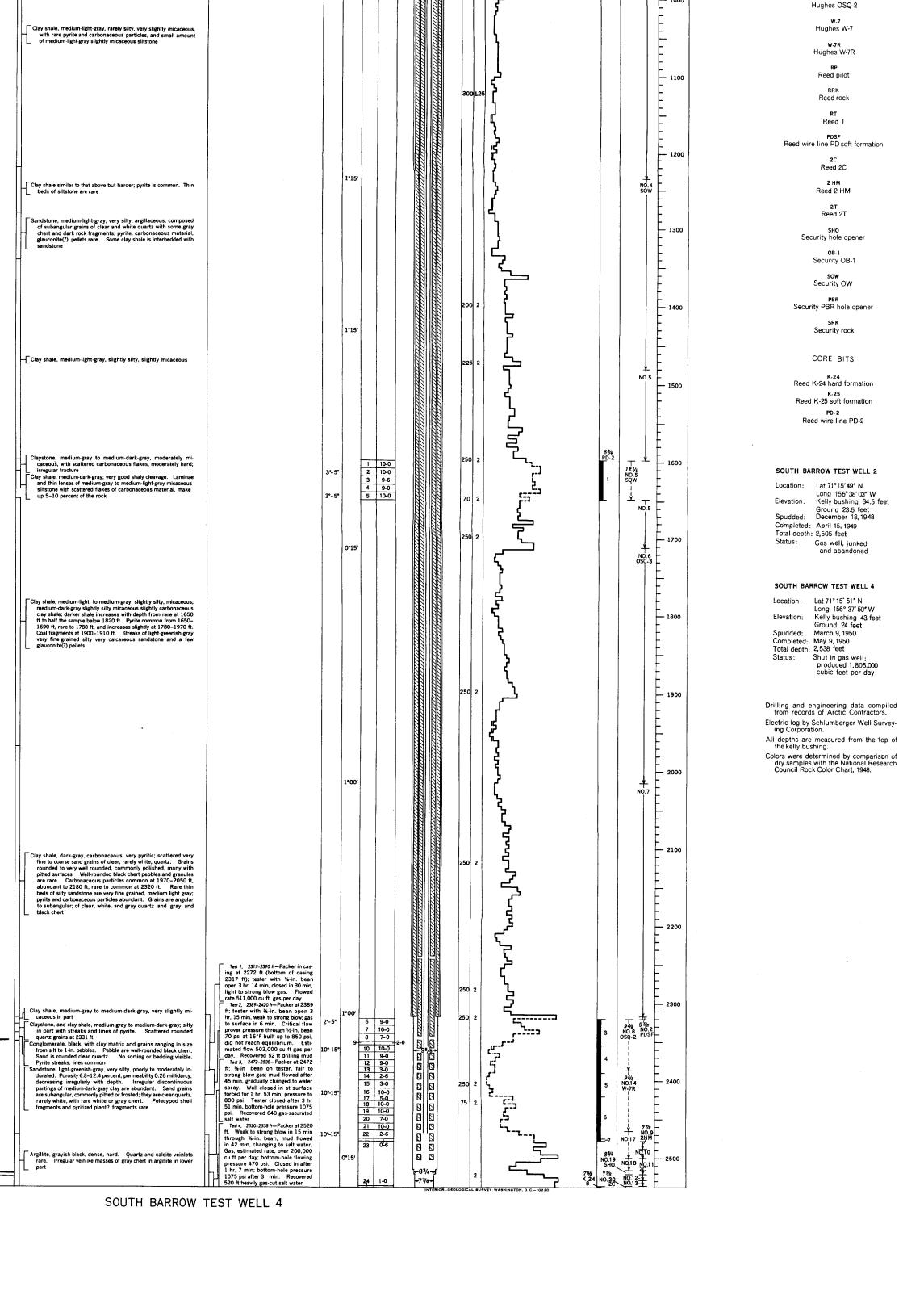
GRAPHIC LOGS OF	SOUTH	BARROW	TEST	WELLS	2 AND	4	
Compiled by Florence R. Collins, 1954							



GEOLOGICAL SURVEY SELECTED SPONTANEOUS O WILLIVOLTS O O O O O O O O O O O O O	DEVIATION NUMBER NUMBER NUMBER OLUTIONS PER MINUTE BIT NUMBER OLUTIONS PER MINUTE (SIZE IN INCHES) OLUTIONS PER MINUTE OLUTIONS PER MINUTE (SIZE IN INCHES) OLUTIONS PER MINUTE OLUTIONS PER MINUTE (SIZE IN INCHES) OLUTIONS PER MINUTE OLUTIONS PER MINUTE (SIZE IN INCHES) OLUTIONS PER MINUTE OLUTIONS PER MINUTE (SIZE IN INCHES) OLUTIONS PER MINUTE OLUTIONS PER MINUTE (SIZE IN INCHES) OLUTIONS PER MINUTE OLUTIONS PER MINUTE OLUTIONS PER MINUTE (SIZE IN INCHES) OLUTIONS PER MINUTE OLUTIONS PER MINUTE (SIZE IN INCHES)	SPONTANEOUS VOIL WWAT OF COMMITTEE STATE OF COMMIT	SELECTED LITHOLOGIC DESCRIPTION	FORMATION TEST TEST TEST TOTAL CORE TOTAL	PROFESSIONAL PAPER 308 PLATE 42 PLATE 42 PLATE 42 PREMININGHES) PRICE IN INCHES) PRICE IN INCHES IN INCHES) PRICE IN INCHES I
Ground level Ground level Sea level RUN 1 Consider the sea of	1*05'	Ground level — Sea level — Sea level — Run 1	Clay, gray, soft, with a few lenses of sand and a few pebbles. Sand grains are predominantly fine to very fine grained, subangular to well rounded; some are frosted. Grains are clear or white quartz, with some yellow quartz and black chert. Pebbles are subrounded to rounded, gray to black chert	(IN INCHES)	O 5 10 15 20 25 30 T T T 28 15/2 - PBR NO.7 - 100 12/4 - NO.2 OB.1 - OB.2 OB.2 OB.1 - OB.2 OB.2 OB.1 - OB.2 OB.1 - OB.2 OB.2 OB.2 OB.2 OB.1 - OB.2 OB.2 OB.2 OB.2 OB.2 OB.2 OB.2 OB.2
Clay shale, blue-gray, sticky, with thin beds of sandstone, friable; composed of subrounded to subangular grains of clear and white quartz, with some green and dark rock fragments Clay ironstone, light-yellowish-gray, very slightly calcareous Siltstone, medium-light-gray, very argillaceous, calcareous	0°50′	300 -			250 250 250
Sandstone, medium-light-gray, slightly micaceous; composed of subangular to subrounded grains of clear and white quartz and some dark rock fragments Clay shale, medium-gray, very slightly micaceous in part; rare carbonaceous particles; good shaly cleavage. Silty clay and silt-stone laminae rare	1'00' 1'00'				
Siltstone, medium-light-gray, very argillaceous Siltstone, medium-bluish-gray, dense, argillaceous, very calcareous Clay shale, medium-gray, slightly micaceous in part; rare carbonaceous particles and silty laminae. Good shaly cleavage	0°30′	600	Clay shale, medium-light-gray, rarely sitty, very slightly micaceous; rare carbonaceous particles and pyrite. Rare thin beds of sandstone of subangular very fine grained sand of white or clear quartz and some gray quartz and chert. Pyrite, green glauconite(?) pellets, and carbonaceous particles are rare		200
ceous particles and silty laminae. Good shaly cleavage Limestone, medium-bluish-gray, very argillaceous to silty, dense	5° 2 10-0 13-13-13-13-13-13-13-13-13-13-13-13-13-1	TOO — SHORT NORMAL AM= 18 INCHES			700
Slickensides at 864 ft PODE RUN 2	5° 3 10-0 160 1.5 160 1.5 19-4 000 2 1000 2	900 —			250 1.25 NO. 2 RERUN -
Clay shale, medium-gray, slightly silty and micaceous; rare carbonaceous particles; good shaly cleavage. Rare laminae of silty medium-light-gray clay shale and siltstone contain carbonaceous particles and are micaceous in part. Siltstone is rarely slightly calcareous. Slickensides at 1154 and 1180 ft, dip 45°. Siltstone increases slightly, to common laminae and rare thin beds, below 1240 ft	2°-4° 2°-4° 2°-4° 2°-4° 2°-4° 2°-6° 11 18-0 12 16-9 13 18-6 15 19-0 16 19-0	A B B B B B B B B B B B B B B B B B B B	Clay shale, medium-light-gray, rarely silty, very slightly micaceous, with rare pyrite and carbonaceous particles, and small amount of medium-light-gray slightly micaceous siltstone		300 125
Interbedded cfay shale, very silty; and light-gray sandy to argillaceous partly friable sandstone that is hard where calcareous; porosity 22-25 percent; permeability 40-50 millidercys	2°-4° 17 17-6 18 19-0 19 20-0 20 19-0 21 17-0 23 17-0 23 17-0 25 18-6 15-20° 26 16-3	1300 — 13	Clay shale similar to that above but harder; pyrite is common. Thin beds of siltstone are rare Sandstone, medium-light-gray, very silty, argillaceous; composed of subangular grains of clear and white quartz with some gray chert and dark rock fragments; pyrite, carbonaceous material, glauconite(?) pellets rare. Some clay shale is interbedded with sandstone	1*15*	NO.4 - SOW - 1300
Clay shale, medium-gray, slightly to very silty, partly micaceous; fair to poor shaly cleavage; rare slickensides	10°-15° 0°55′ 28 18-0 15°-20° 29 18-0 30 15-0 50 1.5	1400 — Run 2	[Clay shale, medium-light-gray, slightly silty, slightly micaceous	1*15'	200 2
Clay shale, medium-dark-gray, very slightly micaceous and silty, very poor shaly cleavage	150 2 150 2 150 2 150 2 150 2 1700 1700 1700 1700 1700 1700 1700 1	1600	Claystone, medium-gray to medium-dark-gray, moderately micaceous, with scattered carbonaceous flakes, moderately hard; irregular fracture Clay shale, medium-dark-gray; very good shaly cleavage. Laminae and thin lenses of medium-gray to medium-light-gray micaceous siltstone with scattered flakes of carbonaceous material, make up 5-10 percent of the rock	3°-5° 3°-5° 3°-5° 0°15′	250 2
Clay shale, medium-dark-gray; slightly silty and micaceous in part; light-gray siltstone laminae in lower part. A few thin sandstone beds below 1756 ft are light gray, very silty, and argilaceous and are composed of subangular grains of clear and white quartz and some dark rock fragments and rare yellow grains. Porosity 24 percent; permeability 8–14 millidarcys		1800 — 1	Clay shale, medium-light to medium-gray, slightly silty, micaceous; medium-dark-gray slightly silty micaceous slightly carbonaceous clay shale; darker shale increases with depth from rare at 1650 ft to half the sample below 1820 ft. Pyrite common from 1650–1690 ft, rare to 1780 ft, and increases slightly at 1780–1970 ft. Coal fragments at 1900–1910 ft. Streaks of light-greenish-gray very fine grained silty very calcareous sandstone and a few glauconite(?) pellets		NG.6 - OSC.3 1800 1900 1900
Clay shale, black, fissile, very pyritic; well-rounded fine to coarse grains of clear quartz and rare chert granules scattered throughout Run 3	1°20′ 1°30′ 1°		•		- 2000 2000 2000 2000
Clay shale, grayish-black, silty, slightly micaceous; rare to common grains, lines, and nodules of pyrite. Porosity 5.5-21.1 percent; permeability 4.8-104 millidarcys. Well-rounded fine to coarse, polished or pitted grains of clear quartz and gray or black chert are scattered, singly or in very small groups, through the rock. Well-rounded granules of black chert are rare. A 6-in, bed of brownish-gray very dense argiliaceous limestone present at 1975 ft. Pelecypod shell fragments rare. Thin beds of olive-gray very silty and argiliaceous sandstone composed of angular to subangular grains of clear and white quartz (and lacking rounded quartz grains) are rare. At 2290-2294 ft are well-rounded pebbles of black chert	1°45' 42 14-6 43 10-0 44 17-0 45 17-0 45 17-0 46 20-0 48 19-0 49 20-0 0° 50 3-0 0° 51 20-0 1°45' 42 14-6 43 10-0 44 17-0 45 17-0 45 17-0 40 2-3 2222222222222222222222222222222222	2100 — 21	Clay