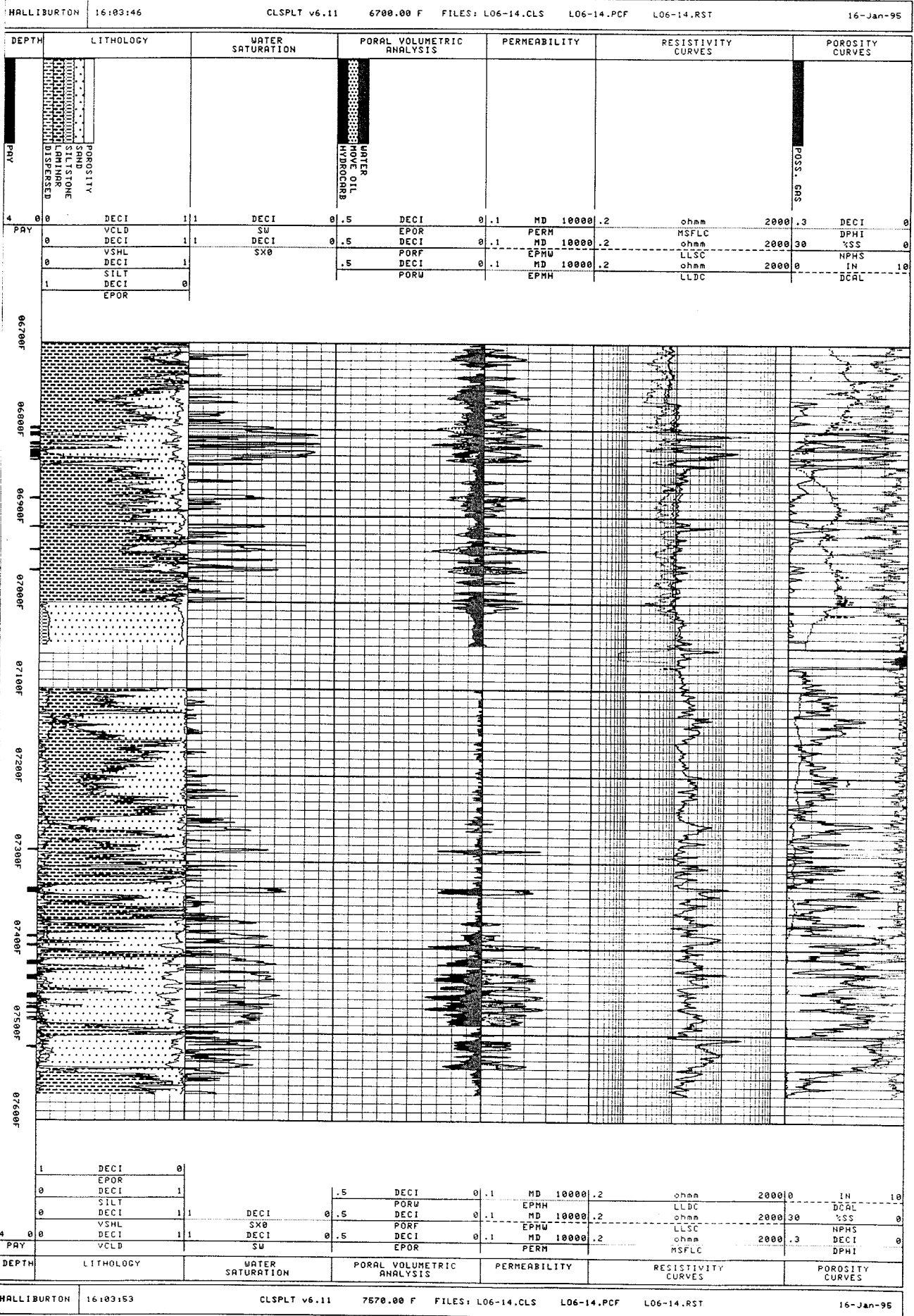
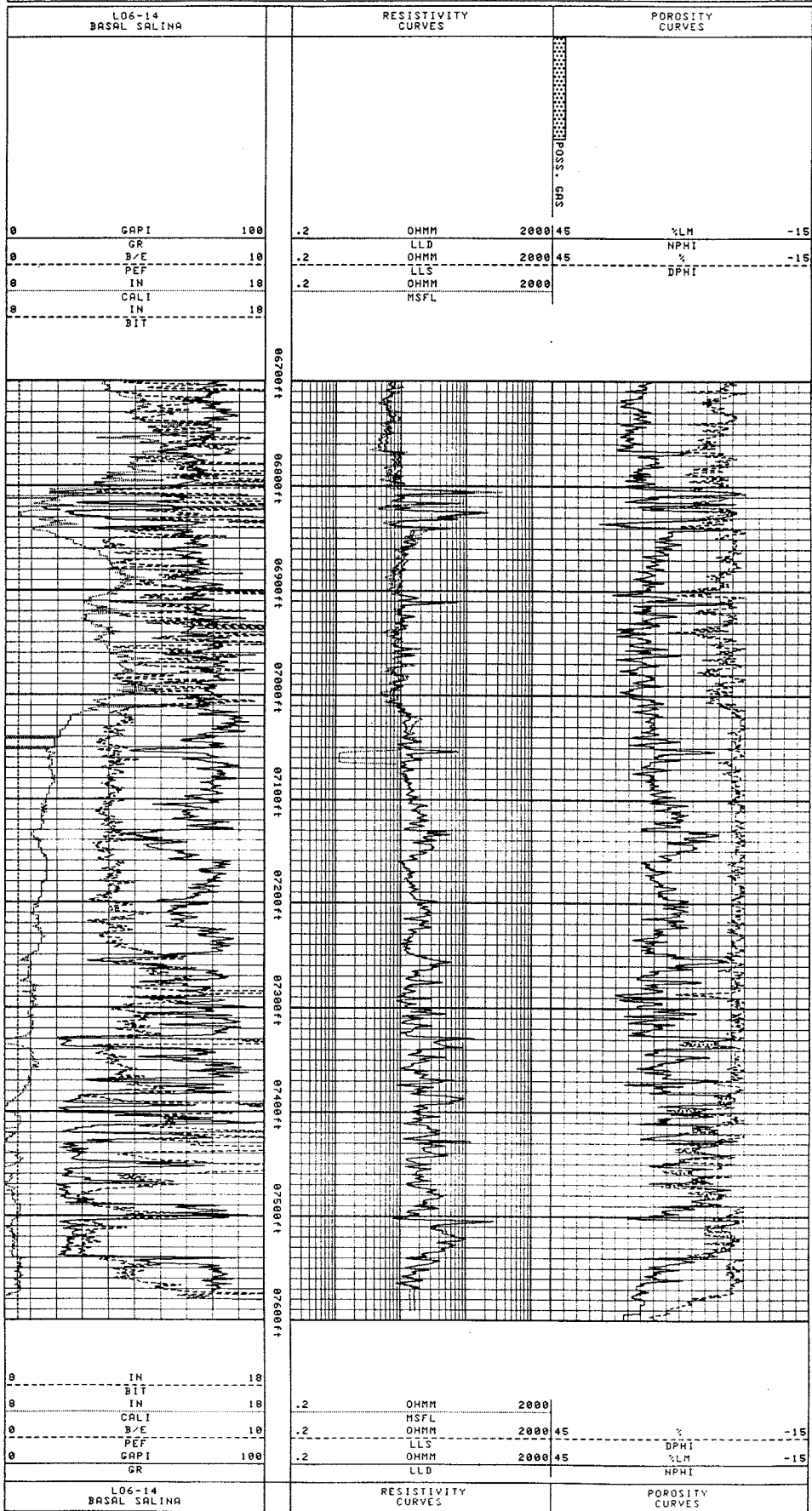


Sand - Shale Analysis SASHA

Company : Petro Tech Peruana S.A.
Well : LO6-14
Formation: Basal Salina
Interval : 6700' - 7570'

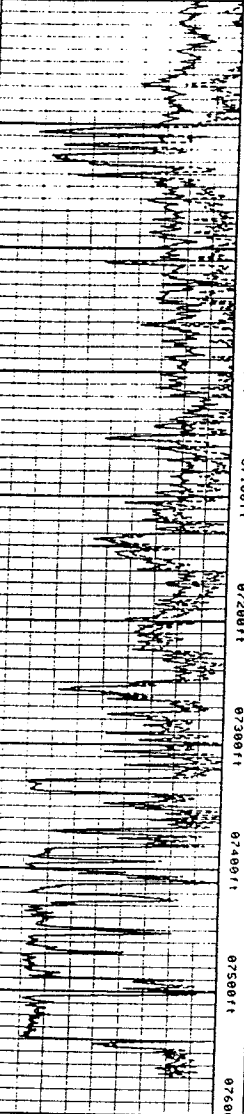
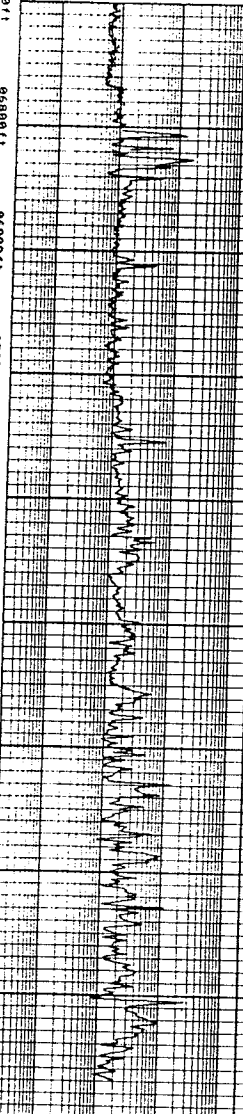
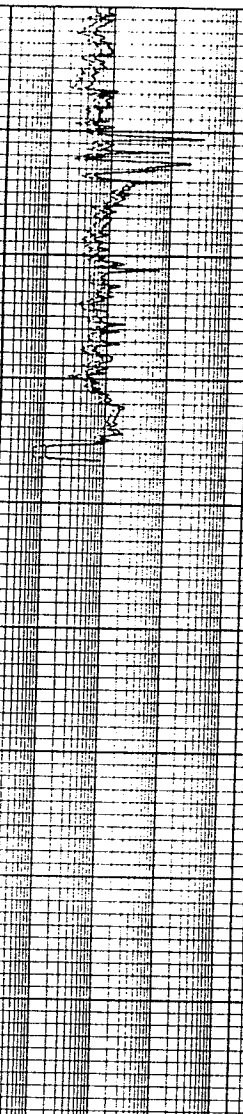
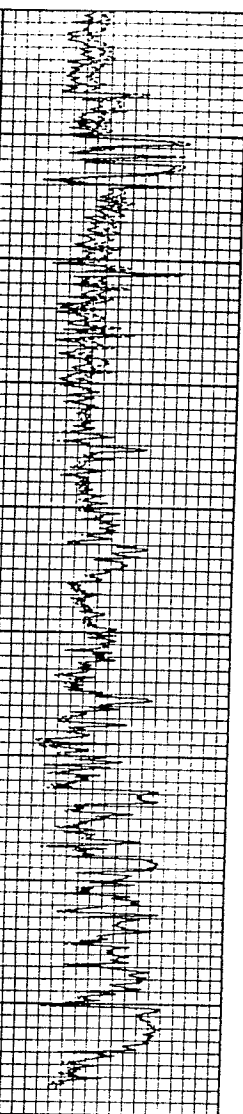
Sand Shale Analysis Main section 6700' - 7570'





Open Hole Data
Main section
6700' - 7570'

Main section
6700' - 7570'

HALLIBURTON	16:49:54	CLSPLT v6.11	6700.00 F	FILES: L06-14.CLS	CORRECT.PCF	CORRECT.RST	15-Jan-95				
L06-14 BASAL SALINA CORRECTED DATA			DUAL LATEROLOG DEEPER		MICROSPHERICAL		NEUTRON POROSITY				
0	GAPI	100	.2	OHMM	2000	.2	OHMM	2000	45	%LM	-15
0	GR	100	.2	LLD	2000	.2	MSFL	2000	45	NPHI	-15
	GRC			LLDC			MSFLC			CNSC	
											
0	GRC	100	.2	LLDC	2000	.2	MSFLC	2000	45	CNSC	-15
0	GAPI	100	.2	OHMM	2000	.2	MSFL	2000	45	%LM	-15
	GR			LLD			MSFL			NPHI	
L06-14 BASAL SALINA CORRECTED DATA			DUAL LATEROLOG DEEPER		MICROSPHERICAL		NEUTRON POROSITY				

HALLIBURTON

16:49:56

CLSPLT v6.11

7570.00 F

FILES: L06-14.CLS

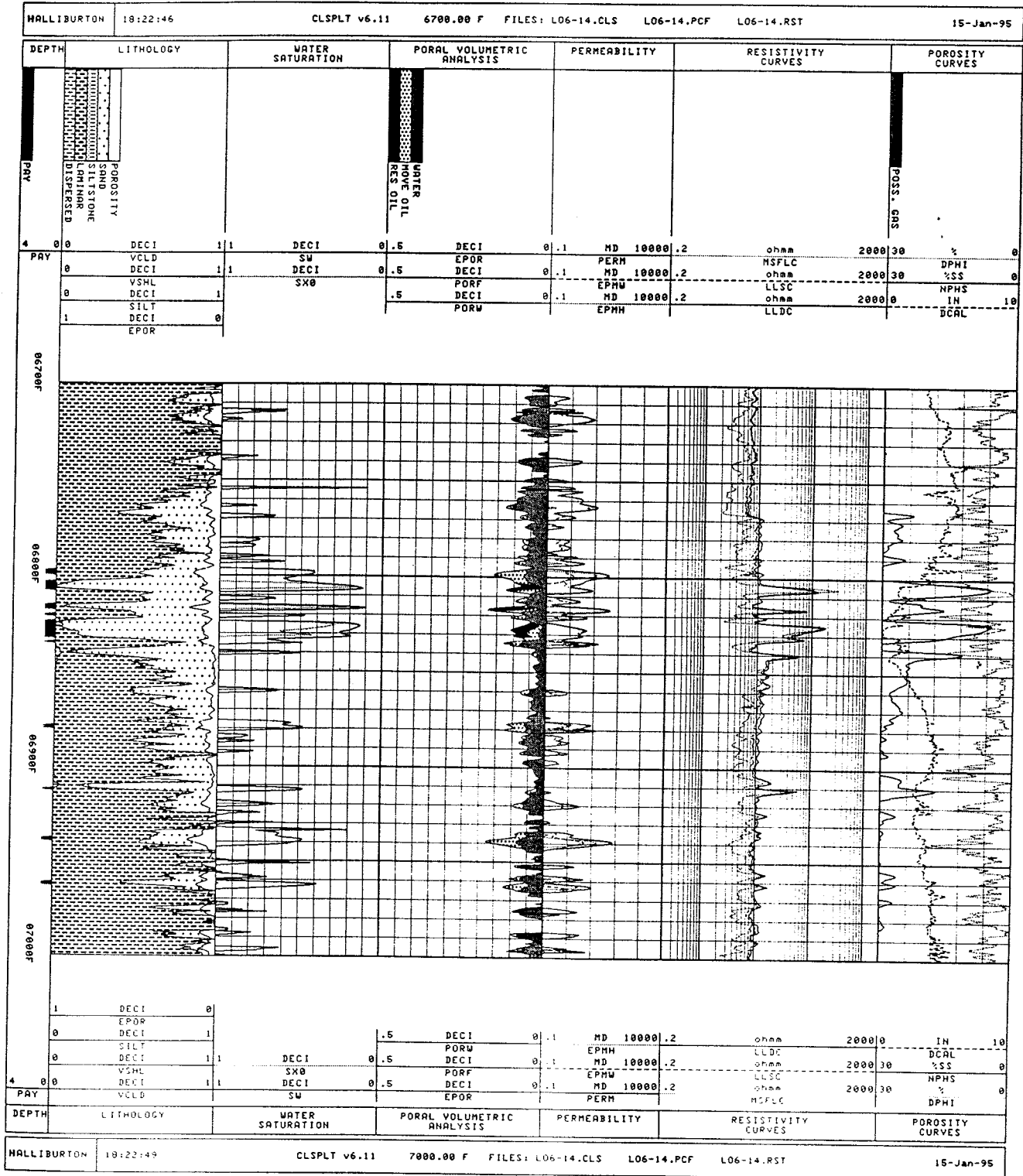
CORRECT.PCF

CORRECT.RST

15-Jan-95

UPPER BASAL SALINA

Sand Shale Analysis
Upper Basal Salina
6700' - 7000'

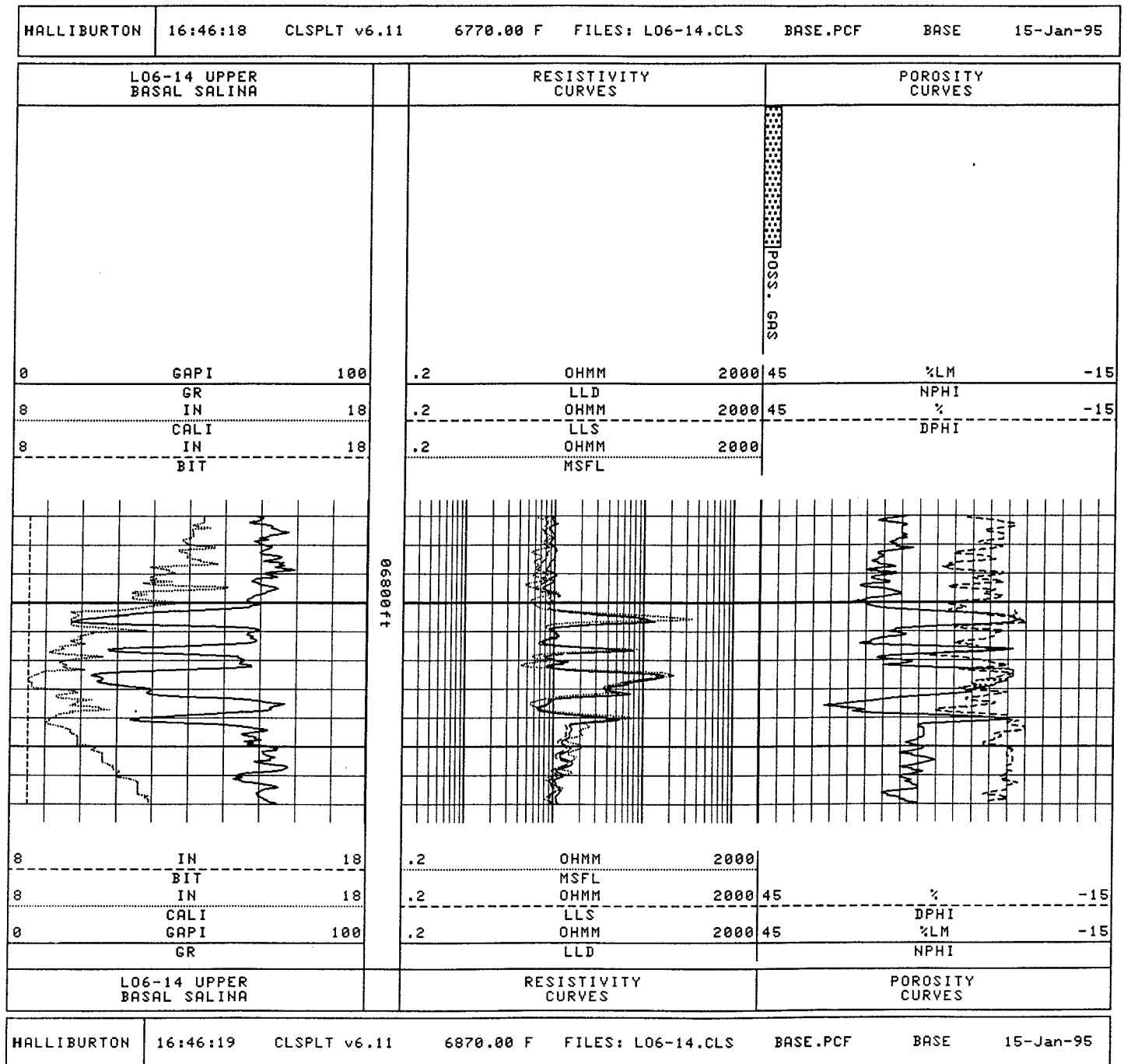


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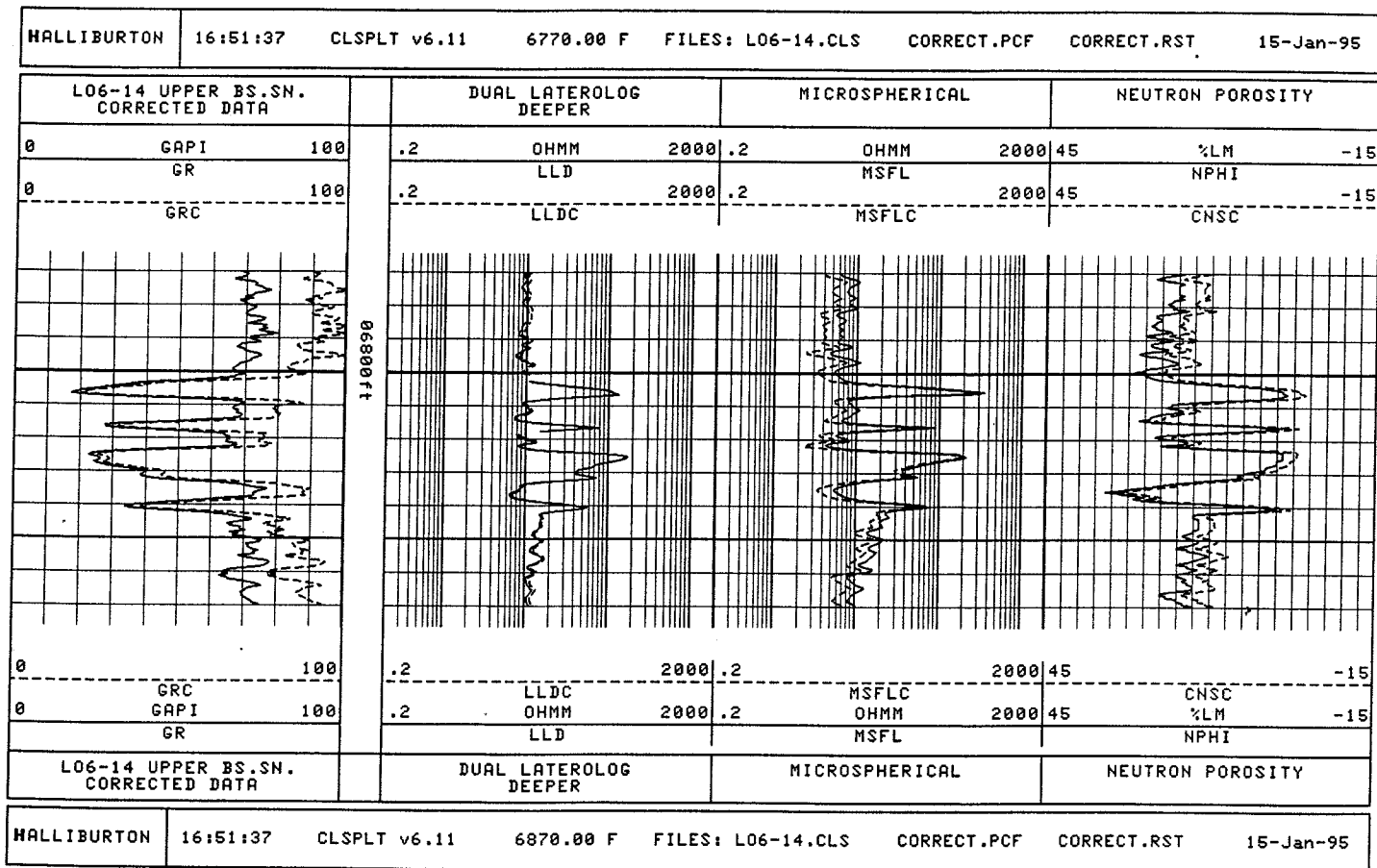
*****
*          H   H   L   SSSSS          SASHA ANALYSIS          REPORT
*          HHHH  L   S          COMPANY :          HALLIBURTON
*          H   H   L   SSSSS          WELL NAME :          LO6-14
*          H   H   LLLL SSSSS          FIELD NAME :          LOBITOS OFFSHORE
*                                     COUNTRY :          PERU
*****
* THE FOLLOWING PARAMETERS WERE USED FROM 7000.00 TO 6700.00
* BIT SIZE = 8.50 AGE FLAG = 0.
* STEIBER = 3.00 CLAY TO SHALE RATIO = .60
* WET SHALE DENSITY VALUE = 2.64 DRY SHALE DENSITY VALUE = 2.70
* WET SHALE NEUTRON VALUE = *** DRY SHALE NEUTRON VALUE = *****
* WET SHALE ACOUSTIC VALUE = 80.0 DRY SHALE ACOUSTIC VALUE = 50.0
* TEMPERATURE GRADIENT = 1.00 BOTTOM HOLE TEMPERATURE = 130.0
* BOTTOM HOLE DEPTH = 7600. WATER RESISTIVITY DEPTH = 0.
* WATER RESISTIVITY = .260 MUD FILTRATE RESISTIVITY = .430
* SHALE WATER RESISTIVITY = .100 DEEP SHALE RESISTIVITY = 15.00
* FORMATION FACTOR CONSTANT A = 1.00 CEMENTATION EXPONENT M = 2.00
* WATER SATURATION EXPONENT N = 1.71
*****
* FROM 7000.00 TO 6700.00 RW RMF POROSITY LIMIT WATER SAT. LIMIT
* 7000.00 6700.00 .26 .43 .05 .50
*****
* DEPTH SHALE VOLUME EFFECTIVE PERM WATER FLUSHED ZONE POROSITY HYDROCARBON
* VOLUME POROSITY SAT. SATURATION FEET FEET
*
* 6797.50 .55 .14 19.89 .42 1.00 .07 .04
* 6798.00 .54 .15 30.10 .43 1.00 .14 .08
* 6798.50 .52 .16 40.91 .42 1.00 .22 .13
* 6799.00 .50 .16 40.40 .44 1.00 .30 .17
* 6799.50 .52 .15 27.41 .49 1.00 .37 .21
* 6803.50 .12 .09 1.73 .45 .75 .42 .23
* 6804.00 .09 .08 1.05 .38 .45 .45 .26
* 6804.50 .06 .07 .97 .29 .34 .49 .28
* 6805.00 .04 .08 1.59 .20 .23 .53 .32
* 6805.50 .02 .10 3.19 .16 .16 .58 .36
* 6806.00 .00 .11 6.15 .14 .19 .64 .40
* 6806.50 .00 .12 8.81 .12 .62 .70 .46
* 6807.00 .03 .11 6.95 .17 1.00 .75 .51
* 6807.50 .13 .10 3.09 .32 1.00 .80 .54
* 6815.50 .09 .12 7.11 .32 .67 .86 .58
* 6816.00 .05 .15 23.45 .15 .22 .93 .64
* 6816.50 .06 .17 42.89 .10 .32 1.02 .72
* 6817.00 .10 .17 47.24 .16 .56 1.11 .79
* 6817.50 .21 .15 26.12 .31 1.00 1.18 .84
* 6820.50 .47 .10 4.84 .48 1.00 1.24 .87
* 6821.00 .47 .11 5.05 .49 1.00 1.29 .90
* 6824.00 .06 .05 .23 .43 .43 1.32 .91
* 6824.50 .03 .06 .40 .24 .37 1.35 .94
* 6825.00 .03 .07 .66 .18 .31 1.38 .96
* 6825.50 .04 .08 1.12 .14 .28 1.42 1.00
* 6826.00 .05 .09 1.92 .14 .32 1.46 1.03
* 6826.50 .05 .09 2.95 .14 .35 1.51 1.08
* 6827.00 .04 .10 4.36 .16 .40 1.56 1.12
* 6827.50 .04 .11 5.04 .18 .44 1.61 1.16
* 6828.00 .06 .10 4.05 .19 .49 1.67 1.20
* 6828.50 .08 .10 3.05 .21 .58 1.71 1.24
* 6829.00 .10 .09 2.83 .25 .63 1.76 1.28
* 6829.50 .14 .09 2.32 .26 .61 1.81 1.31
* 6830.00 .14 .09 2.56 .25 .56 1.85 1.35
* 6830.50 .14 .10 3.46 .24 .48 1.90 1.38
* 6831.00 .13 .09 2.69 .20 .44 1.95 1.42
* 6831.50 .14 .08 1.11 .19 .81 1.99 1.45
* 6832.00 .17 .07 .61 .26 1.00 2.02 1.48
* 6832.50 .24 .07 .44 .48 1.00 2.05 1.49
* 6835.00 .80 .10 1.94 .49 1.00 2.10 1.52
* 6879.00 .82 .09 1.58 .48 1.00 2.15 1.54
* 6880.00 .67 .12 13.22 .48 1.00 2.21 1.57
* 6912.50 .37 .06 .18 .48 1.00 2.24 1.59
* 6938.50 .60 .17 62.90 .47 1.00 2.32 1.63
* 6939.00 .61 .18 78.91 .48 1.00 2.41 1.68
* 6939.50 .55 .17 59.93 .49 1.00 2.49 1.72
* 6962.00 .41 .11 4.94 .38 .98 2.55 1.75
* 6962.50 .48 .12 9.09 .40 1.00 2.61 1.79
* 6963.00 .56 .12 10.59 .47 1.00 2.67 1.82
*
* DEPTH SHALE VOLUME EFFECTIVE PERM WATER FLUSHED ZONE POROSITY HYDROCARBON
* VOLUME POROSITY SAT. SATURATION FEET FEET
*****
*
* FOR THE INTERVAL FROM 7000.00 TO 6700.00
* WITH A RW OF : .26
* WITH A RMF OF : .43
* WITH POROSITY GREATER THAN : .05
* AND WATER SATURATION LESS THAN : .50
* FEET OF PAY FOR INTERVAL : 24.50
* FEET OF EFFECTIVE POROSITY : 2.67
* WITH AN AVERAGE EFFECTIVE POROSITY : .11
* WITH AN AVERAGE PERMEABILITY OF : 12.90
* WITH AN AVERAGE WATER SATURATION OF : .32
* HYDROCARBON PORE VOLUME IN FEET : 1.82
* HYDROCARBON PORE VOLUME IN BBLS/ACRE : 14133.24
*****

```

Open Hole Data
Upper Basal Salina
6770' - 6870'



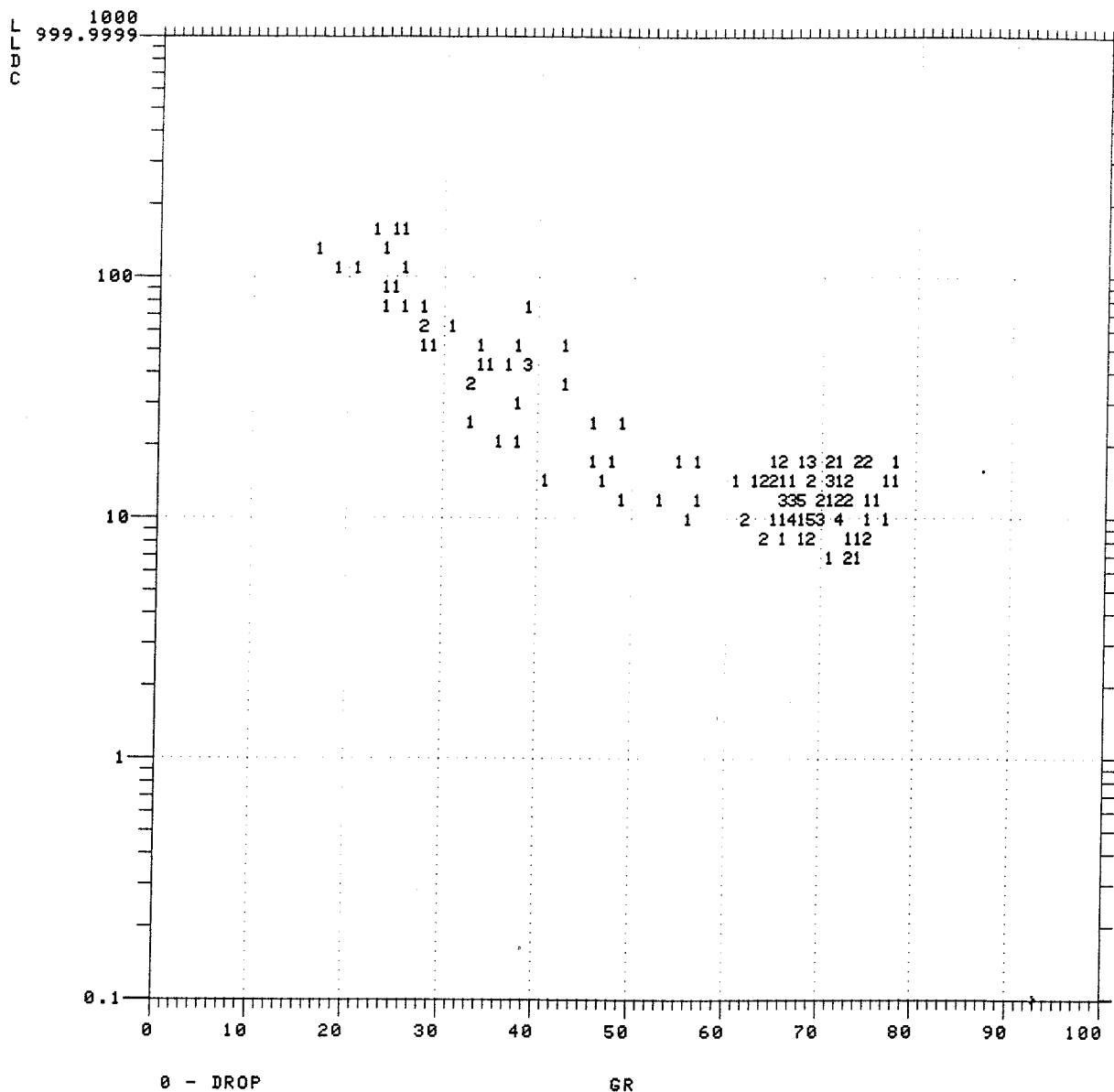
Corrected Open Hole Data
Upper Basal Salina
6770' - 6870'



CROSS PLOTS

15-JAN-95

CROSS PLOT - GR vs LLDC



CROSS PLOT SUMMARY - GR vs LLDC

Symbol:	123456789ABCDEFGHIJKLMN						OPQRSTUVWXYZ						abcdefghijklmnopqrstuvwxyz*					
	-----+-----+-----+-----+-----+-----																	
Counts:	1		2		3		4		5		6							
	12345678901		23456789012		34567890123		45678901234		56789012345		67890123456		78901234567		89012345678			

* = 62 or greater

CURVES:
=====

Axis Curve

X - GR
Y - LLDC

Units Log Suite

GAPI BHCOR

Created

CUTOFFS:
=====

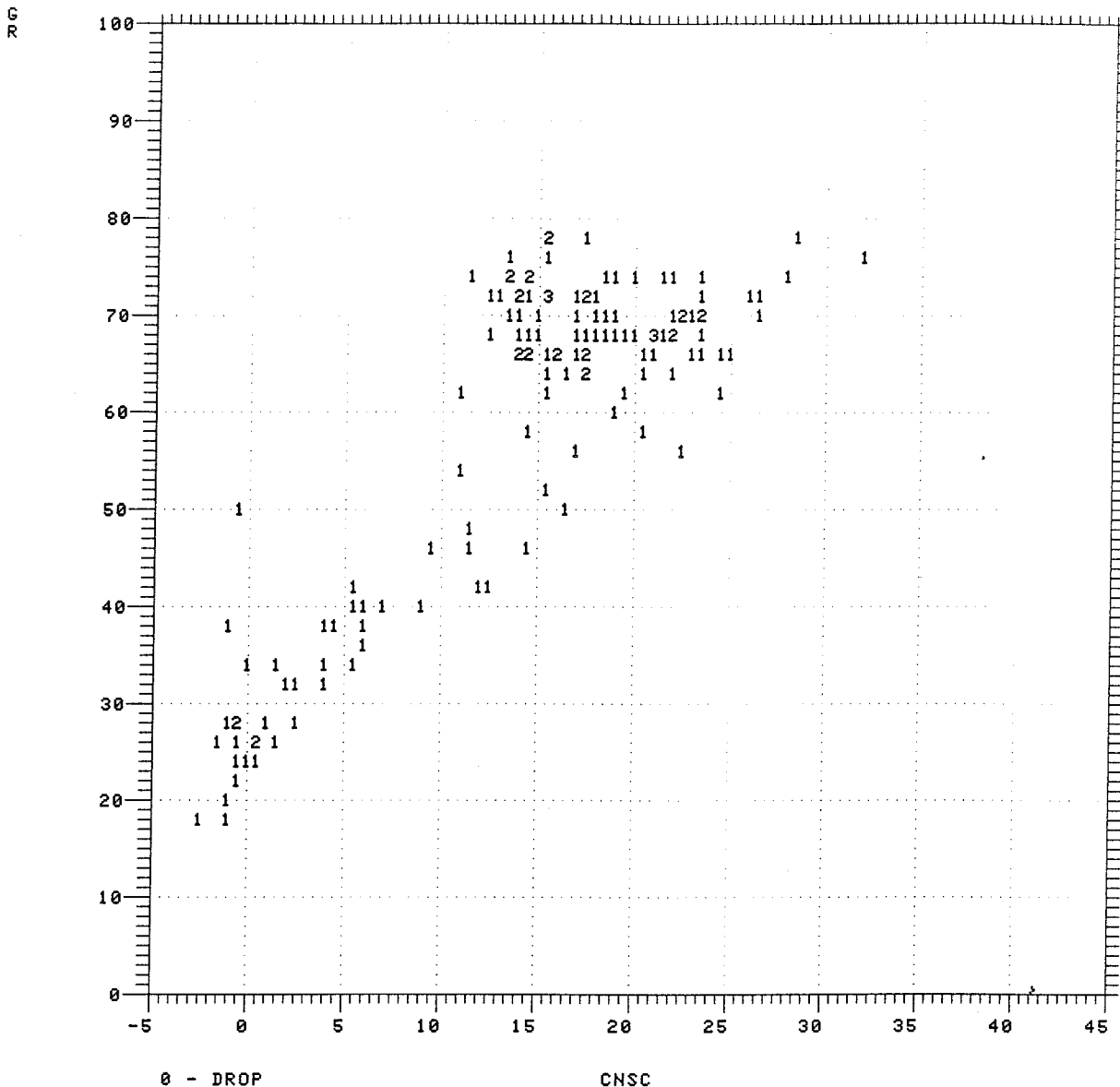
Curve or
Constant

Relation
Operator

Curve or
Constant

----- NONE -----

CROSS PLOT - CNSC vs GR



CROSS PLOT SUMMARY - CNSC vs GR

Symbol: 123456789ABCDEFGHIJKLMN O PQRSTU VWXYZabcdefghijklmnopqrstuvwyz*
 Count: 1 2 3 4 5 6
 1234567890123456789012345678901234567890123456789012

* = 62 or greater

CURVES:
=====

Axis Curve

 X - CNSC
 Y - GR

Units

 GAPI

Log Suite

 BHCOR

Created

CUTOFFS:
=====

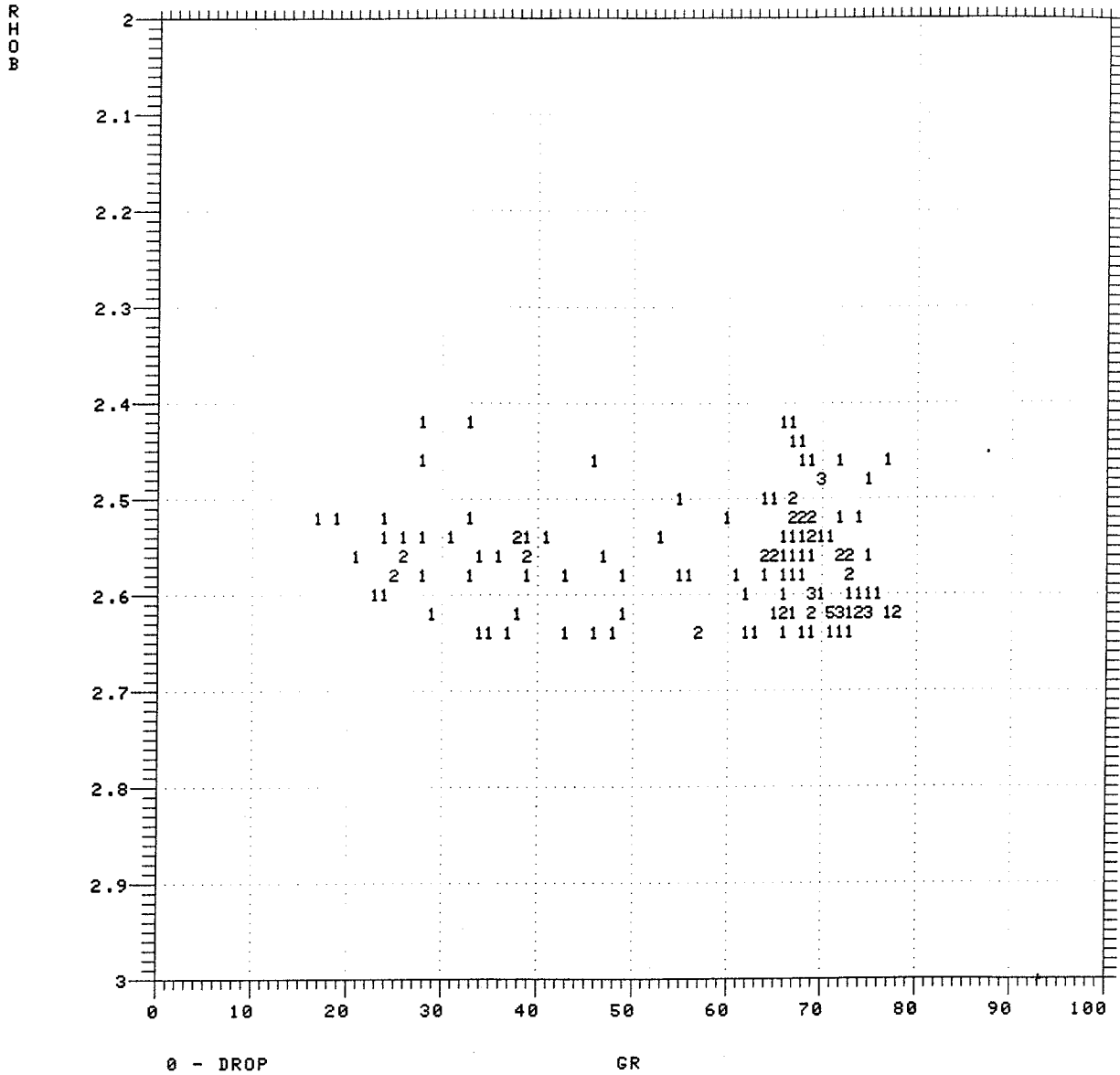
Curve or
 Constant

Relation
 Operator

Curve or
 Constant

----- NONE -----

CROSS PLOT - GR vs RHOB



CROSS PLOT SUMMARY - GR vs RHOB

Symbol:	1	2	3	4	5	6
Count:	1	2	3	4	5	6
	1234567890123456789012345678901234567890123456789012					

* = 62 or greater

CURVES:
=====

Axis Curve
X - GR
Y - RHOB

Units Log Suite
GAPI
G/CC

Created
Created

CUTOFFS:
=====

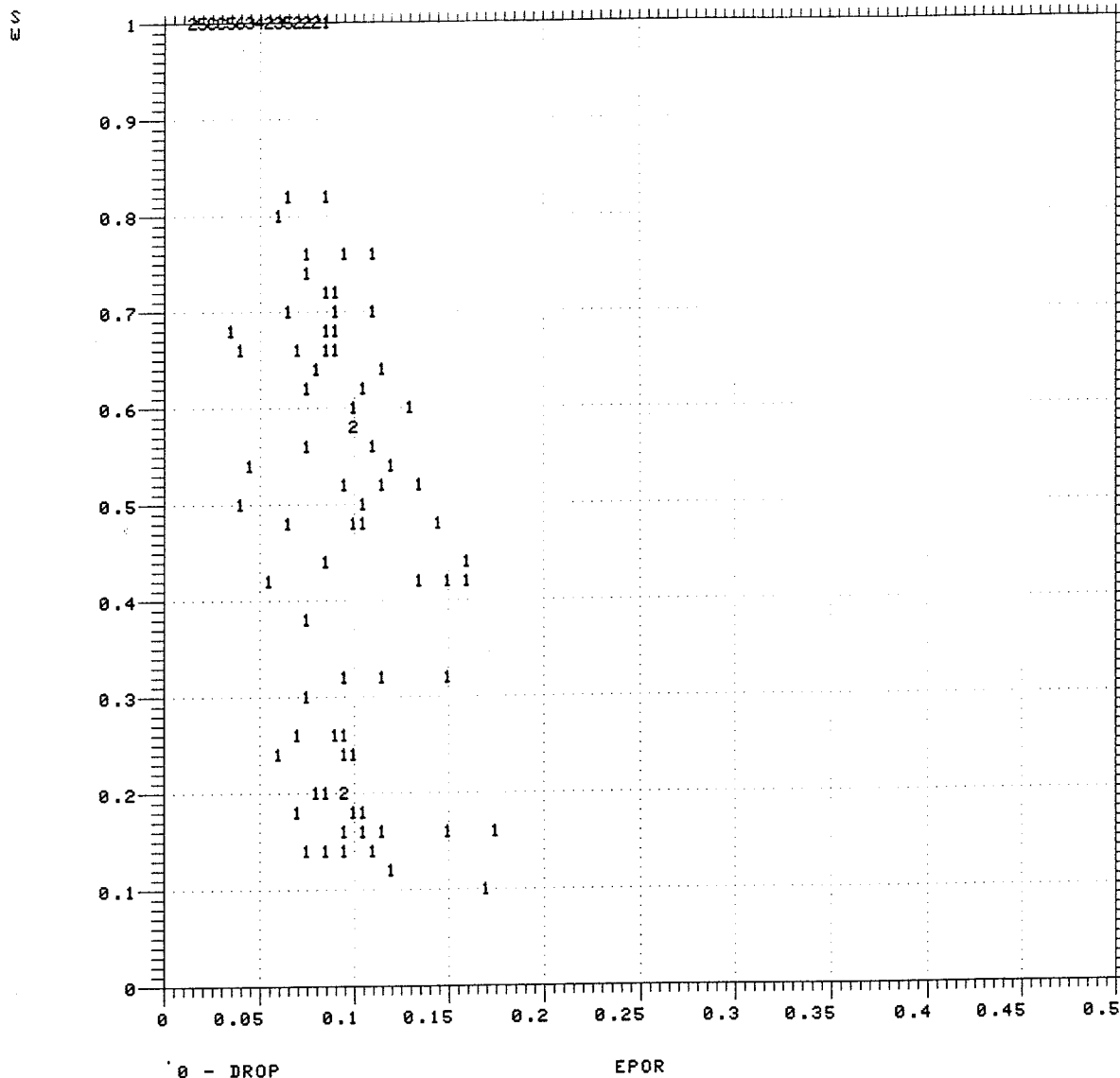
Curve or
Constant

Relation
Operator

Curve or
Constant

----- NONE -----

CROSS PLOT - EPOR vs SW



CROSS PLOT SUMMARY - EPOR vs SW

Symbol: 123456789ABCDEFGHIJKLMN O P Q R S T U V W X Y Z a b c d e f g h i j k l m n o p q r s t u v w x y z *

Count: 1 2 3 4 5 6

12345678901234567890123456789012345678901234567890123456789012

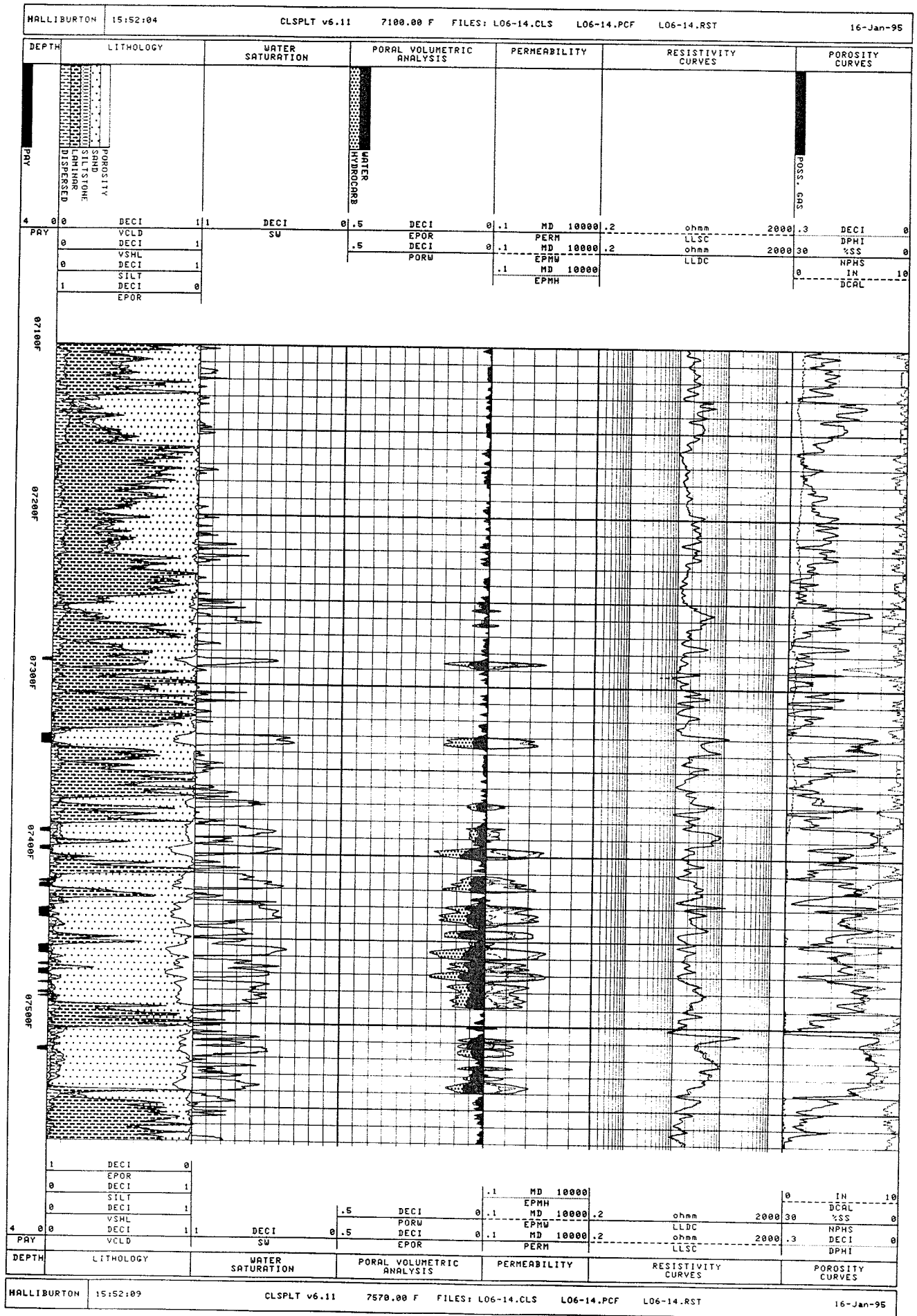
* = 62 or greater

CURVES:	Axis	Curve	Units	Log Suite	
=====	X	EPOR	DECI	SASHA	EFFECTI
	Y	SW	DECI	SASHA	WATER S

CUTOFFS:	Curve or Constant	Relation Operator	Curve or Constant
=====	-----	-----	-----

NONE

LOWER BASAL SALINA



Sand Shale Analysis
 Lower Basal Salina
 7100' - 7570'

H H H L SSSS SASHA ANALYSIS
 H H H L SSSS COMPANY : HALLIBURTON
 H H L L L L SSSS WELL NAME : LOS-14
 FIELD NAME : LOBITOS OFFSHORE
 COUNTRY : PERU

DEPTH	SHALE VOLUME	EFFECTIVE POROSITY	PERM	WATER SAT.	FLUSHED ZONE SATURATION	POROSITY FEET	HYDROCARBON FEET
-------	--------------	--------------------	------	------------	-------------------------	---------------	------------------

FOR THE INTERVAL FROM .00 TO .00
 WITH A RMF OF : .00
 WITH POROSITY GREATER THAN : .00
 AND WATER SATURATION LESS THAN : .00
 FEET OF EFFECTIVE POROSITY : .00
 FEET OF PAY FOR INTERVAL : .00
 WITH AN AVERAGE EFFECTIVE POROSITY : .00
 WITH AN AVERAGE PERMEABILITY OF : NANO
 WITH AN AVERAGE WATER SATURATION OF : NANO
 HYDROCARBON PORE VOLUME IN FEET : .00
 HYDROCARBON PORE VOLUME IN BBL/ACRE : .00

THE FOLLOWING PARAMETERS WERE USED FROM 7570.00 TO 7100.00
 BIT SIZE : 8.50 AGE FLAG :
 WET SHALE DENSITY VALUE : 3.00 CLAY TO SHALE RATIO : 0
 WET SHALE NEUTRON VALUE : 2.56 DRY SHALE DENSITY VALUE : 2.50
 WET SHALE ACOUSTIC VALUE : 80.0 DRY SHALE NEUTRON VALUE : 2.70
 TEMPERATURE GRADIENT : 1.00 BOTTOM HOLE TEMPERATURE : 50.0
 WATER RESISTIVITY : 7600.0 WATER RESISTIVITY DEPTH : 130.0
 SHALE WATER RESISTIVITY : 260 MUD FILTRATE RESISTIVITY : 0
 FORMATION FACTOR CONSTANT A : 1.00 DEEP SHALE RESISTIVITY : 20.00
 WATER SATURATION EXPONENT N : 1.71 CEMENTATION EXPONENT M : 2.00

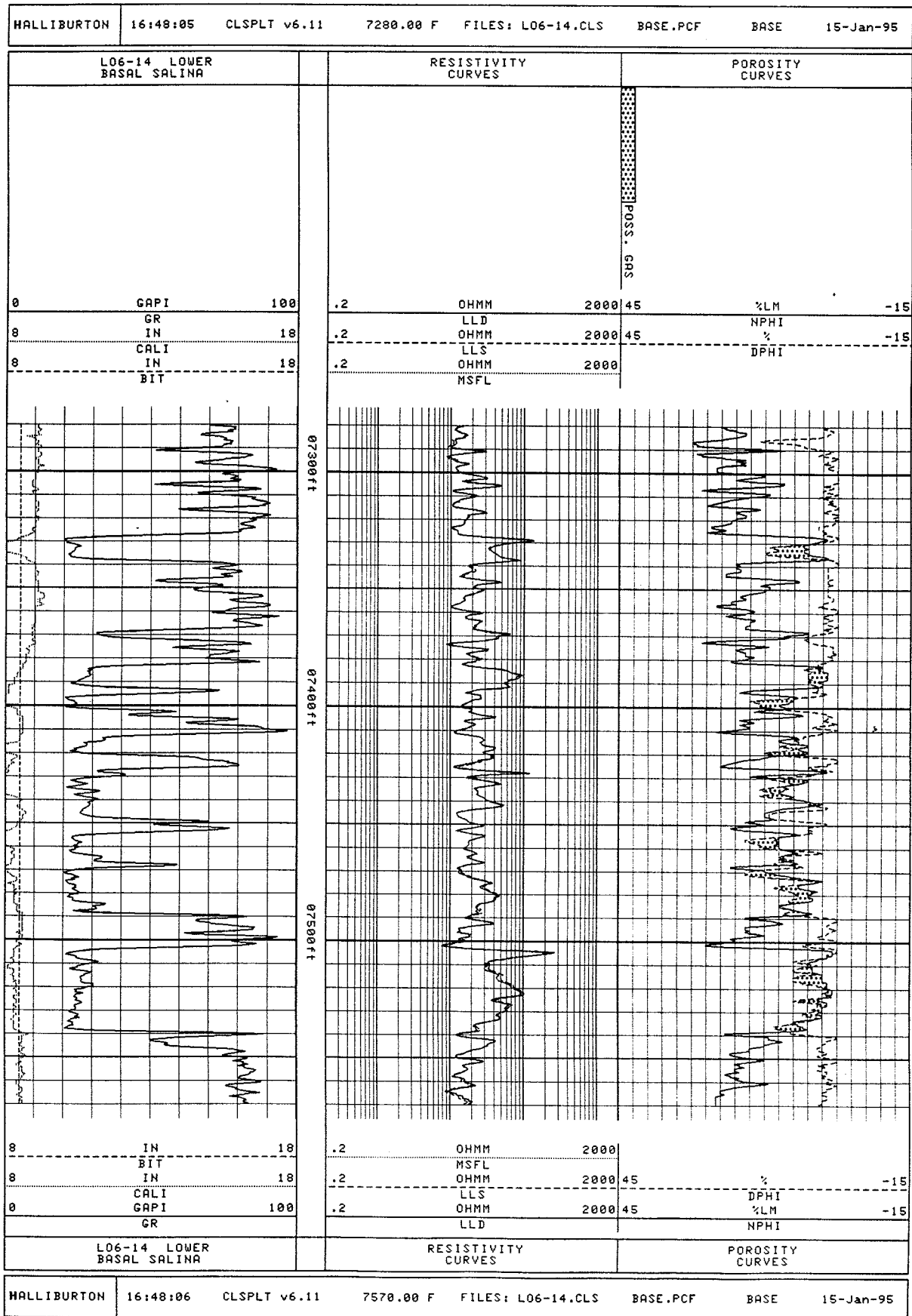
FROM	TO	RMF	POROSITY LIMIT	WATER SAT. LIMIT
7570.00	7100.00	.43	.05	.50

DEPTH	SHALE VOLUME	EFFECTIVE POROSITY	PERM	WATER SAT.	FLUSHED ZONE SATURATION	POROSITY FEET	HYDROCARBON FEET
7285.50	.59	.13	24.80	.46	.46	.07	.04
7286.00	.58	.13	24.74	.44	.44	.14	.08
7286.50	.58	.13	24.70	.48	.48	.21	.11
7330.50	.04	.09	2.38	.49	.49	.25	.14
7331.00	.02	.12	8.50	.38	.38	.31	.17
7331.50	.04	.14	16.88	.35	.35	.38	.22
7332.00	.02	.12	12.18	.39	.39	.45	.29
7332.50	.02	.12	16.84	.44	.44	.51	.32
7333.00	.02	.12	22.84	.33	.33	.54	.37
7333.50	.02	.14	22.78	.32	.32	.57	.42
7334.00	.01	.13	13.10	.37	.37	.79	.51
7334.50	.01	.10	3.79	.49	.49	.85	.54
7335.00	.07	.06	.37	.47	.47	.90	.57
