

Well Identification:

API#	AREA	BLOCK	OPERATOR	WELL NAME	
55220000020000	SELDOVIA	401	ARCO Alaska Inc.	OCS Y-0097 RAVEN 1 ST00BP00	
LATITUDE	LONGITUDE	KB	WATER DEPTH	GEO DATUM	ZONE
59° 36' 8.8"	-152° 35' 3.0"	101	-191	NAD83	5

Overview

The Raven 1 was spud as an exploratory well on April 7th, 1980 and located in the Cook Inlet. The operator reported no commercial hydrocarbons were discovered at this location, the well was plugged and abandoned. The comprehensive analytical data collection program included well logging and rotary sidewall coring provided by Schlumberger, whole coring, and drill cutting samples collected by The Analysts. Collected samples were analyzed by Core Laboratories for lithology, fluid saturation, pore volume, and hydrocarbon source generation.

Geologic Intervals used for Analysis:

Age/Period	Stratigraphy	Top	Source	Comments
Oligocene	HMCK	1408	COK Picks GF.xls	
Eocene	WFLD	1739	COK Picks GF.xls	
Cretaceous	BTU-SDLM	2394	COK Picks GF.xls	
	KY GK_Mid	2760	COK Picks GF.xls	
	KY GK_Lwr	3954	COK Picks GF.xls	
	PDMR	4485	COK Picks GF.xls	
	MKU_HRND	5101	COK Picks GF.xls	
Jurassic	SKVK	5675	COK Picks GF.xls	
	NKNK_PMR	6333	COK Picks GF.xls	
	NKNK_SGHB	6789	COK Picks GF.xls	
	NKNK_mkr	7430	COK Picks GF.xls	

Logging Runs and Parameters:

LOGGED INTERVAL	TOP ft	BASE ft	TEMP degF	BITSIZE in	MWIN ppg	RM ohmm	WIRELINE RUNS													
							RUN#	GR	DLL	DIL	NUC	SON	VSP	DIP	MICRO	SGR	SP	TEMP	RFT	
1	1264	3764	119	12.25	10.3	1.27	1	X				X								
							2	X		X								X		
							3	X			X									
							4	X				X								
							5	X						X						
							6						X							
							7													
2	3764	7467	138	8.5	9.9	1.54	1	X		X		X								
							2						X							
							3	X			X									
							4	X				X								
							5	X							X					
							6	X						X						

Cored Intervals and Sample Analysis:

TOP ft	BASE ft	WHOLE CORE		TOP ft	BASE ft	SWS CORE	
		ft	ROUTINE SCAL			#REC	ROUTINE SCAL
3147	3169	18	19	1323	3730	87	62
3169	3181	5	4	3775	7460	79	35
3231	3253	17	1				
7481	7491	10					

Log Discussion:

The Raven 1 well was drilled and logged with water-based drilling fluid containing Barite weighting material to total depth. All borehole sections required environmental corrections for hole size, temperature, pressure, and mud weight additives.

Environmental Corrections:

The Schlumberger 2000 Edition chartbook was used to correct the logs for borehole size, temperature, pressure, and drilling mud additives. The Gamma Ray log was corrected using chart GR-1. Compensated Neutron log was corrected using Por-14c and Por -14d. Dual Laterolog Resistivity logs were corrected using Rcor-2c and invasion corrected using Rint-9b. Dual Induction logs were corrected using Rcor-4a and invasion corrected using Rint-10.

Significant caliper enlargements were observed in deeper sections of the well, in cases where the borehole caliper readings were above the correction charts, the maximum chart correction was applied, however these corrections under estimate the true formation measurement.

The bulk density measurement was the most environmentally affected log in the dataset, where the density log readings measured drilling fluid when the caliper reading exceed 16 inches. Repair of the density log utilized a Gardner et al. (1974) sonic to density transform.

Observations Logged Interval 1

Observed some high caliper readings throughout the entire well and density log required editing using the Gardner¹ density transform. Sonic log data was compared to the Faust⁴ velocity transform to correct anomalies in borehole washouts. Logged intervals where the bulk density was not present the delta-t sonic was used as the porosity model input to the final computed results.

