



August 1, 1972

INTER-OFFICE CORRESPONDENCE / SUBJECT: Norway/Prod/Bream 17/12 Well No. 1X
BARTLESVILLE, OKLAHOMA

Water Analysis

WFB-37-72

Mr. O. D. Thomas
International Department
1711 Phillips Building

In response to Mr. J. K. Fetters' request of July 17, 1972, the water samples from Drill Stem Tests No. 3, 4 and 7 of the Bream 17/12 Well No. 1X, Norwegian Sector, North Sea, have been analyzed and the results are attached.

The analyses, including measurements of pH, specific gravity at 60/60°F, sulfides as H₂S, and concentrations of inorganic ions, were made by Earlougher, Engineering, Tulsa, Oklahoma.

W. F. Buce

W. F. Buce
262 RB #1, Ext. 3538

WFB:nw
Attachments (3)

cc: R & D Files (EX-4-3-9)
B. M. Boyce (8)
R. V. Smith (r) RBN
W. F. Buce

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

LAB. SAMPLE NO. EE 914
FIELD SAMPLE NO.

WATER ANALYSIS

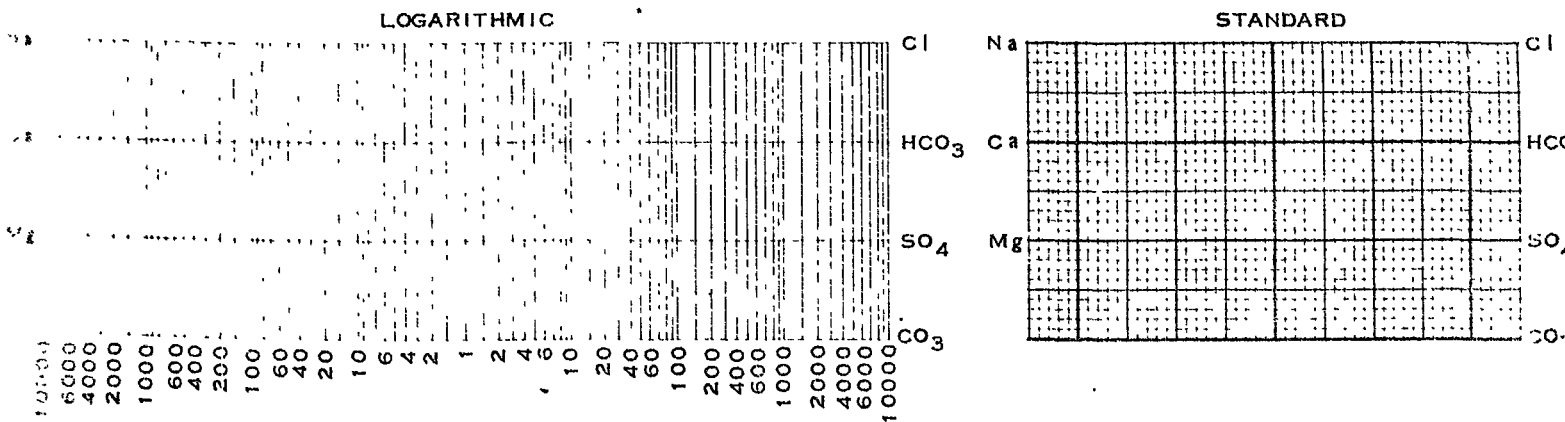
FIELD Bream
FORMATION Danian Lime
DEPTH 7574-7594'
POINT OF SAMPLING Reverse circulator #3, DST 3
SAMPLED BY DATE 6-5-72
2100 hrs

17/12
IX
TWP.
RGE.
SECT.
Danian Sector North Sea

		MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER	PARTS PER MILLION	PER CENT
Na	(BY DIFFERENCE)	3,938	171.29	3,908	36.35
Ca		10	.50	10	.09
Mg		29	2.38	29	.27
Fe		0	0	0	0
Fe	TOTAL	240		238	2.21
OH	HYDROXIDE	0	0	0	0
CO ₃	CARBONATE	149	4.96	148	1.38
HCO ₃	BICARBONATE	595	9.76	590	5.49
Cl	CHLORIDE	5,035	141.98	4,996	46.46
SO ₄	SULFATE	840	17.47	833	7.75
	TOTAL DISSOLVED SOLIDS (SUM.)	10,836		10,752	100.00
	pH WHEN SAMPLED				
	pH IN LAB		9.2		
	RESISTIVITY, OHM-METERS AT 77 °F		.603		
	SPECIFIC GRAVITY 60/60 °F		1.0077		
	TOTAL SULFIDE AS F ₂ S		0		
	TOTAL HARDNESS AS CaCO ₃				

REMARKS:

WATER ANALYSIS PATTERNS
MEQ PER UNIT



SAMPLE RECEIVED: 7-21-72
ANALYSIS COMPLETED: 7-25-72
ANALYST: TNH (UE)
ANALYSIS REQUESTED BY: W. F. Bruce

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(International Dept., AFE No. NW-5605)

WATER ANALYSIS

LAB. SAMPLE NO. EE 915
FIELD SAMPLE NO. ...

