



**X-Y CALIPER  
GAMMA RAY  
LOG**

Company Southeast Drilling Services, Inc.  
Well BR-21B  
Field Palm Beach Gardens  
County Palm Beach  
State Florida  
Country USA

Location: Seacoast Utility Authority  
Burma Road Wellfield Expansion  
JLA Geosciences, Inc.  
SEC TYP RGE  
Permanent Datum G.L.  
Log Measured From G.L.  
Drilling Measured From G.L.

Date 18-DEC-2013  
Run Number ONE  
Depth Driller 205'  
Depth Logger 204'  
Tool Joint Interval 20'  
Open Hole Size SURFACE  
Type Fluid MUD  
Density / Viscosity N/A  
Max. Recorded Temp. N/A  
Estimated Cement Top SURFACE  
Time Well Ready 15:30 12/18/2013  
Time Logger on Bottom 16:15 12/18/2013

Equipment Number FM551  
Recorded By S. Miller/J. Miller  
Witnessed By A. Guilanar/C. A.  
Borehole Record En-Zinger (SED)  
Run Number 7.875" From 37' To 205'  
Bit Size 37' Weight From To

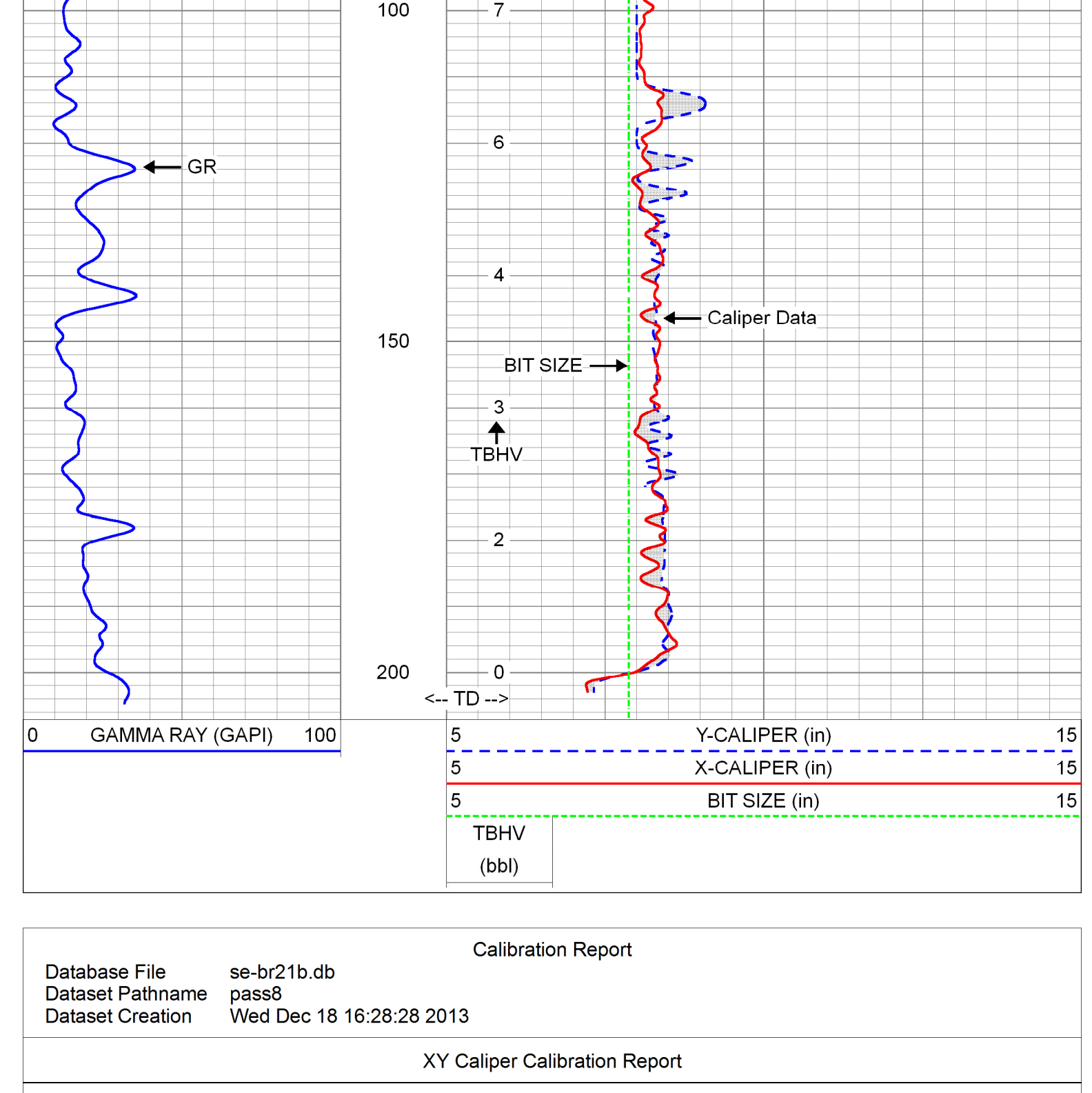
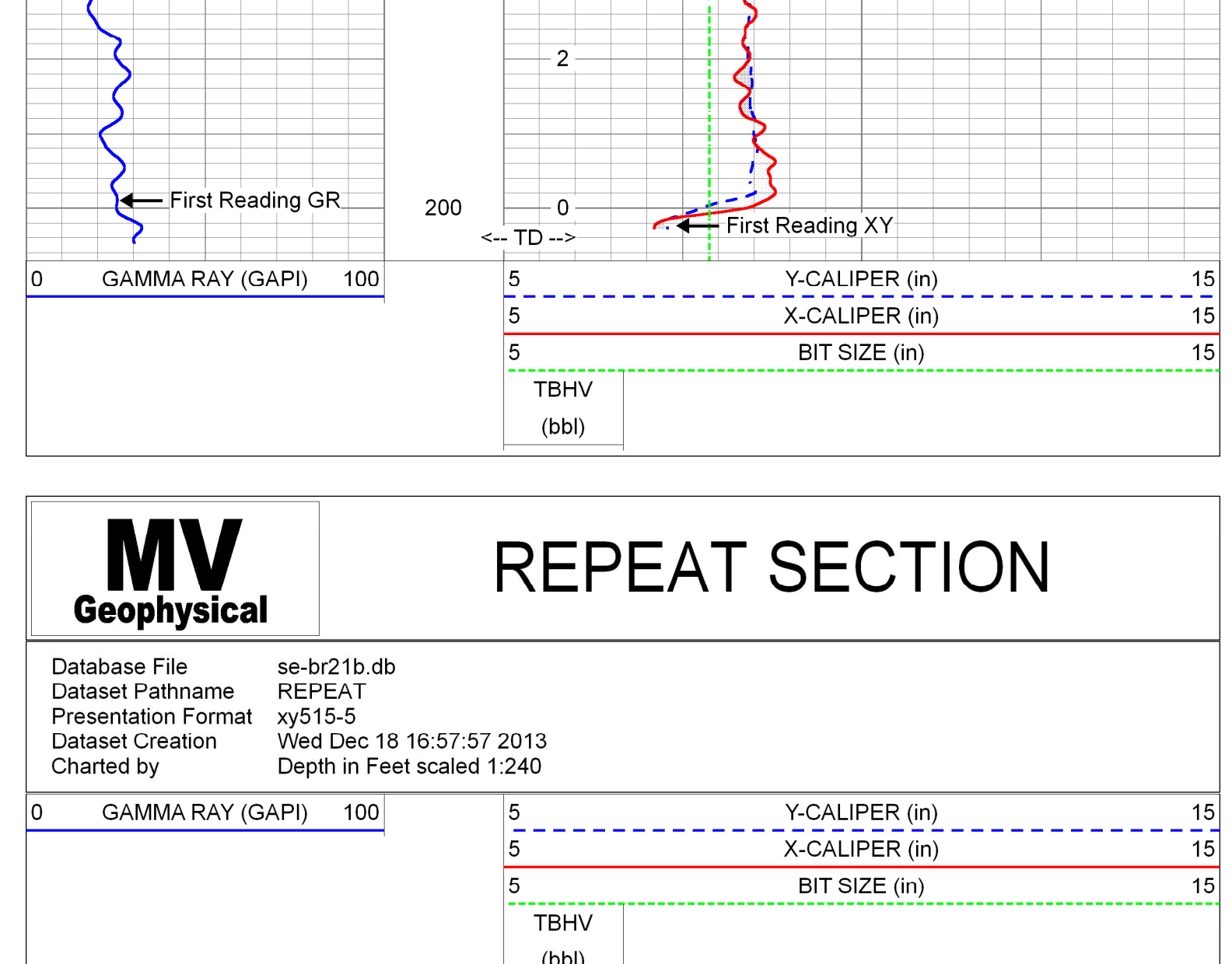
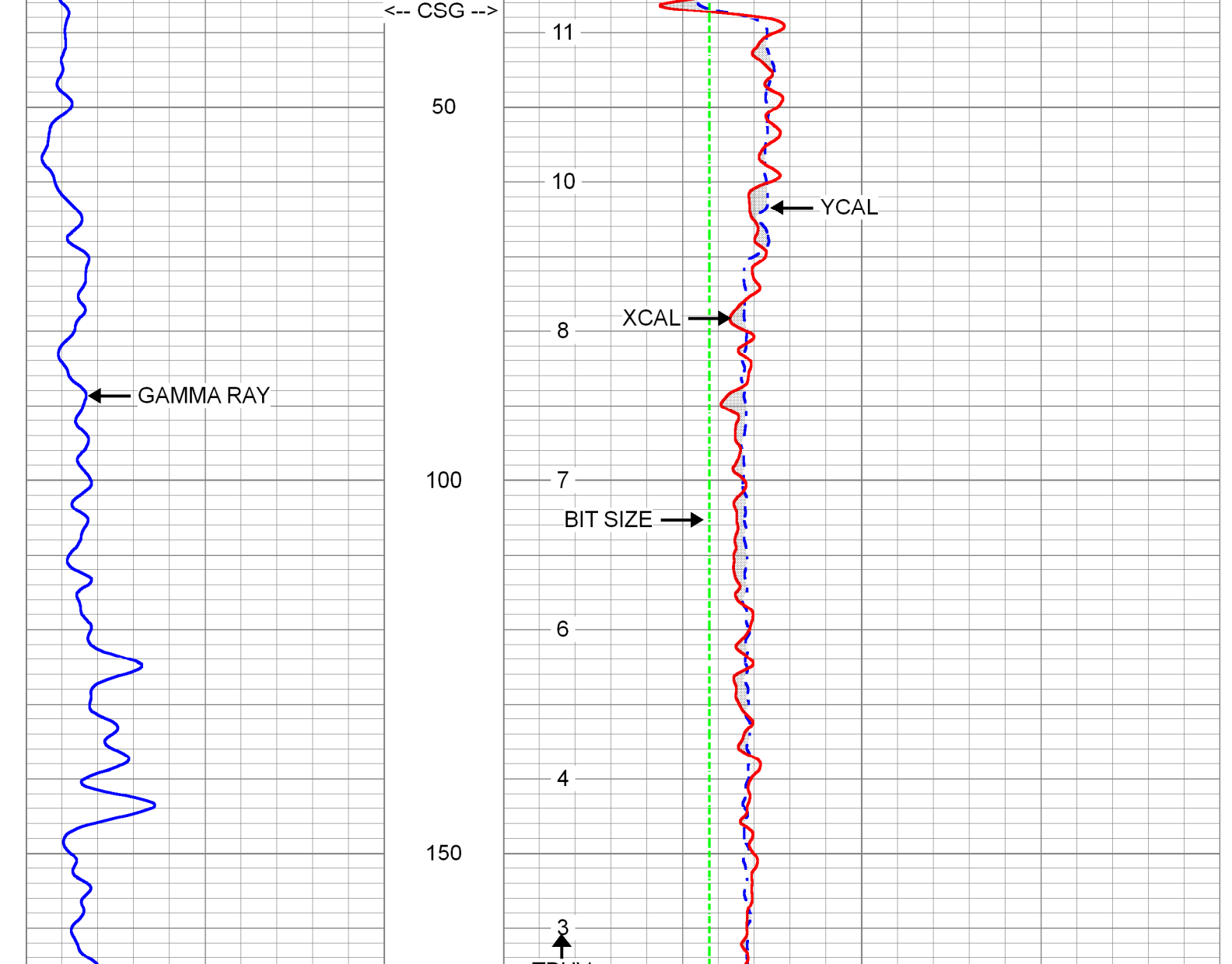
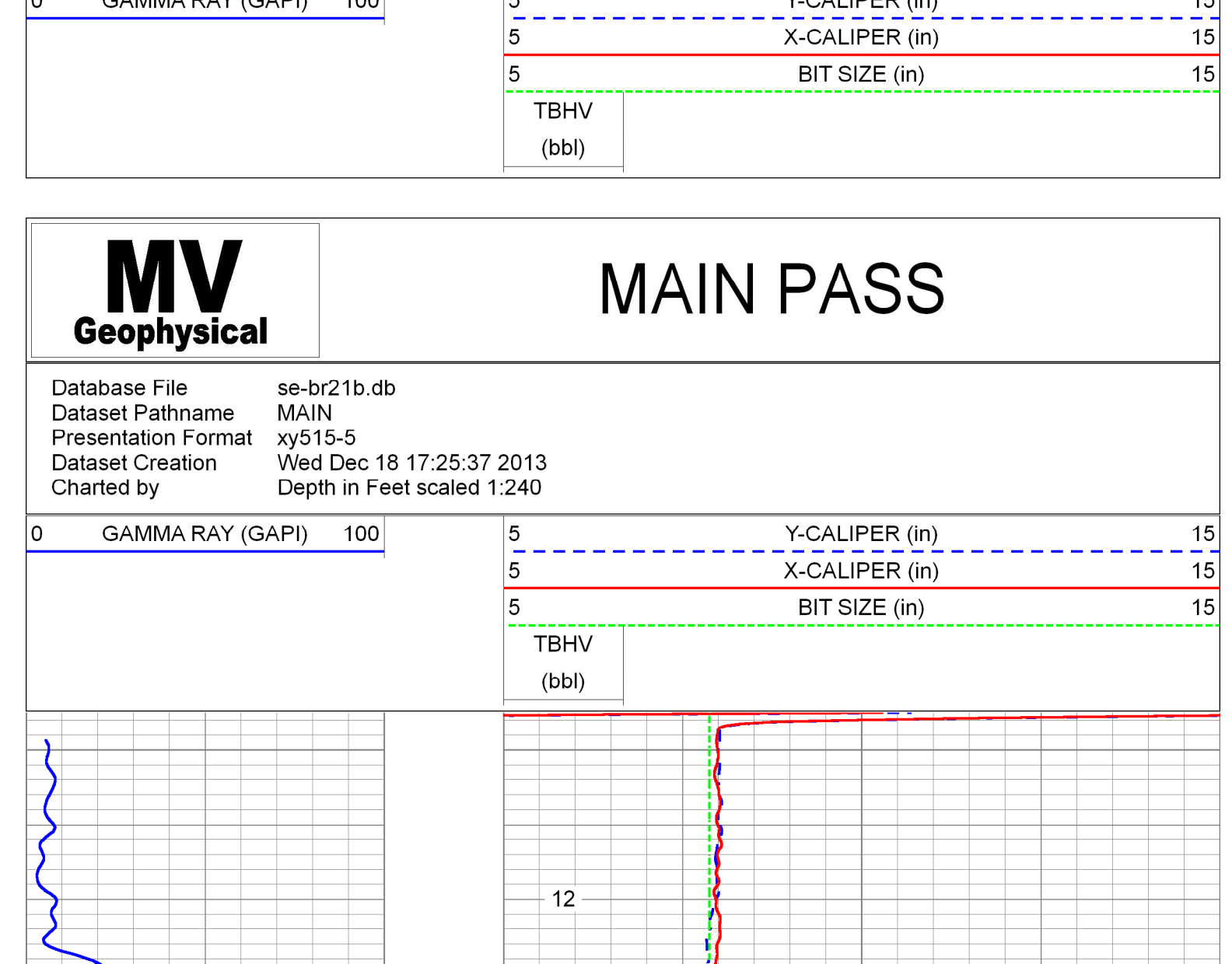
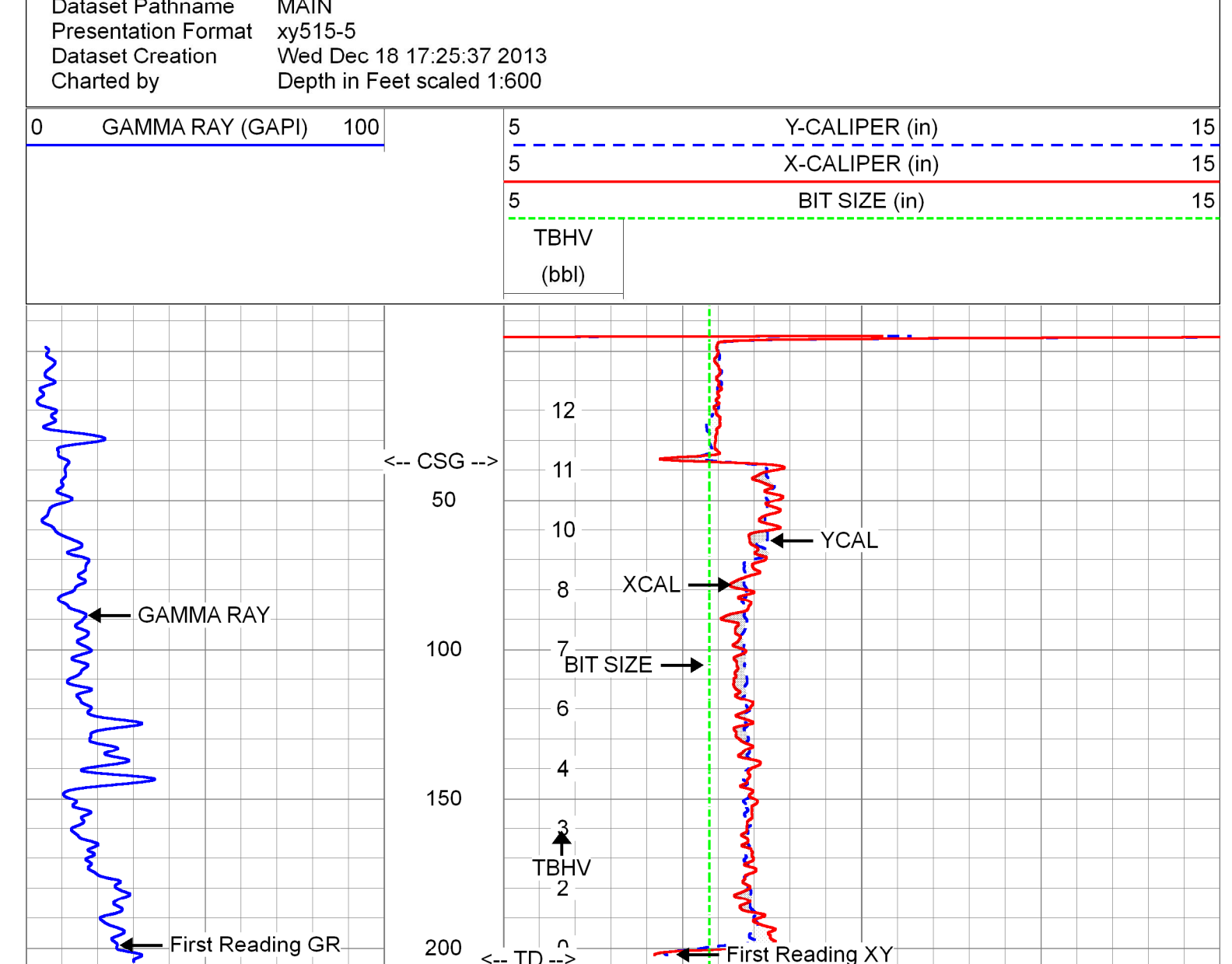
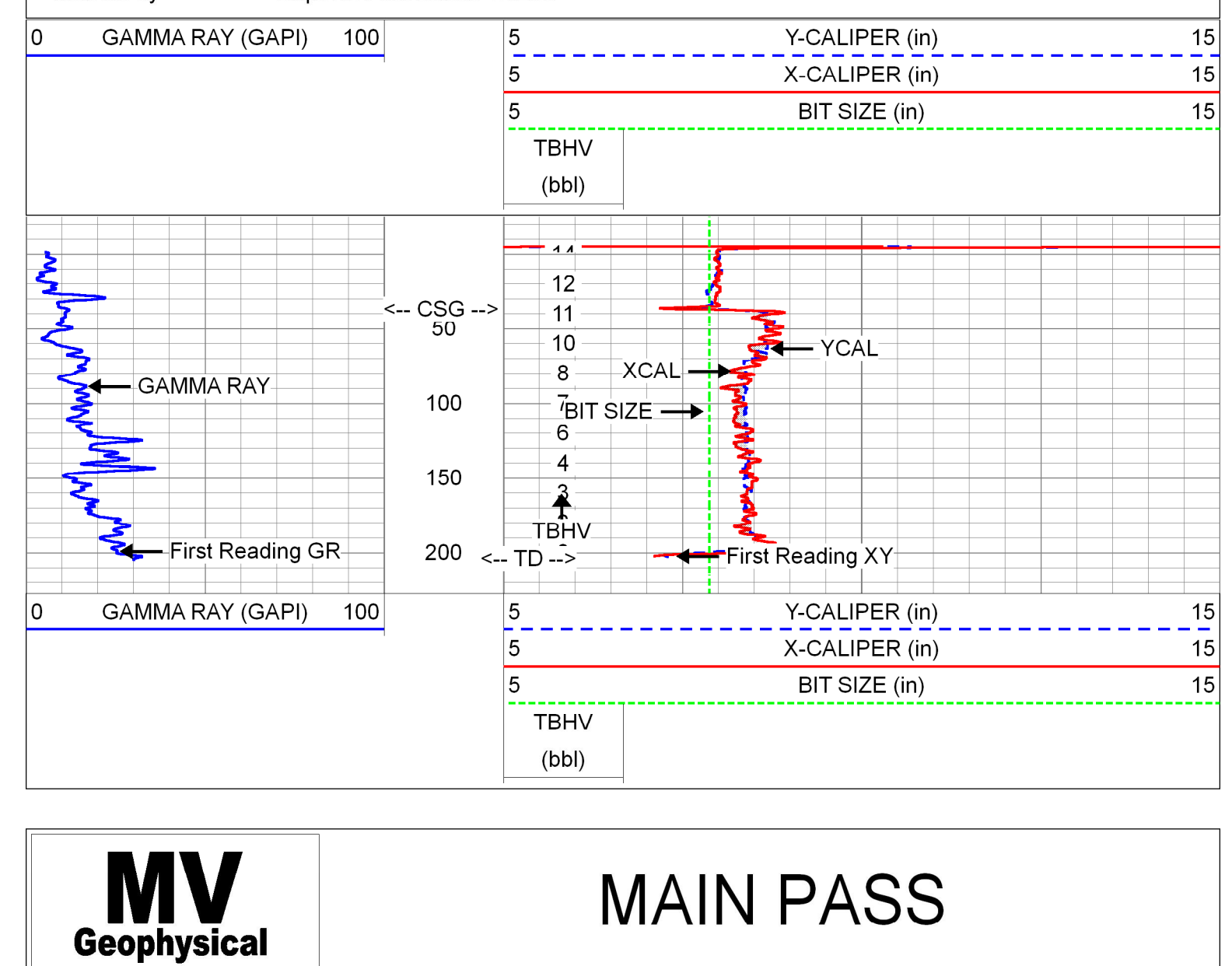
Casing Record  
Surface String  
Prof. String  
Production String  
Liner  
Phone No. 2013181

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

**Comments**

MAXIMUM CALIPER ARM EXTENSION: 33"



Database File: se-br21b.db  
Dataset Pathname: pass8  
Dataset Creation: Wed Dec 18 16:28:28 2013

**Calibration Report**

**XY Caliper Calibration Report**

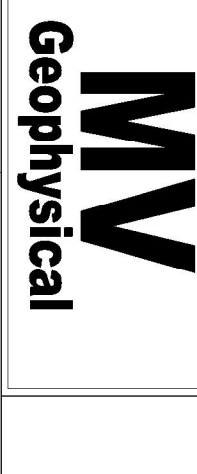
Serial Number:	01S		
Tool Model:	XYCS		
Performed:	Wed Dec 18 16:33:44 2013		
Small Ring:	8	in	
Large Ring:	33	in	
	X Caliper	Y Caliper	
Reading with Small Ring:	606.7	618	cps
Reading with Large Ring:	1132.1	1078.4	cps
Gain:	0.0475828	0.0543006	
Offset:	-20.8685	-25.5578	

**Gamma Ray Calibration Report**

Serial Number:	01		
Tool Model:	GROH		
Performed:	Tue Dec 17 10:26:37 2013		
Calibrator Value:	120.0	GAPI	
Background Reading:	14.2	cps	
Calibrator Reading:	132.5	cps	
Sensitivity:	1.0149	GAPI/cps	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			GR-GROH (01)	2.75	3.50	40.00
			XYC-XYCS (01S)	6.60	3.50	110.00
GR	5.00					
YCAL	0.50					
XCAL	0.50					

Dataset: se-br21b.db: field/well/run1/pass8  
Total length: 9.35 ft  
Total weight: 150.00 lb  
O.D.: 3.50 in



# DUAL INDUCTION LL3 / SP LOG

Company Southeast Drilling Services, Inc.  
Well BR-21B  
Field Palm Beach Gardens  
County Palm Beach  
State Florida  
Country USA

Location: Southeast Utility Authority  
Burma Road Wellfield Expansion  
JLA Geoservices, Inc.  
SEC T/MP R/CE  
Permanent Datum G.L.  
Log Measured From G.L.  
Drilling Measured From G.L.

