.0	4	
428	2,919.5	6.8	0.07	0.07	0.09	2.73	79.3	0.0	4	
429	2,920.5	5.6	0.04	0.04	0.04	2.73	88.5	0.0	4	
430	2,921.5	15.1	0.378	0.258	0.309	2.76	85.9	0.0	1	B4 SH
431	2,922.5	3.4	0.337	0.025	0.002	2.62	92.7	0.0	1	
432	2,923.5	5.0	5.407 F	3.839	0.014	2.67	93.6	0.0	1	
433	2,924.5	4.9	14.138 F	9.212	0.358	2.65	95.5	0.0	1	
434	2,925.5	6.4	7.302 F	5.991	7.186	2.63	94.8	0.0	1	
435	2,926.5	6.6	0.047	0.044	0.038	2.63	96.5	0.0	1	
436	2,927.5	10.9	0.078	0.076	0.207	2.69	85.0	0.0	1	
437	2,928.5	6.2	0.016	0.015	0.008	2.65	88.7	0.0	1	
438	2,929.5	4.9	8.223 F	2.871	0.06	2.61	95.0	0.0	1	
439	2,930.5	6.1	0.028	0.025	1.063	2.59	91.4	0.0	1	
440	2,931.5	12.0	0.65	0.49	0.33	2.79	78.9	0.0	4	B4 LM
441	2,932.5	6.9	0.22	0.21	0.41	2.74	65.4	0.0	4	
442	2,933.5	6.6	0.06	0.06	0.05	2.71	79.9	0.0	4	
443	2,934.5	3.1	0.22	0.02	0.01	2.73	91.0	0.0	4	
444	2,935.5	4.9	0.31	0.02	0.02	2.74	97.4	0.0	4	
445	2,936.5	11.6	0.235	0.08	0.289	2.73	89.2	0.0	1	B5 SH
446	2,940.5	8.6	1.571	[3]		2.76	93.8	0.0	1	
447	2,941.5	11.1				2.76	94.1	0.0	1	
448	2,942.5	11.4	54.786 F	43.978	42.35	2.77	93.3	0.0	1	
449	2,943.5	7.1	15.537 F	10.618	3.491	2.81	96.8	0.0	1	
450	2,944.5	11.4	2.20	1.68	2.82	2.72	54.4	0.0	4	B5 LM
451	2,945.5	14.0	13.18	8.02	3.95	2.72	51.7	0.0	4	
452	2,946.5	14.0	19.59	4.38	31.29	2.75	50.7	0.0	4	
453	2,947.5	14.0	3.858	[2]	22.245	2.72	91.3	0.0	4	
454	2,948.5	11.5	0.87	0.31	0.42	2.80	82.6	0.0	4	
455	2,949.5	10.5	0.27	0.24	0.36	2.89	87.1	0.0	4	
456	2,950.5	14.1	0.72	0.67	0.47	2.82	88.6	0.0	4	
457	2,951.5	12.1	0.44	0.43	0.17	2.76	89.3	0.0	4	
458	2,952.5	13.5	1.63	1.37	0.60	2.77	89.1	0.0	4	
459	2,953.5	14.1	1.33	1.31	0.83	2.74	89.9	0.0	4	
460	2,954.5	11.5	0.66	0.64	0.40	2.72	86.8	0.0	4	
461	2,955.5	3.6	0.50	0.07	0.03	2.70	88.8	0.0	4	