shale, dark-gray, carbonaceous, very pyritic; scattered very fine to coarse sand grains of clear, rarely white, quartz. Grains rounded to very well rounded, commonly polished, many with pitted surfaces. Well-rounded black chert pebbles and granules are rare. Carbonaceous particles common at 1970–2050 ft, abundant to 2180 ft, rare to common at 2320 ft. Rare thin beds of silty sandstone are very fine grained, medium light gray; pyrite and carbonaceous particles abundant. Grains are angular to subangular; of clear, white, and gray quartz and gray and black chert		2100 - 2100
Conglomeratic claystone, with dark-gray matrix containing well-rounded grains of clear quartz and granules and pebbles of black chert Siltstone, light-olive-gray, slightly to very argillaceous; porosity 7.8-22.5 percent; permeability less than 8-108 milliarcys; rare to abundant small irregular patches of medium-gray clay shale ranging from 2 to 50 percent. Grades into unit below. Sandstone, light-olive-gray, very sitty and argillaceous, noncalcareous; streaks and patches of medium-gray clay shale totaling 5-30 percent of the rock. Porosity 12.2-24 percent; permeability less than 4-91 millidarcys	weak blow of air changed to gas in 29 min, at end of test. Recovered 168 ft, heavy gas-cut mud Test 2, 23/4-239/ ft—Fair blow of air increased to strong blow of gas in 12 min; closed-in pressure 550 psi in 26 min, after valve was opened pressure dropped to 250 psi in 12 min, to 150 psi in 21 min. Tester open for a total of 57 min Test 3, 2381-2443 ft—Tester open 30 min. weak blow air. Bottom 95 to d drill pipe contained gas-cut mud	R JURASSIC amed strata	Clay shale, medium-gray to medium-dark-gray, very slightly micaceous in part Claystone, and clay shale, medium-gray to medium-dark-gray; silty in part with streaks and lines of pyrite. Scattered rounded quartz grains at 2331 ft Conglomerate, black, with clay matrix and grains ranging in size from silt to 1-in, pebbles. Pebble are welf-rounded black chert. Sand is rounded clear quartz. No sorting or bedding visible. Pyrite streaks, lines common Sandstone, light-greenish-gray, very silty, poorly to moderately indurated. Porosity 6.8-12.4 percent; permeability 10.2 millidarcy, decreasing irregularly with depth. Irregular discontinuous partings of medium-dark-gray clay are abundant. Sand grains are sub-angular, commonly pitted or frosted: they are clear quartz.	1°00' ut gas per day 1°10' le	250 2 2 2 2 300 2 3 NO.8 NO.2 PDSF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
DIOZOS WAR Interest of the state of the stat	66 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0-0 0	State of the part	fragments and pyritized plant? fragments rare Argillite, grayish-black, dense, hard. Quartz and calcite veinlets rare. Irregular veinlike masses of gray chert in argillite in lower part	800 psi. Tester closed after 3 hr 51 min, bottom-hole pressure 1075 psi. Recovered 640 gas-saturated salt water	75 2 77% - NO.17 29M - NO.19 NO.18 NO.11 SHO 20 NO.12 V

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

EXPLANATION

PROFESSIONAL PAPER 305 PLATE 42

Gravel or conglomerate Silty sandstone Calcareous sandstone Siltstone Sandy siltstone Calcareous siltstone Clay shale or claystone Sandy clay shale or claystone Silty clay shale or claystone Calcareous clay shale or claystone Limestone Argillite

Clay ironstone Cored interval No samples recovered • Oil show . ⇔ Gas show vf Very fine grained f Fine grained Electrode spacing

BIT SYMBOLS DRILL BITS CBRK Crum Brainard rock osc-3 Hughes OSC-3 0SQ-2 Hughes OSQ-2