7335.50	.07	.06	.37	.44	.44	.96	.60
7336.00	.07	.06	.37	.46	.46	.99	.64
7336.50	.00	.15	22.55	.43	.43	1.02	.70
7337.00	.01	.15	50.63	.41	.41	1.06	.74
7337.50	.02	.16	30.45	.45	.45	1.27	.79
7338.00	.04	.12	8.55	.47	.47	1.35	.82
7338.50	.02	.11	5.79	.47	.47	1.41	.85
7339.00	.02	.14	16.88	.45	.45	1.47	.88
7339.50	.01	.15	22.75	.38	.38	1.59	.95
7340.00	.03	.14	16.90	.41	.41	1.67	.96
7340.50	.04	.09	5.79	.47	.47	1.74	.01
7341.00	.05	.11	5.79	.48	.48	1.83	.02
7341.50	.03	.13	12.20	.42	.42	1.89	.09
7342.00	.01	.15	22.85	.43	.43	1.95	.13
7342.50	.02	.15	20.83	.45	.45	1.11	.27
7343.00	.04	.17	17.04	.46	.46	1.18	.25
7343.50	.06	.14	12.37	.46	.46	1.25	.29
7344.00	.04	.15	20.83	.43	.43	1.39	.33
7344.50	.07	.11	5.81	.47	.47	1.47	.41
7345.00	.02	.15	16.93	.40	.40	1.60	.43
7345.50	.01	.19	22.78	.37	.37	1.75	.49
7346.00	.02	.19	16.93	.36	.36	1.85	.54
7346.50	.02	.18	5.91	.42	.42	1.94	.58
7347.00	.03	.16	30.92	.44	.44	2.00	.64
7347.50	.03	.16	30.64	.45	.45	2.06	.70
7348.00	.06	.12	8.59	.48	.48	2.28	.75
7348.50	.07	.12	12.39	.50	.50	2.35	.80
7349.00	.03	.18	51.76	.41	.41	2.48	.84
7349.50	.01	.19	64.87	.48	.48	2.59	.89
7350.00	.00	.17	64.43	.49	.49	2.64	.93
7350.50	.02	.13	39.34	.50	.50	2.74	.96
7351.00	.03	.10	3.79	.48	.48	2.82	.98
7351.50	.08	.12	8.64	.49	.49	2.94	.99
7352.00	.04	.09	2.35	.49	.49	3.04	.99
7352.50	.04	.09	2.36	.50	.50	3.14	.99
7353.00	.04	.09	2.36	.49	.49	3.24	.99
7353.50	.04	.09	2.36	.48	.48	3.34	.99

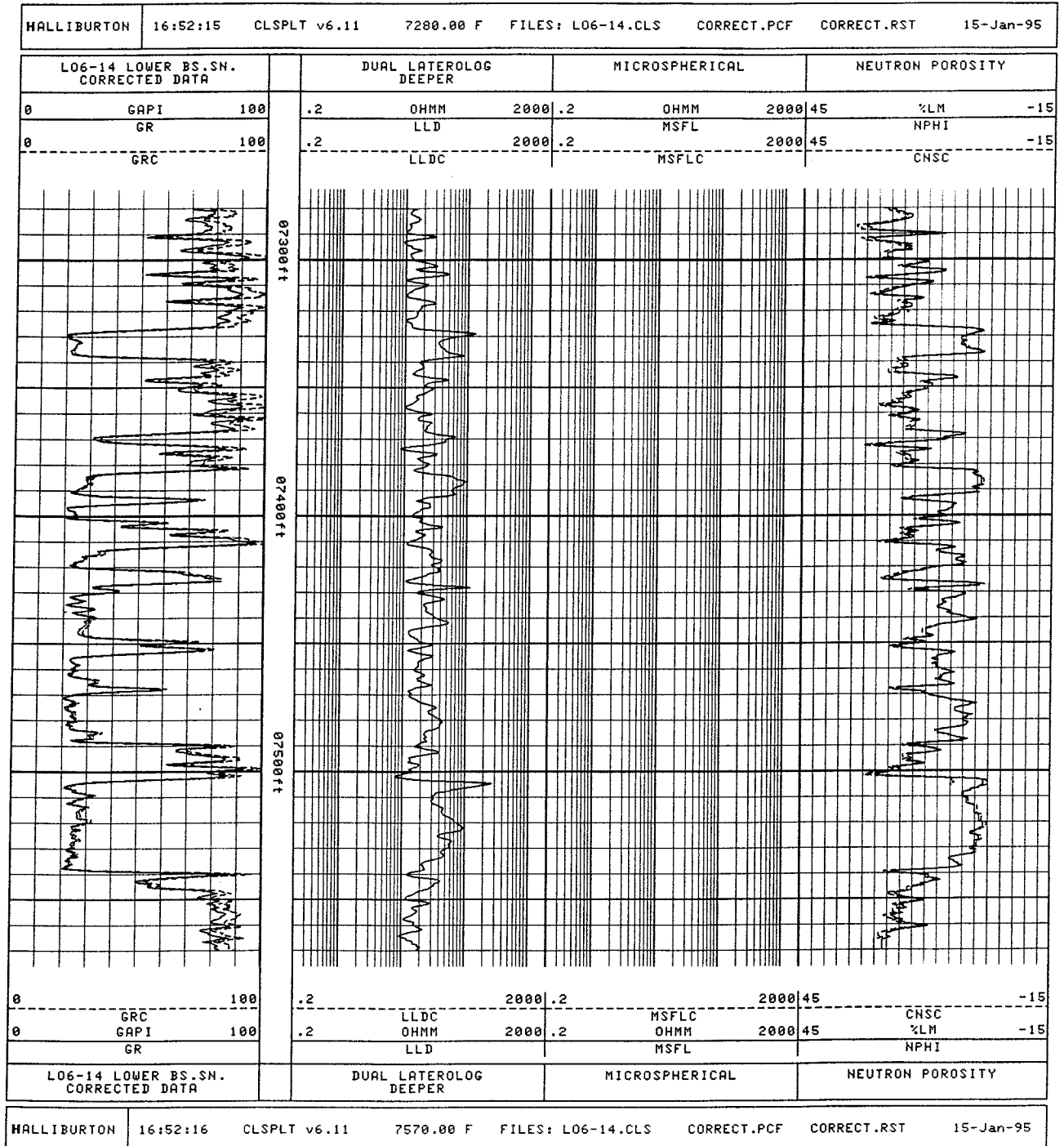
DEPTH	SHALE VOLUME	EFFECTIVE POROSITY	PERM	WATER SAT.	FLUSHED ZONE SATURATION	POROSITY FEET	HYDROCARBON FEET
-------	--------------	--------------------	------	------------	-------------------------	---------------	------------------

FOR THE INTERVAL FROM 7570.00 TO 7100.00
 WITH A RMF OF : .26
 WITH POROSITY GREATER THAN : .43
 AND WATER SATURATION LESS THAN : .50
 FEET OF EFFECTIVE POROSITY : 33.00
 WITH AN AVERAGE EFFECTIVE POROSITY : 4.43
 WITH AN AVERAGE PERMEABILITY OF : 21.62
 WITH AN AVERAGE WATER SATURATION OF : 2.44
 HYDROCARBON PORE VOLUME IN FEET : 2.48
 HYDROCARBON PORE VOLUME IN BBL/ACRE : 19259.13