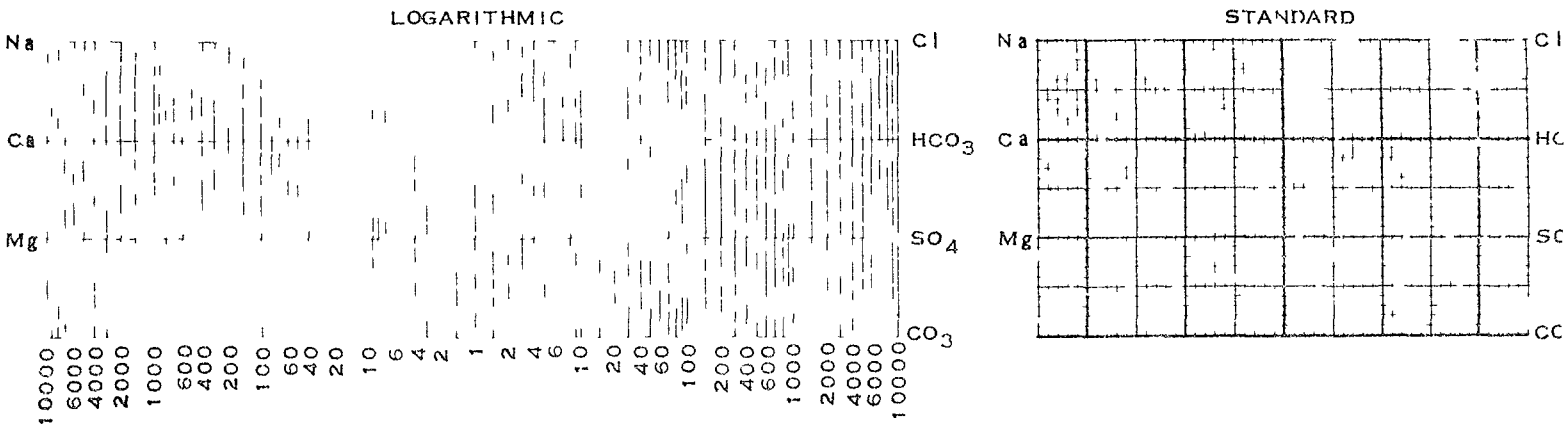
Block 17/12
IX
WELL NO.
LOCATION
SEC.
TWP.
RGL.
Norwegian Sector North Sea

FIELD Bream
FORMATION Danian Lime
DEPTH 7530-7560'
POINT OF SAMPLING Reverse circulator #3, DST
SAMPLED BY
DATE 6-6-72
2215 hrs

		MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER	PARTS PER MILLION	PER CENT
SODIUM (BY DIFFERENCE)	Na	33,440	1,454.44	30,920	29.12
CALCIUM	Ca	8,520	425.15	7,878	7.42
MAGNESIUM	Mg	1,444	118.70	1,335	1.26
BARIUM	Ba				
IRON, DISSOLVED	Fe	220		203	.19
IRON, TOTAL	Fe	0		0	0
HYDROXIDE	OH	0	0	0	0
CARBONATE	CO ₃	0	0	0	0
BICARBONATE	HCO ₃	600	9.84	555	.52
CHLORIDE	Cl	70,210	1,979.92	64,920	61.11
SULFATE	SO ₄	410	8.53	379	.36
TOTAL DISSOLVED SOLIDS (SUM.)		114,844		106,190	100.00
pH WHEN SAMPLED					
pH IN LAB					
RESISTIVITY, OHM-METERS AT 77 °F		7.6			
SPECIFIC GRAVITY 60, 60 °F		1.0815			
TOTAL SULFIDE AS		0			
TOTAL HARDNESS AS CaCO ₃					

REMARKS:

WATER ANALYSIS PATTERNS
MEQ PER UNIT



SAMPLE RECEIVED: 7-21-72
ANALYSIS COMPLETED: 7-25-72
ANALYST: T.N. (I.T.)
ANALYSIS REQUESTED BY: W. F. Bruce

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WATER ANALYSIS

LAB. SAMPLE NO. ... K.916...
FIELD SAMPLE NO.

