

### Well Identification:

API#	AREA	BLOCK	OPERATOR	WELL NAME	
55029210740100	Beaufort Sea	516	Shell Western E&P, Inc.	OCS Y-00181 SEAL ISLAND 1	ST01BP00
LATITUDE	LONGITUDE	KB	WATER DEPTH	GEO DATUM	ZONE
70° 29' 31.44"	-148° 41' 35.80	55	-39	NAD83	6

### Overview

The Seal Island 1 was spud as an exploratory well on February 4<sup>th</sup>, 1984 and located in the Beaufort Sea off the North Slope. The original wellbore was lost due to wellbore collapse and subsequently sidetracked. The operator reported hydrocarbons discovered at this location, and the well was plugged and abandoned. The analytical data collection program included well logging by Schlumberger, coring, and drill cutting samples collected by Baroid.

### Geologic Intervals used for Analysis:

Age/Period	Stratigraphy	Top	Source	Comments
Cretaceous	COLVILLE	7746		
	PEBBLE SHALE	9892		
	KUPARUK	10262		
Jurassic	KINGAK	10647		
	SAG RIVER	12232		
Triassic	SHUBLIK	12348		
	SADLEROCHIT	12451		
	IVISHAK	12833		
Permian	ECHOOKA	12924		
	LISBURNE	12960		

### 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	12288	13072	234	8.5	10	0.311	1	X		X		X			X				
							2	X			X						X		
							3	X				X					X		
							4	X			X					X			

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### Cored Intervals and Sample Analysis:

TOP ft	BASE ft	WHOLE CORE ft	ROUTINE	SCAL	TOP ft	BASE ft	SWS CORE #REC	ROUTINE	SCAL
12301	12361	59							
12361	12421	59							
12421	12424	3							
12424	12466	41							
12466	12513	43							
12513	12534	11							
12534	12549	14							
12549	12598	48							
12598	12627	28							
12627	12634	7							
12634	12654	21							
12654	12711	49							
12711	12760	48							
12760	12812	43							
12812	12872	60							

### Log Discussion:

The Seal Island 1 well was drilled and logged with water-based drilling fluid containing Barite weighting material to total depth. Subsequent borehole sections were drilled with additional Barite to increase the borehole fluid pressure overbalance. 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.

Minor caliper enlargements were observed in various 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

Observed some caliper readings where density log was affected, the logged interval showed the bulk density required minor editing using the Gardner<sup>1</sup> density transform. Sonic log data was compared to the Faust<sup>4</sup> velocity transform to correct anomalies for any 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.

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## 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.

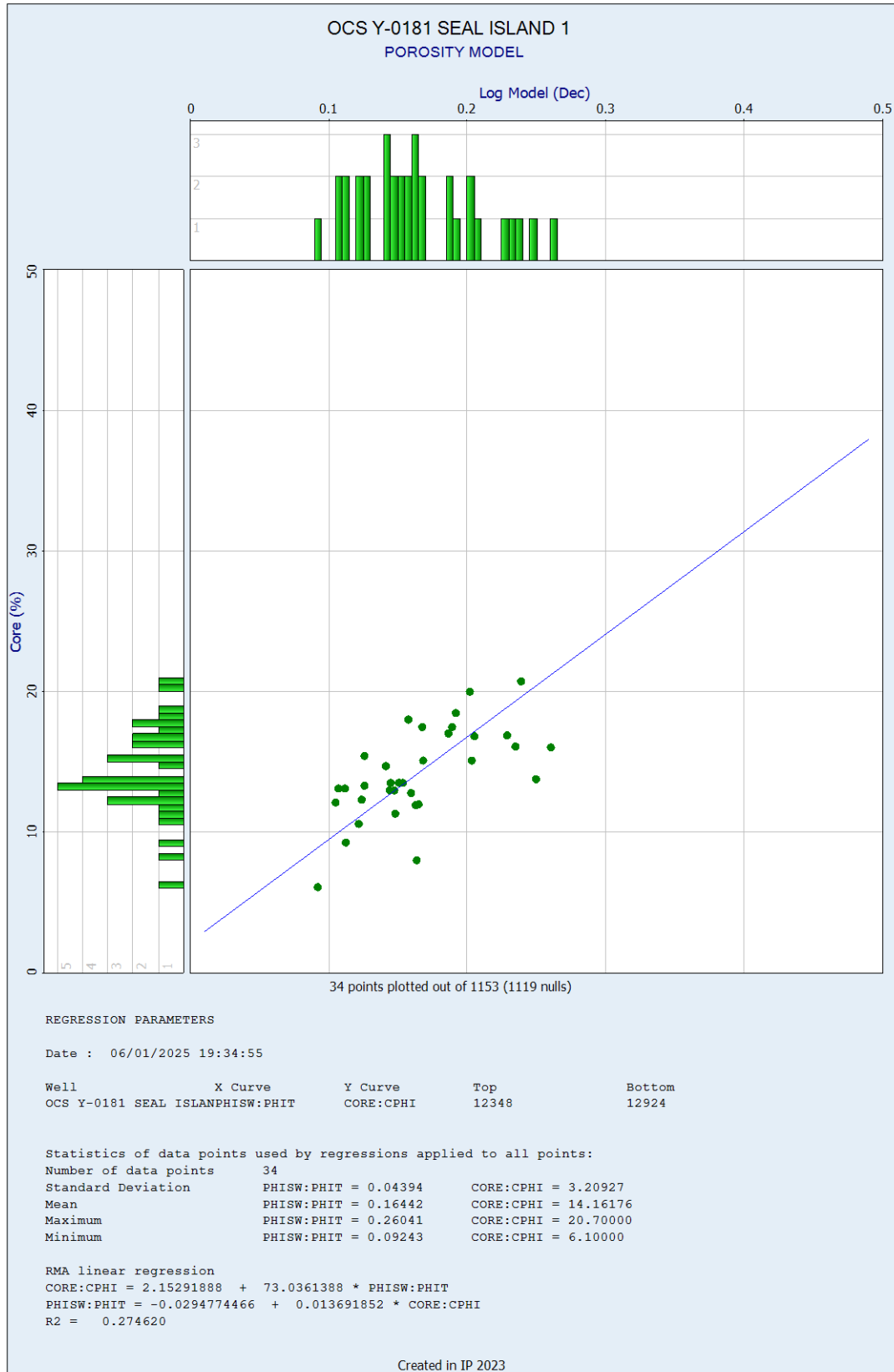
## Summation Report:

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 10% (PHIE > 0.1), shale volume less than 50% (VSHALE < 0.5), and water saturation less than 50% (SW < 0.5).

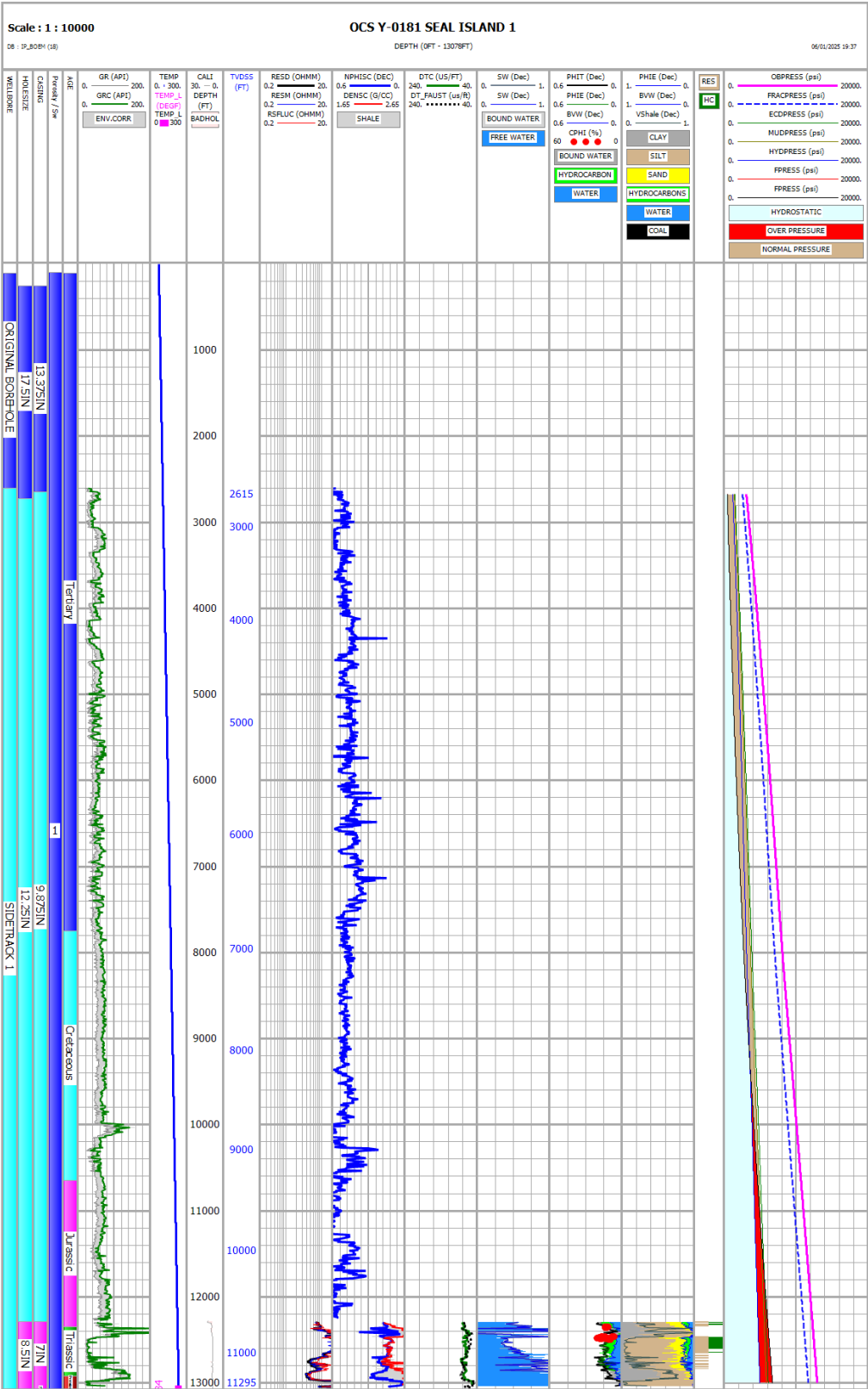
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**Core versus Log Porosity Crossplot:**



Report Date:

Summary Plot:



Report Date: