A/S NORSKE SHELL

WATER SAMPLES

WELL: 31/2-11

GECO

A/S NORSKE SHELL

WATER SAMPLES

WELL: 31/2-11

GECO

Principles of determination of the ionic concentration
in the samples for which complete 10-ion analysis were requested.

Ca^{2+})	
)	
Mg^{2+})	Atomic absorbtion
)	
Fe^{2+}/Fe^{3+})	Spectrophotometry
)	
Ba^{2+})	
)	
Sr^{2+})	
K^{+}	Flame photometry
Na^{+}	Charge balance
Cl^{-}	Mohr titration
HCO^{-}_{3}	Potentiometric titration
SO^{2-}_{4}	Photometry of precipetation product
OH^{-}	Potentiometry

LABORATORY

FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. B

Well 31/2 - 11 Field State

Sampled from $CaCl_2$ brine

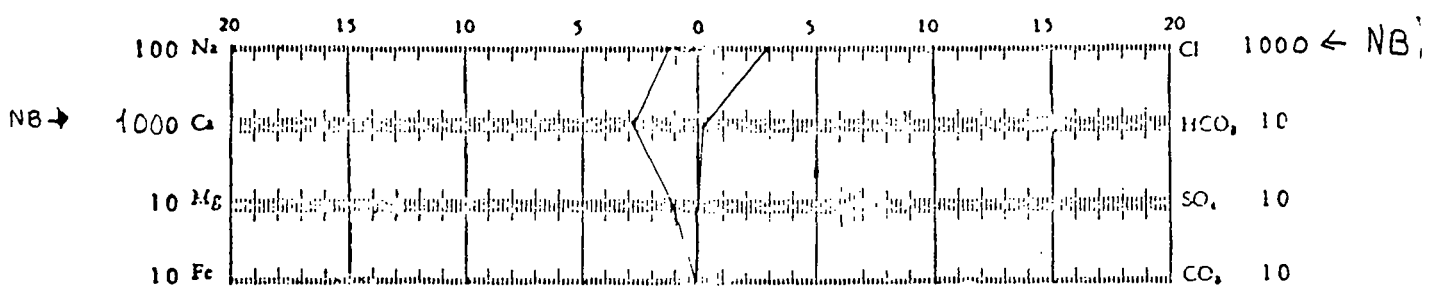
Date sampled 17.05.83. Date analyzed 24.05.83. Analyst T.S.

Total Dissolved Solids 164.500 mg/L Specific Gravity 1.123 (a 68 °F

Resistivity 0.063 ohm-meters (a 68 °F ph 7.1 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	2.950	129	Chloride	104.200	2.939
Calcium	55.800	2.784	Bicarbonate	110	2
Magnesium	120	10	Sulfate	280	6
Strontium	860	20	Carbonate	0	
Barium	195	3	Hydroxide	0	
Iron	14	1	Phosfate	–	

REMARKS:



LABORATORY

FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. 10

Well 31/2 - 11 Field State

Sample from perforated at 1681 to 1685 m

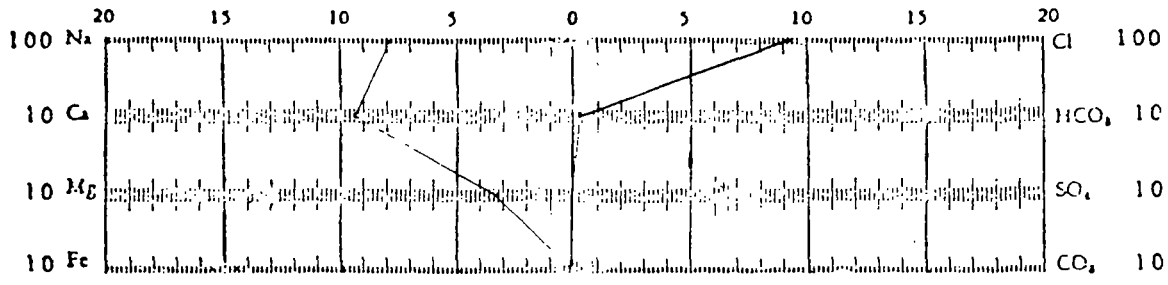
Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst T.S.