LEASE Block 17/12

WELL NO. IX

LOCATION

SEC. TWP. RGE.

Norwegian Sector North Sea

FIELD Brown
FORMATION D alan Line

DEPTH 7691-7703

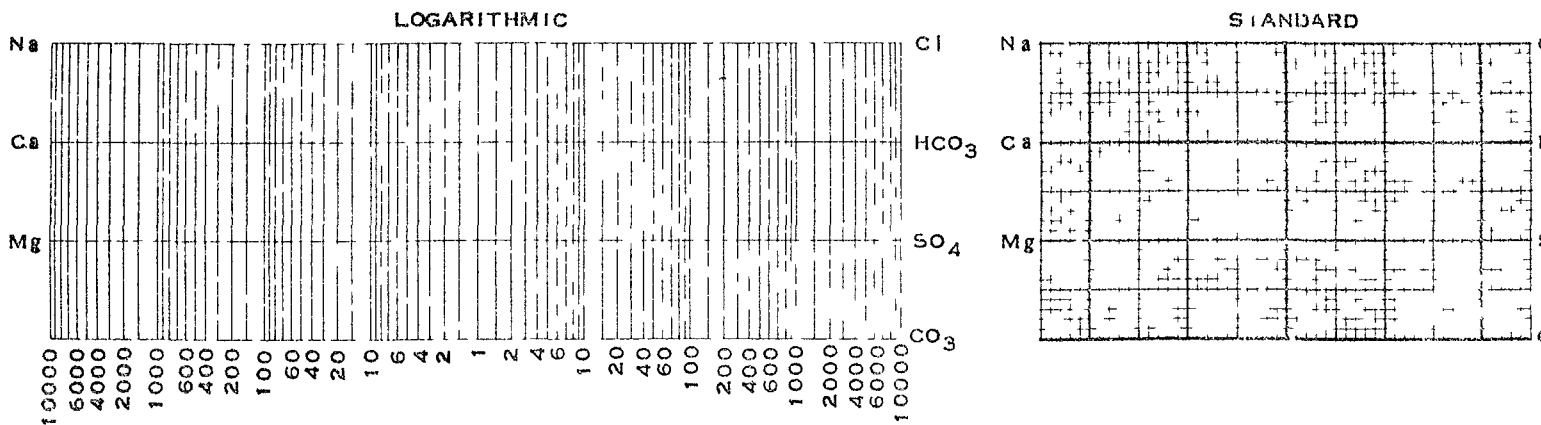
POINT OF SAMPLING Reverse circulator of DLT 7

SAMPLED BY DATE 7-16-72

		MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER	PARTS PER MILLION	PER CENT
SODIUM (BY DIFFERENCE)	Na	32,220	1,401.53	29,710	27.70
CALCIUM	Ca	10,600	523.94	9,776	9.15
MAGNESIUM	Mg	1,025	84.26	945	.88
BARIUM	Ba				
IRON, DISSOLVED	Fe	195		180	.17
IRON, TOTAL	Fe	0		0	0
HYDROXIDE	OH	0	0	0	0
CARBONATE	CO ₃	91	3.93	84	.08
BICARBONATE	HCO ₃	283	4.64	261	.24
CHLORIDE	Cl	70,210	1,971.92	64,730	61.07
SULFATE	SO ₄	1,300	27.04	1,199	1.12
TOTAL DISSOLVED SOLIDS (SUM.)		115,424		106,905	
pH WHEN SAMPLED					
pH IN LAB 8.8					
RESISTIVITY, OHM-METERS AT 77 °F .070					
SPECIFIC GRAVITY 60/60 °F 1.0246					
TOTAL SULFIDE AS					
TOTAL HARDNESS AS CaCO ₃ 26					

REMARKS:

WATER ANALYSIS PATTERNS
MEQ PER UNIT



SAMPLE RECEIVED: 7-21-72
ANALYSIS COMPLETED: 7-25-72
ANALYST: TRU (54)
ANALYSIS REQUESTED BY:

COPIES:
2- Research & Development Dept
(1) E. D. Parsons
4-W. F. Bruce

W. F. Bruce

(International D.M. AFE No. NW-5505)