DALLAS ADVANCED TECHNOLOGY CENTER
1875 MONETARY DRIVE
CARROLLTON, TX, USA 75006
TELEFAX NO.: 214/323-3930

DATE: June 28, 1994

TO: Bill Hay

COMPANY: Texaco

TELEFAX NUMBER: 915 688-4531

LOCATION: Midland

FROM: Brian Stevens

DEPARTMENT: RESERVOIR FLOW STUDIES LAB

NUMBER OF PAGES, INCLUDING COVER PAGE: 6

FOR TRANSMISSION PROBLEMS CALL: 214/466-2673

Ref: Water Compatibility Testing - Drinkard and Abo Formations

1. Results of the fluid/fluid compatibility and water sensitivity tests are enclosed.

2. No incompatibility between the Abo and Drinkard formation waters was observed in the fluid/fluid compatibility test.

3. Little or no sensitivity to the Abo formation brine was observed in the core sample from the Drinkard formation. A slight decrease in permeability versus throughput was noted in the sample taken from the Abo formation. Since the permeability declined during the initial Abo formation brine injection as well as the during the injection of the Drinkard formation brine, the permeability loss is probably not the result of fluid/fluid or fluid/rock incompatibility. The terminal reverse permeability measurement indicated a slight amount of solids plugging. This may be the results of minor fines migration in the sample or the presence of drilling solids.

4. Please contact me if you have any questions.

BEFORE THE
OIL CONSERVATION DIVISION
Case No. 11016,11017,11018 Exhibit No. 15
Submitted By:
Texaco Exploration & Production
Hearing Date: July 7, 1994

FLUID/FLUID COMPATIBILITY

Ambient Temperature

Texaco Exploration & Production, Inc

File: DAL-94121

Fluids	Mixture Ratio	pH	Turbidity, ntu	After 24 hours		
				pH	Turbidity	Observations
Synthetic Drinkard	1:0	6.00	0.16	6.05	0.16	Clear; no precipitate
Formation Brine:	9:1	-	-	6.05	0.17	Clear; no precipitate
Synthetic Abo	7:3	-	-	6.03	0.16	Clear; no precipitate
Formation Brine	5:5	-	-	6.00	0.17	Clear; no precipitate
	3:7	-	-	5.97	0.16	Clear; no precipitate
	1:9	-	-	5.92	0.15	Clear; no precipitate
	0:1	5.94	0.16	5.90	0.16	Clear; no precipitate

Core Laboratories

PERMEABILITY TO LIQUID AS A FUNCTION OF VOLUME THROUGHPUT
Ambient Temperature

Texaco Exploration & Production, Inc.
B.F. Harrison "B" No. 25 Well
Drinkard Formation
Lea County, New Mexico
File: DAL–94121

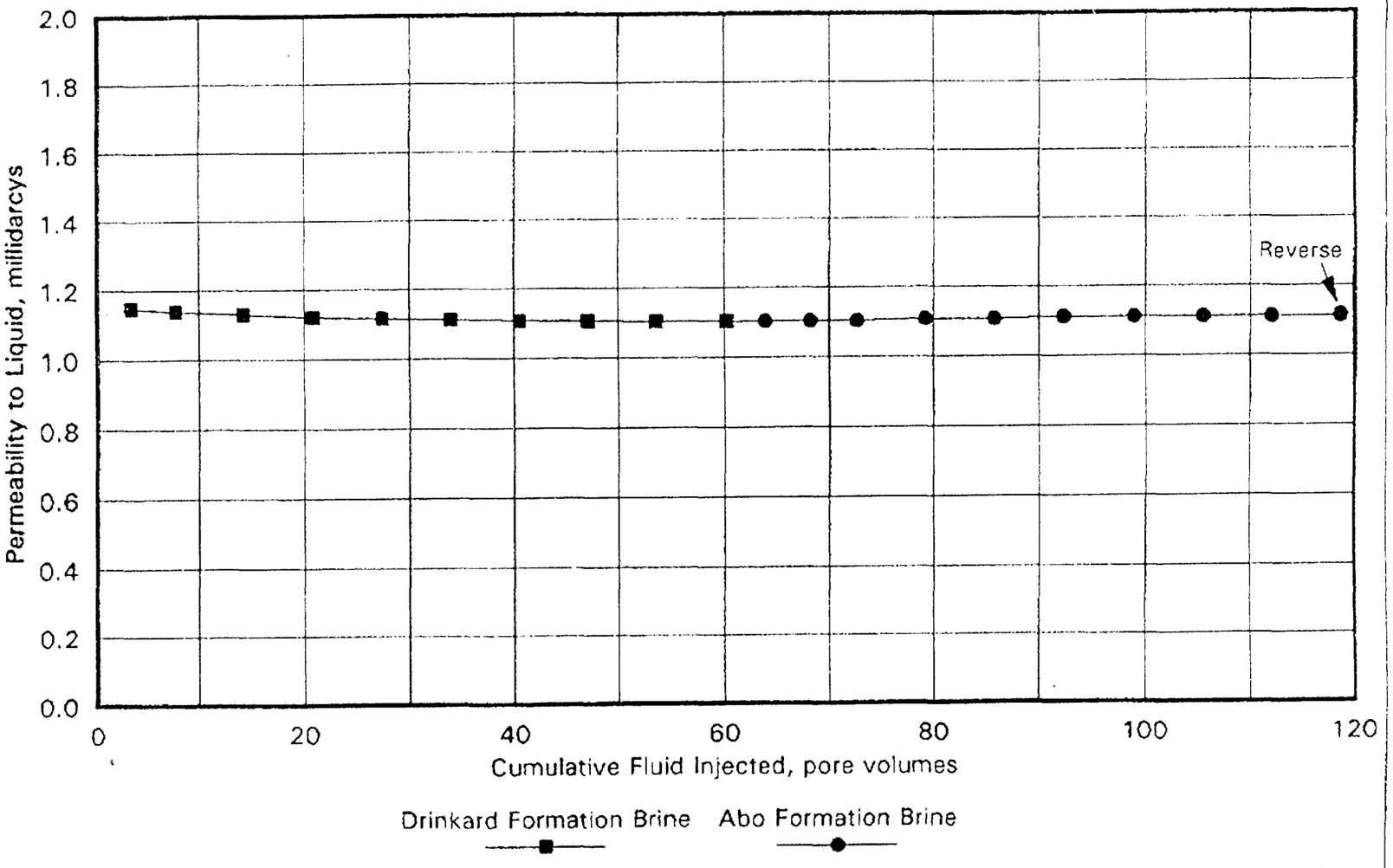
Sample Number: 6509A
Sample Depth: 6509–10 feet
Permeability to Air: 1.47 md
Porosity: 0.117 fraction
Saturant: Synthetic Formation Brine

Fluid Injected	Cumulative Fluid Injected, pore volumes fluid	total	Permeability to Liquid, millidarcys	Permeability/ Permeability Initial
Synthetic	3.28	3.28	1.15	1.000
Drinkard	7.66	7.66	1.14	0.992
Formation	14.2	14.2	1.13	0.985
Brine	20.8	20.8	1.12	0.977
	27.4	27.4	1.12	0.973
	33.9	33.9	1.11	0.970
	40.5	40.5	1.11	0.966
	47.1	47.1	1.10	0.964
	53.6	53.6	1.10	0.962
	60.2	60.2	1.10	0.962
Synthetic	3.65	63.9	1.10	0.962
Abo	8.03	68.2	1.10	0.962
Formation	12.4	72.6	1.10	0.962
Brine	19.0	79.2	1.11	0.966
	25.5	85.8	1.11	0.966
	32.1	92.3	1.11	0.970
	38.7	98.9	1.11	0.970
	45.3	105	1.11	0.970
	51.8	112	1.11	0.970
	58.4	119	1.11	0.970
Reverse	–	119	1.12	0.973

PERMEABILITY VERSUS THROUGHPUT

Sample Number: 6509A Depth: 6509-10 feet

Ambient Temperature Permeability to Air:1.47 md



File: DAL-94121

Core Laboratories

PERMEABILITY TO LIQUID AS A FUNCTION OF VOLUME THROUGHPUT
Ambient Temperature

Texaco Exploration & Production, Inc.
B.F. Harrison "B" No. 25 Well
Abo Formation
Lea County, New Mexico
File: DAL-94121