Total Dissolved Solids 54.150 mg/L Specific Gravity 1.036 (a 68 °F

Resistivity 0.150 ohm-meters (a 68 °F ph 6.9 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	18.250	794	Chloride	32.900	928
Calcium	1.890	94	Bicarbonate	195	3
Magnesium	390	32	Sulfate	n.d.	(not detected)
Strontium	330	8	Carbonate	0	
Barium	200	3	Hydroxide	0	
Iron	5		Phosfate	–	

REMARKS:



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LABORATORY

FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. 13

Well 31/2 - 11 Field State

~~Sampled from~~ perforated at 1681 to 1685 m

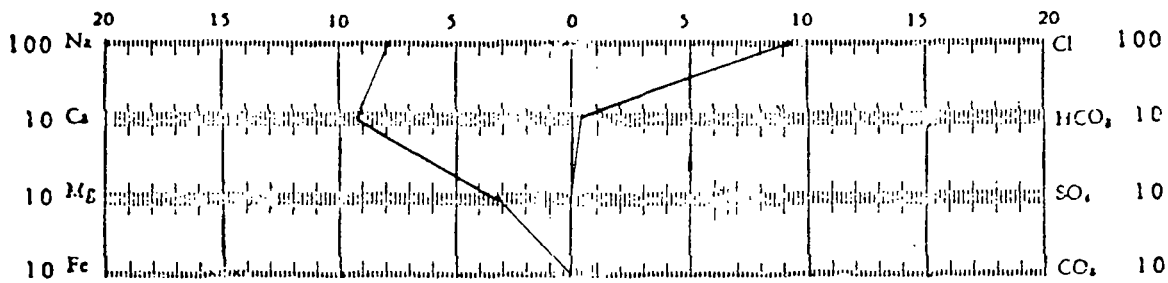
Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst T.S.

Total Dissolved Solids 53.900 mg/L Specific Gravity 1.036 @ 68 °F

Resistivity 0.151 ohm-meters @ 68 °F ph 6.8 @ 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	18.200	792	Chloride	32.700	922
Calcium	1.850	92	Bicarbonate	220	4
Magnesium	390	32	Sulfate	n.d.	
Strontium	325	7	Carbonate	0	
Barium	200	3	Hydroxide	0	
Iron	0.4		Phosfate	-	

REMARKS:



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LABORATORY

FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. 17

Well 31/2 - 11 Field State

Sampled from perforated at 1681 to 1685 m

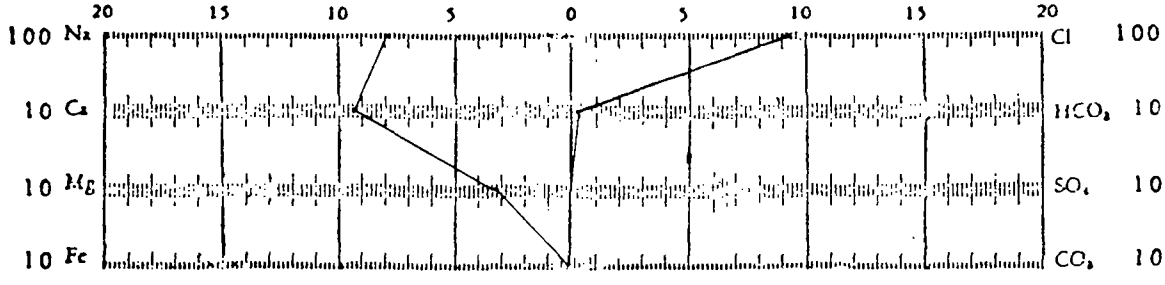
Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst T.S.

Total Dissolved Solids 54.000 mg/L Specific Gravity 1.036 (a 68 °F

Resistivity 0.151 ohm-meters (a 68 °F ph 6.9 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	18.200	793	Chloride	32.800	925
Calcium	1.870	93	Bicarbonate	205	3
Magnesium	390	32	Sulfate	n.d.	
Strontium	320	7	Carbonate	0	
Barium	210	3	Hydroxide	0	
Iron	2		Phosfate	-	

REMARKS:



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FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 20.05.83. SAmple no. 19

Well 31/2 -11 Field State

Sampled from perforated at 1681 to 1685 m

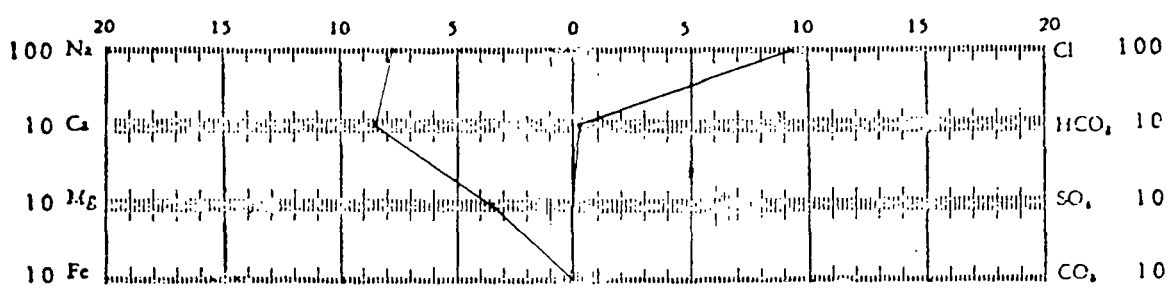
Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst J.K./T.S.