Open Hole Data
Lower Basal Salina
7280' - 7570'



Corrected Open Hole Data
Lower Basal Salina
7280' - 7570'



CROSS PLOTS

HALLIBURTON
LOGGING
SERVICES, INC.

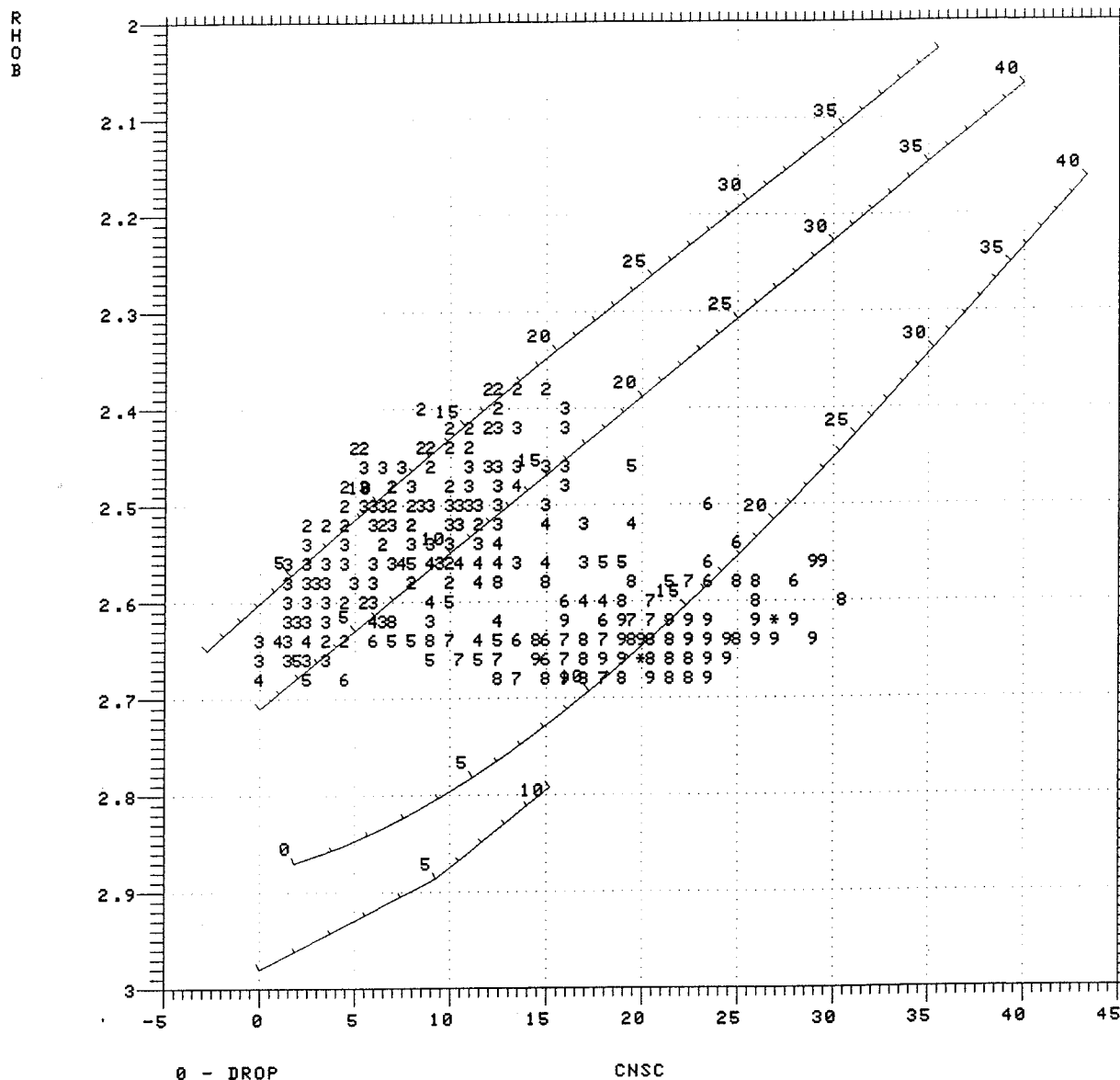
15:15:36 XPL0T

7320.00 F

FILES: L

16-JAN-95

Z AXIS PLOT - CNSC vs RHOB Z = GRC



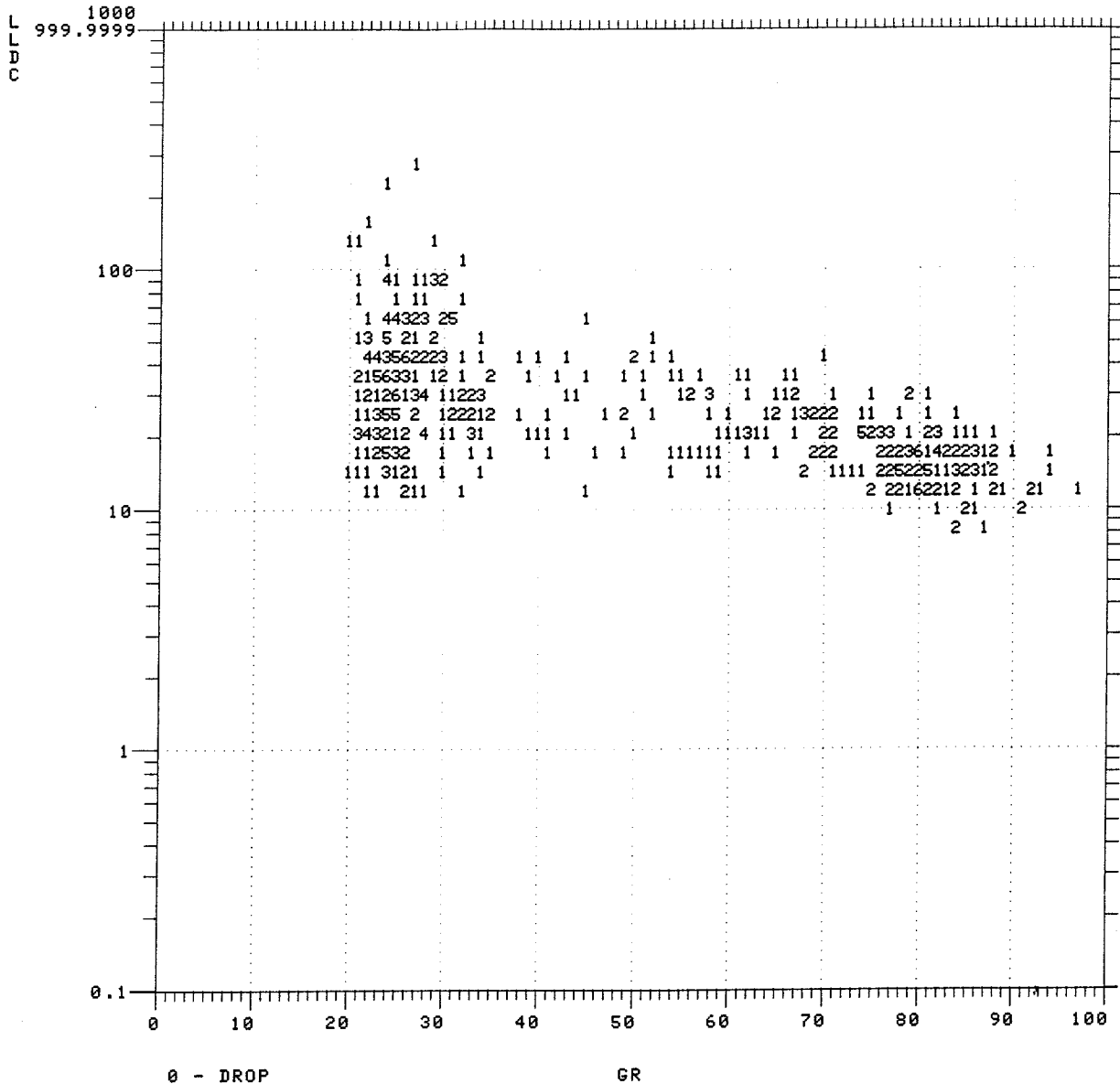
Z AXIS PLOT SUMMARY - CNSC vs RHOB Z :

Symbol:	0	1	2	3	4	5	6
Mean GRC	0	10	20	30	40	50	60
Symbol:	A	B	C	D	E	F	G

Note: A letter symbol scale is used if the Z-axis Standard Deviation is greater than:

CURVES:	Axis	Curve	Units	Log Suite	
=====					
	X	- CNSC		BHCOR	
	Y	- RHOB	G/CC	BHCOR	Created
	Z	- GRC			
CUTOFFS:	Curve or	Relation	Curve or		
=====	Constant	Operator	Constant		
		NONE			

CROSS PLOT - GR vs LLDC



CROSS PLOT SUMMARY - GR vs LLDC

Symbol:	1	2	3	4	5	6
Count:	1	2	3	4	5	6
	1234567890123456789012345678901234567890123456789012					

* = 62 or greater

CURVES:
=====

Axis Curve

X - GR
Y - LLDC

Units

GAPI

Log Suite

BHCOR

Created

CUTOFFS:
=====

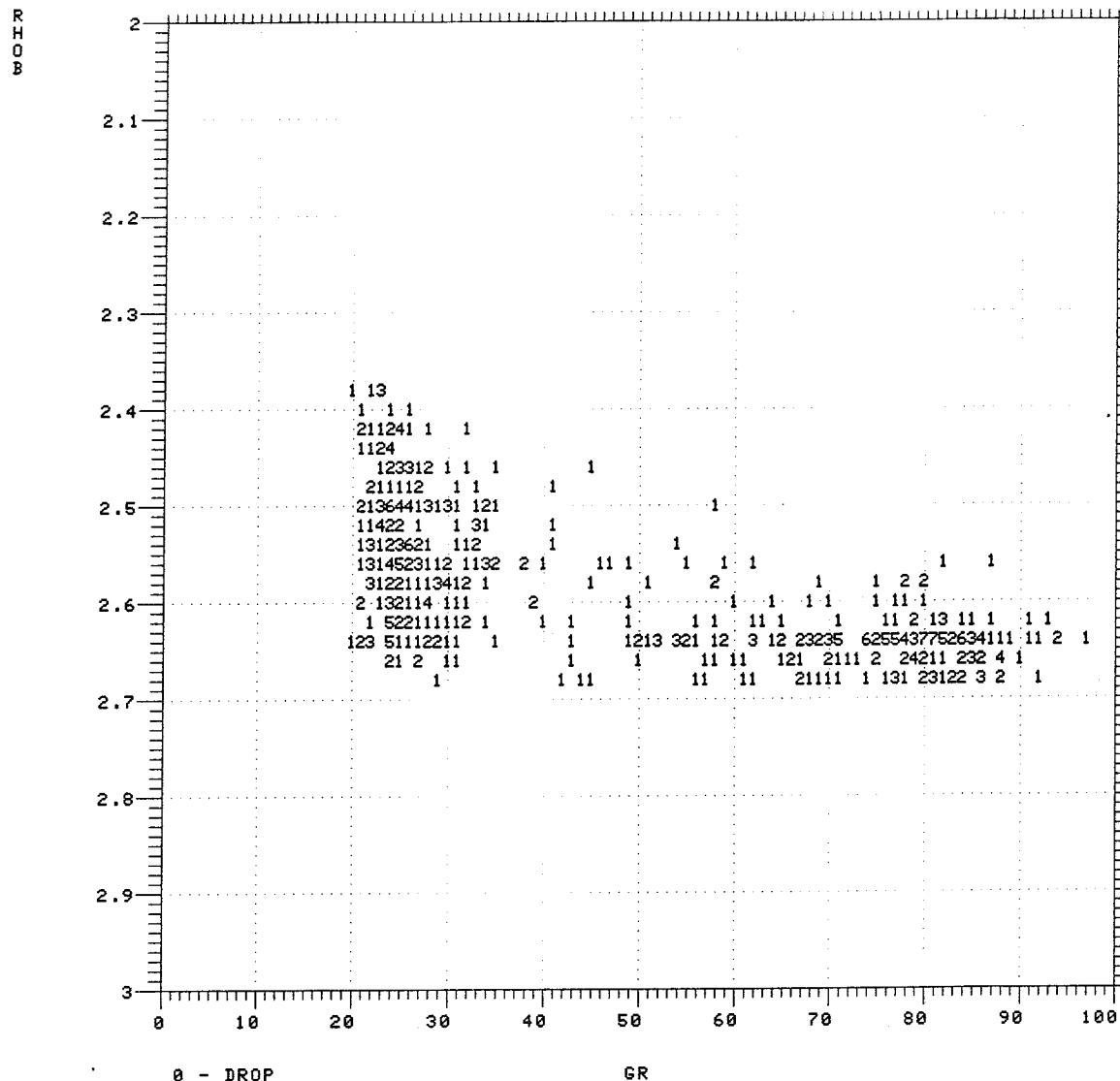
Curve or
Constant

Relation
Operator

Curve or
Constant

----- NONE -----

CROSS PLOT - GR vs RHO B



CROSS PLOT SUMMARY - GR vs RHO B

Symbol:	123456789ABCDEFGHIJKLMN						OPQRSTUVWXYZ						abcdefghijklmnopqrstuvwxyz*					
Count:	1		2		3		4		5		6							
	12345678901234567890123456789012345678901234567890123456789012																	

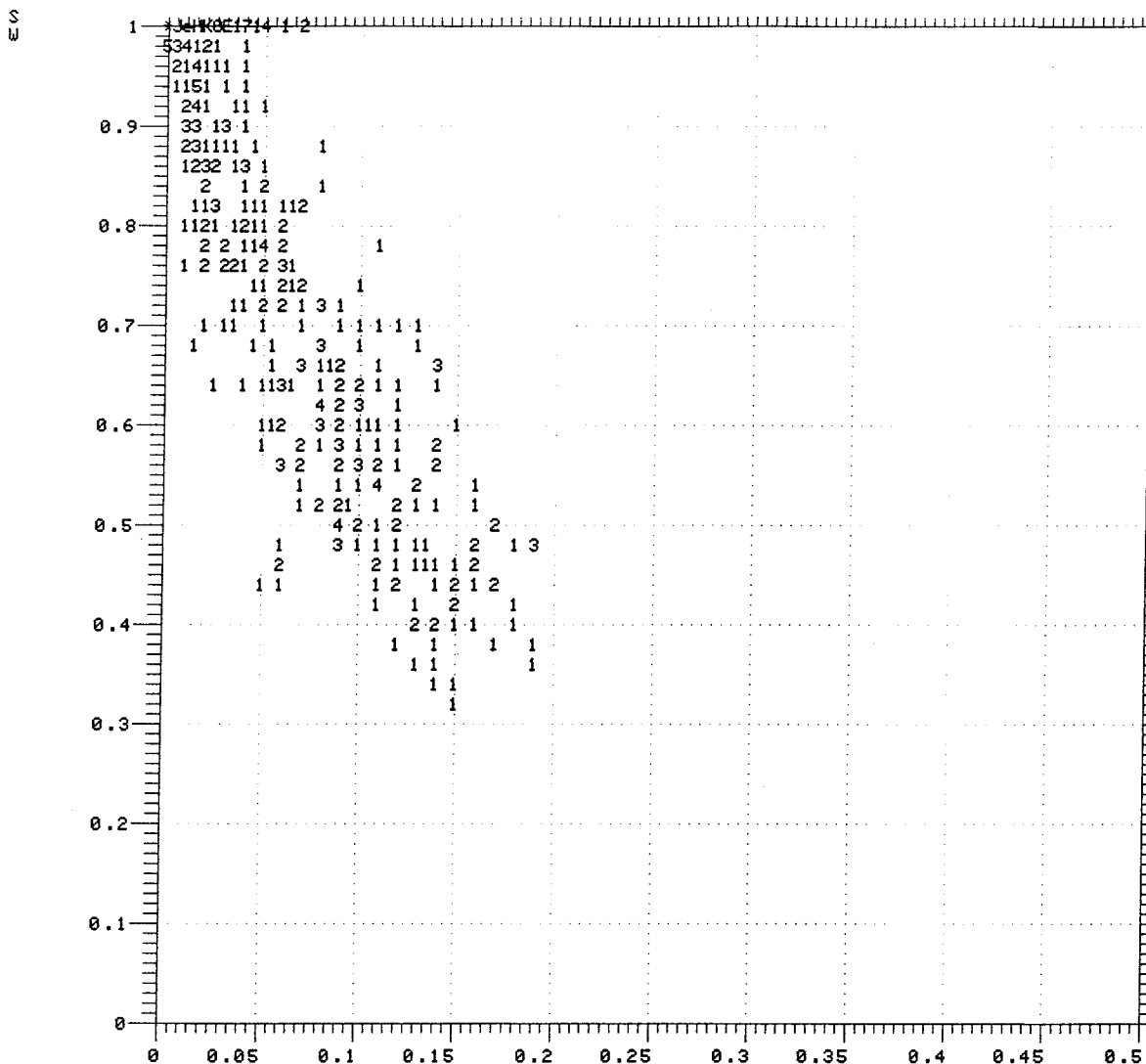
* = 62 or greater

CURVES:	Axis	Curve	Units	Log Suite	
=====					
	X	- GR	GAPI		Created
	Y	- RHO B	G/CC		Created

CUTOFFS:	Curve or Constant	Relation Operator	Curve or Constant
=====			

----- NONE -----

CROSS PLOT - EPOR vs SW



0 - DROP

EPOR

CROSS PLOT SUMMARY - EPOR vs SW

Symbol: 123456789ABCDEFGHIJKLMN O PQRSTU VWXYZabcdefghijklmnopqrstuvwxyz*

Count: 1 2 3 4 5 6
1234567890123456789012345678901234567890123456789012

* = 62 or greater

CURVES:
=====

Axis Curve

Units

Log Suite

X - EPOR
Y - SW

DECI
DECI

SASHA
SASHA

EFFECTI
WATER S

CUTOFFS:
=====

Curve or
Constant

Relation
Operator

Curve or
Constant

NONE