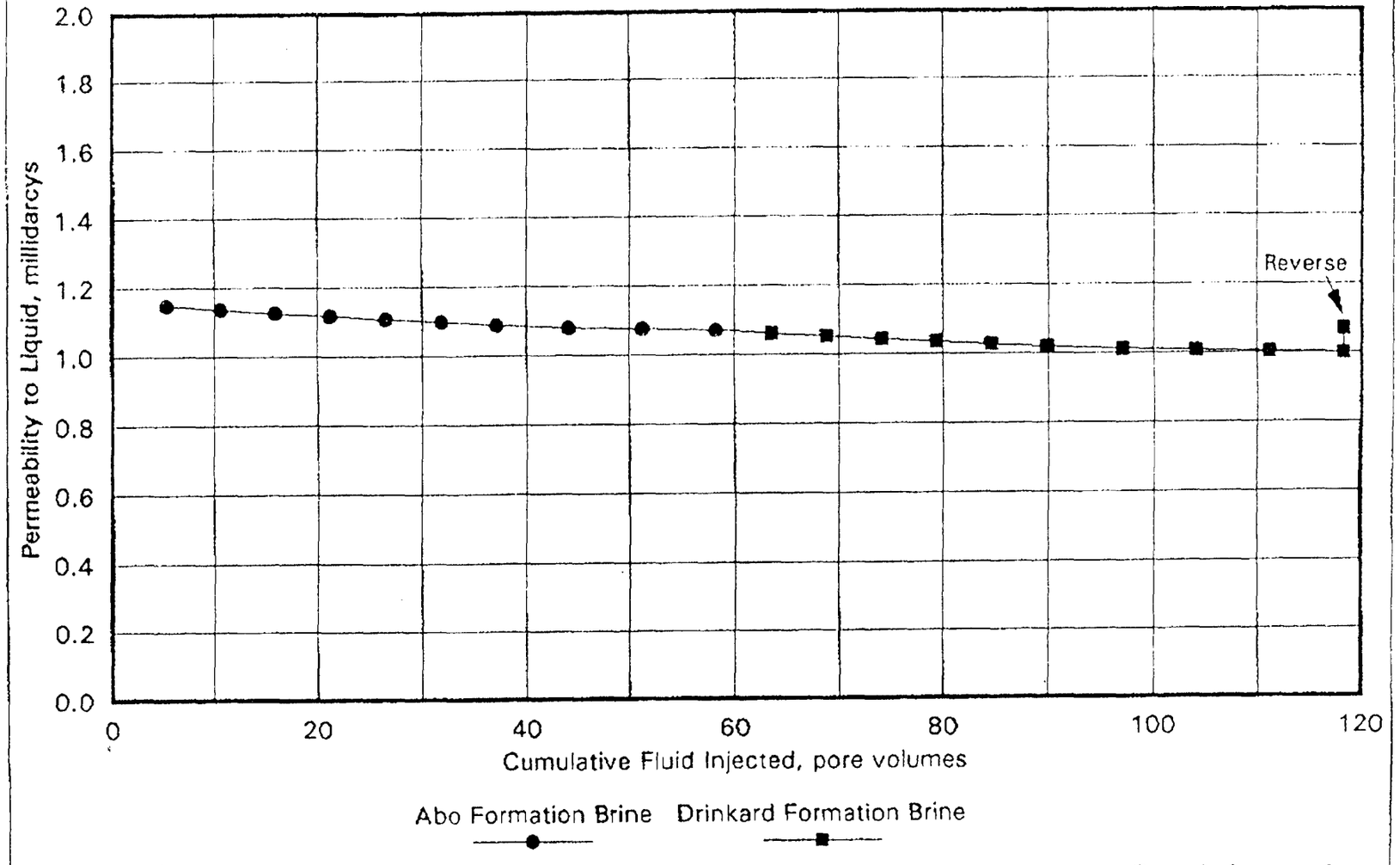
Sample Number: 6729C
Sample Depth: 6729-30 feet
Permeability to Air: 1.39 md
Porosity: 0.082 fraction
Saturant: Synthetic Formation Brine

Fluid Injected	Cumulative Fluid Injected, pore volumes: fluid	total	Permeability to Liquid, millidarcys	Permeability/ Permeability Initial
Synthetic	5.29	5.29	1.15	1.000
Abo	10.6	10.6	1.14	0.991
Formation	15.9	15.9	1.13	0.982
Brine	21.2	21.2	1.12	0.974
	26.5	26.5	1.11	0.966
	31.8	31.8	1.10	0.957
	37.1	37.1	1.09	0.949
	44.1	44.1	1.08	0.941
	51.2	51.2	1.07	0.937
	58.2	58.2	1.07	0.933
Synthetic	5.29	63.5	1.06	0.925
Drinkard	10.6	68.8	1.05	0.917
Formation	15.9	74.1	1.04	0.910
Brine	21.2	79.4	1.03	0.903
	26.5	84.7	1.03	0.896
	31.8	90.0	1.02	0.889
	38.8	97.1	1.01	0.882
	45.9	104	1.01	0.878
	52.9	111	1.00	0.875
	60.0	118	1.00	0.872
Reverse	–	118	1.07	0.932

PERMEABILITY VERSUS THROUGHPUT

Sample Number: 6729C Depth: 6729-30 feet

Ambient Temperature Permeability to Air: 1.39 md



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