Total Dissolved Solids 54.200 mg/L Specific Gravity 1.035 (a 68 °F

Resistivity 0.151 ohm-meters (a 68 °F ph 6.9 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	18.100	788	Chloride	32.800	925
Calcium	1.710	85	Bicarbonate	200	3
Magnesium	420	35	Sulfate	n.d.	(not detected)
Strontium	320	7	Carbonate	0	
Barium	215	3	Hydroxide	0	
Iron	1.5		Phosfate	-	
Potassium	405	10	Nitrate	n.d.	
Silica as SiO_2	14mg/l				

REMARKS: The bottom sediment is sand. Hydrogen Sulfide was not detected.
Resistivity at 40°C 0.107 ohm - meters.
Resistivity at 65°C 0.073 ohm - meters.



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FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. 21

Well 31/2 - 11 Field State

~~Sampled from~~ perforated at 1681 to 1685 m

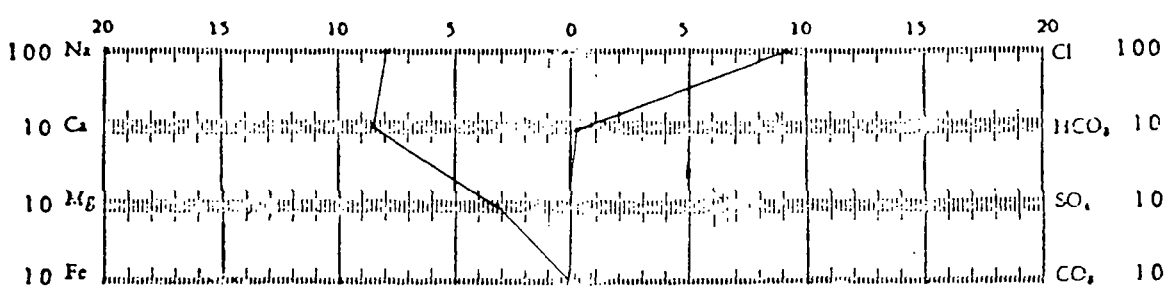
Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst T.S.

Total Dissolved Solids 53.900 mg/L Specific Gravity 1.035 (a 68 °F

Resistivity 0.151 ohm-meters (a 68 °F ph 6.8 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	18.350	798	Chloride	32.700	922
Calcium	1.710	85	Bicarbonate	190	3
Magnesium	395	32	Sulfate	n.d.	
Strontium	320	7	Carbonate	0	
Barium	210	3	Hydroxide	0	
Iron	0.4		Phosfate	–	

REMARKS:



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LABORATORY

FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. 30

Well 31/2 - 11 Field State

~~Sampled from~~ perforated at 1681 to 1685 m

Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst J.K./T.S.

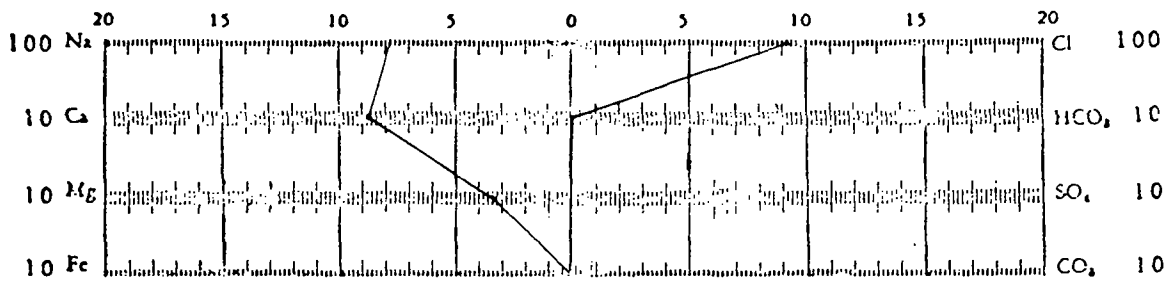
Total Dissolved Solids 53.700 mg/L Specific Gravity 1.035 (a 68 °F

Resistivity 0.152 ohm-meters (a 68 °F ph 6.7 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	17.900	779	Chloride	32.600	920
Calcium	1.750	87	Bicarbonate	75	1
Magnesium	405	33	Sulfate	n.d.	(not detected)
Strontium	330	8	Carbonate	0	
Barium	205	3	Hydroxide	0	
Iron	13		Phosfate	-	
Potassium	425	11	Nitrate	n.d.	