References

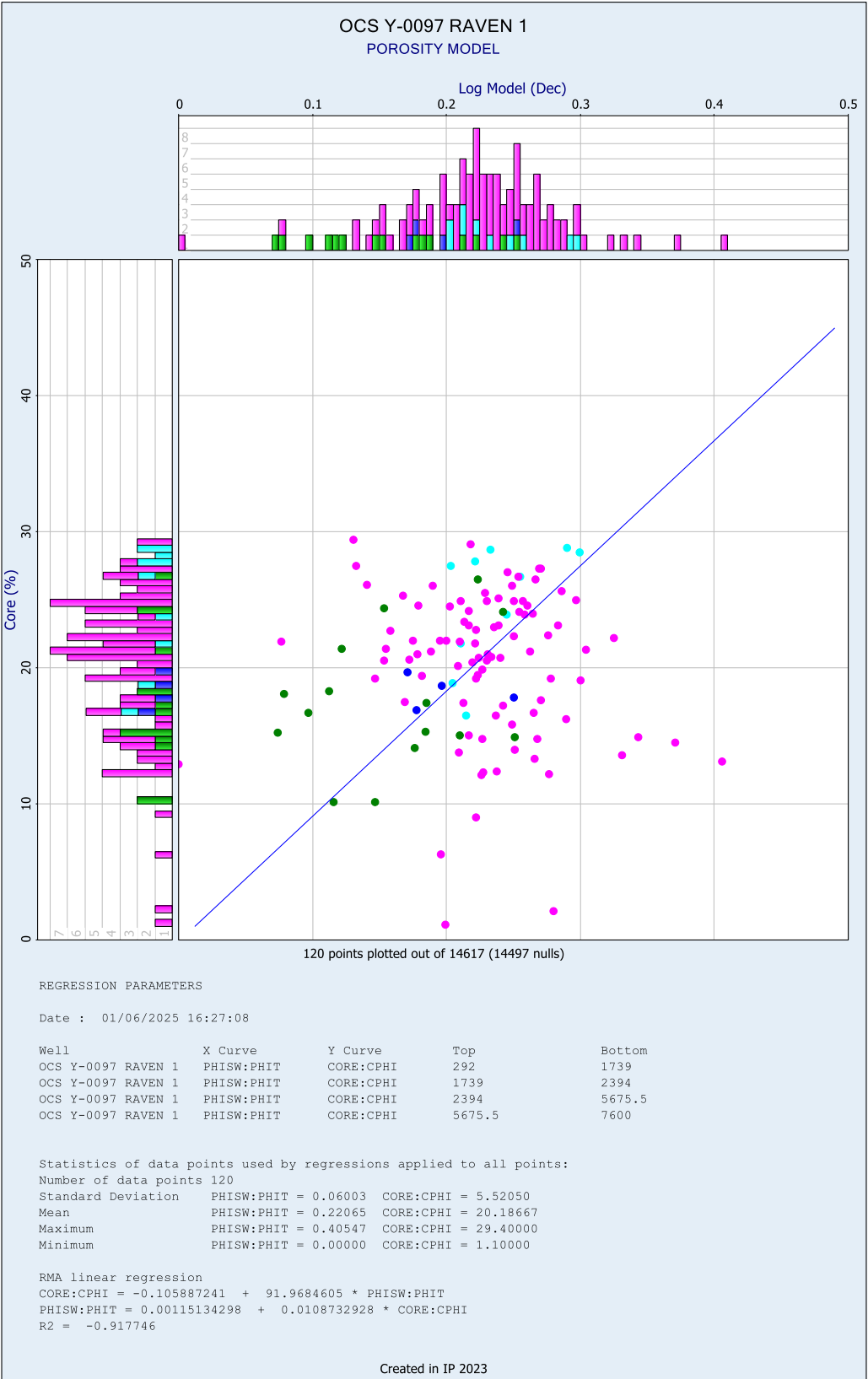
1. Gardner et al., 1974, Formation velocity and density—the diagnostic basics for stratigraphic traps Geophysics, 39 (6) (1974), pp. 770-780
2. Graton, L. C., and H. J. Fraser, 1935, Systematic packing of spheres with particular reference to porosity and permeability: Journal of Geology, v. 43, p. 785–909, DOI: 10.1086/jg.1935.43.issue-8
3. Carmichael, R.S. ed. 1982. Handbook of Physical Properties of Rocks, Vol. 2, 1-228. Boca Raton, Florida: CRC Press Inc.
4. L. Y. Faust, "A Velocity Function Including Lithologic Variation," Geophysics, Vol. 18, No. 2, 1953, pp. 271-288.

Summation Report:

RESERVOIR SUMMARY											
Zone	Zone Name	Top	Bottom	Gross	Net	N/G	Av Phi	Av Sw	Av Vcl	Phi*H	PhiSo*H
1	ORIGINAL BOREHOLE	234	14984	14750	188.5	0.013	0.304	0.669	0.365	57.27	18.96

Reservoir summary cut off values used were porosity greater than 20% (PHIE > 0.2), shale volume less than 40% (VSHALE < 0.4), and water saturation less than 50% (SW < 0.5).

Core versus Log Porosity Crossplot:



Scale : 1 : 10000

OC5 Y-0097 RAVEN 1

DE - IP_UGSV (23)

DEPTH (OFT - 7600FT)

DATE: 01/06/2025 16:28

The well log displays the following tracks from left to right:

- AGE:** GR (GAP1) 200, GRC (GAP1) 200, ENV CORR.
- TEMP:** TEMP L (degF), TEMP L 0 300.
- CALI:** CALI 30, DEPTH (FT), BADHOL.
- TVDSS (FT):** TVDSS (FT).
- RESISTIVITY:** RESD (OHMM) 20, RESM (OHMM) 20.
- NPHISC (DEC):** NPHISC (DEC) 0, DENSIC (G/C3) 1.65, 2.65, SHALE.
- DTC (US/FT):** DTC (US/FT) 240, DT_FAUST (us/ft) 240, BOUND WATER, FREE WATER.
- POROSITY & SATURATION:** PHIT (Dec) 0, PHIE (Dec) 0, BVV (Dec) 0, CPHI (%) 60, BOUND WATER, HYDROCARBON, WATER, COAL.
- LITHOLOGY:** CLAY, SILT, SAND, HYDROCARBONS.
- PRESSURES:** OBPRESS (psi) 20000, FRACPRESS (psi) 20000, ECDPRESS (psi) 20000, MUDPRESS (psi) 20000, FMPRESS (psi) 20000, FPRESS (psi) 20000, HYDROSTATIC, OVER PRESSURE, NORMAL PRESSURE.

WELLBORE DATA:

WELLBORE	SIZE	DEPTH (INCH)
HOLE SIZE	13.375 IN	13.375 IN
ORIGINAL BORE-HOLE	17.5 INCH	17.5 INCH
SIDETRACK 1	8.5 INCH	8.5 INCH

Geological Formation Legend:

- Miocene
- Oligocene
- Cretaceous
- Jurassic