Silica as SiO_2 10mg/l

REMARKS: The bottom Sediment is mainly rust with only minute quantities of sand.
Hydrogen sulfide was not detected.
Resistivity at 40°C 0.106 ohm - meters.
Resistivity at 65°C 0.073 ohm - meters.



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LABORATORY

FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. 32

Well 31/2 - 11 Field State

~~Sampled from~~ perforated at 1681 to 1685 m

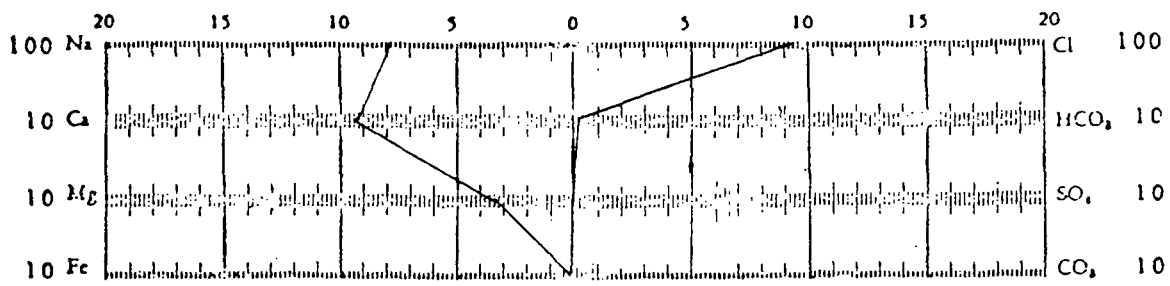
Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst T.S.

Total Dissolved Solids 53.700 mg/L Specific Gravity 1.036 (a 68 °F

Resistivity 0.151 ohm-meters (a 68 °F ph 6.5 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	18.050	786	Chloride	32.700	922
Calcium	1.870	93	Bicarbonate	135	2
Magnesium	410	34	Sulfate	n.d.	
Strontium	320	7	Carbonate	0	
Barium	210	3	Hydroxide	0	
Iron	30	1	Phosfate	-	

REMARKS:



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LABORATORY

FORMATION WATER ANALYSIS

Company A/S NORSKE SHELL Date 27.05.83. SAmple no. 39

Well 31/2 - 11 Field State

~~Sampled from~~ perforated at 1681 to 1685 m

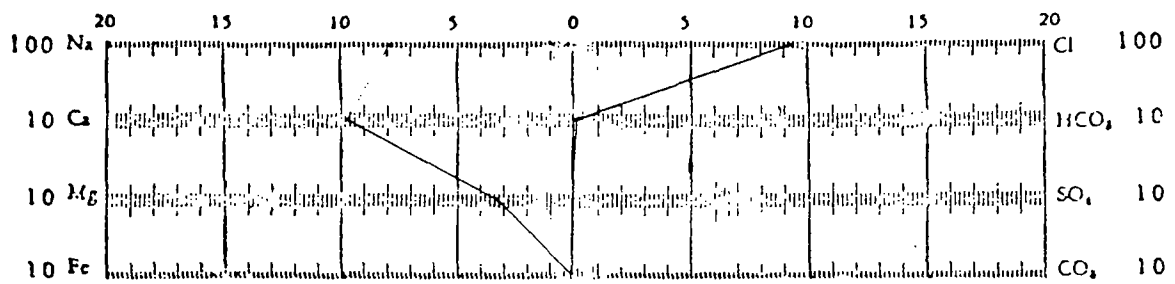
Date sampled 17.05.83. Date analyzed 24.05.83. - 26.05.83. Analyst T.S.

Total Dissolved Solids 53.850 mg/L Specific Gravity 1.036 (a 68 °F

Resistivity 0.151 ohm-meters (a 68 °F ph 6.5 (a 68 °F

*Constituens	mg/L	meq/L	Constituents	mg/L	meq/L
Sodium	18.050	786	Chloride	32.800	925
Calcium	1.940	97	Bicarbonate	120	2
Magnesium	400	33	Sulfate	n.d.	
Strontium	320	7	Carbonate	0	
Barium	205	3	Hydroxide	0	
Iron	25	1	Phosfate	0	

REMARKS:



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