API #: Other Services  
XY/GR  
D/LSP  
K/B  
D/F  
G.L.

Date 18-DEC-2013  
Run Number ONE  
Depth Driller 205  
Depth Logged 204  
Log Interval 1.32  
Type Fluid MUD  
Open Hole Size 7.875"  
Density / Viscosity N/A  
Max. Recorded Temp. N/A  
Estimated Cement Top SURFACE  
Time Well Ready 15:30 12/18/2013  
Time Logger on Bottom 15:30 12/18/2013  
Equipment Number MVS-1  
Recorded By S. Miller/C. Miller  
Witnessed By A. Sullivan/LLA

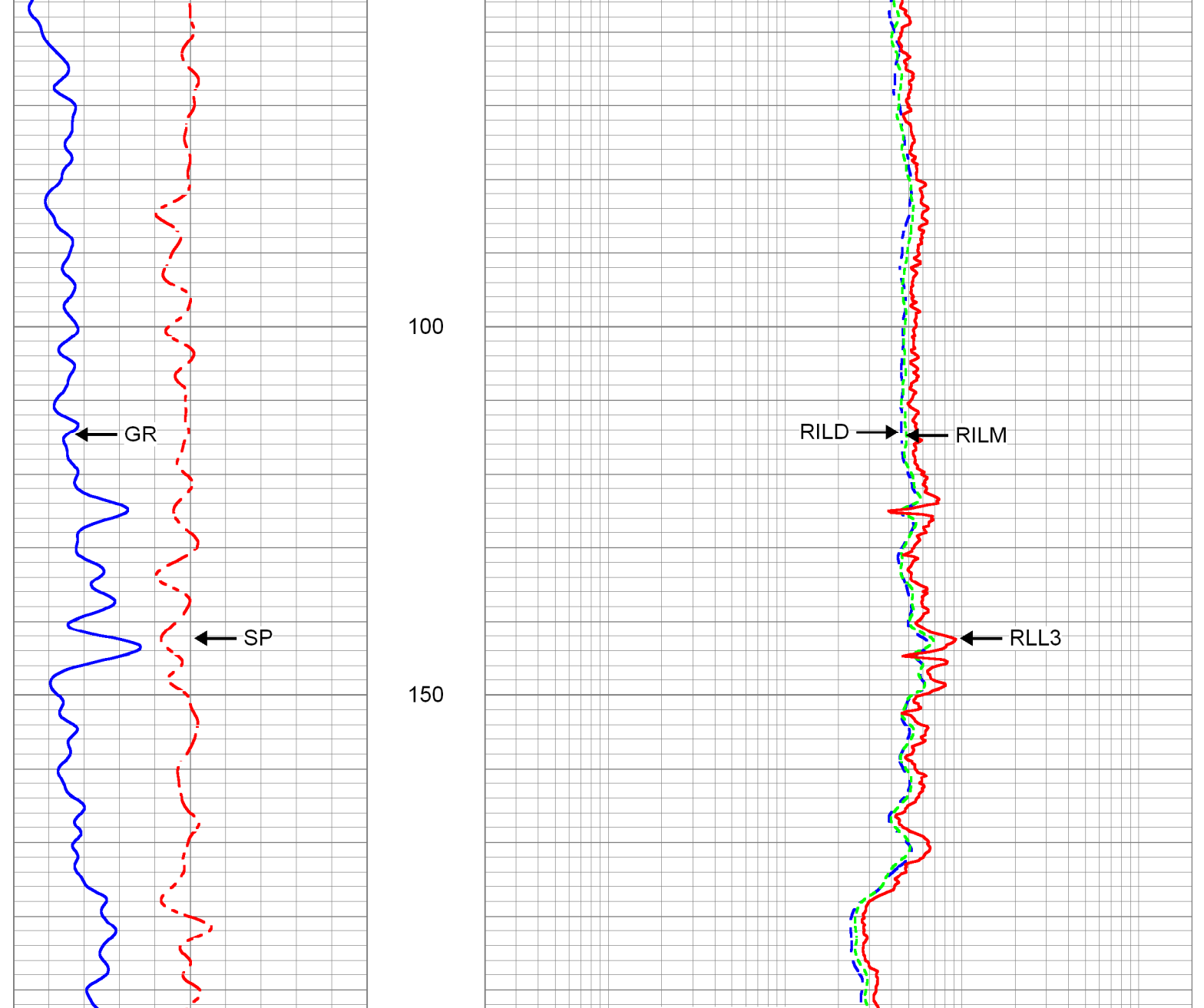
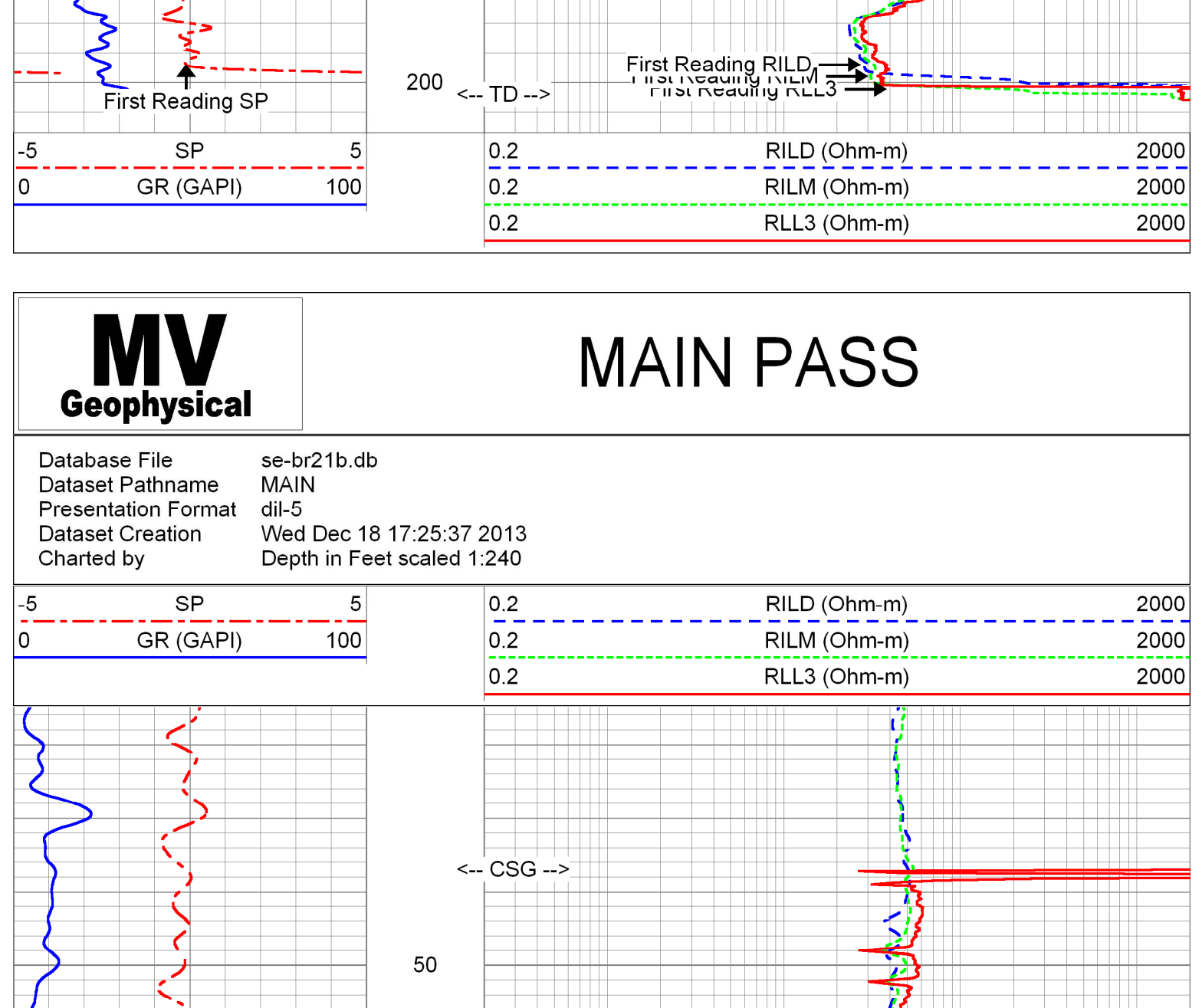
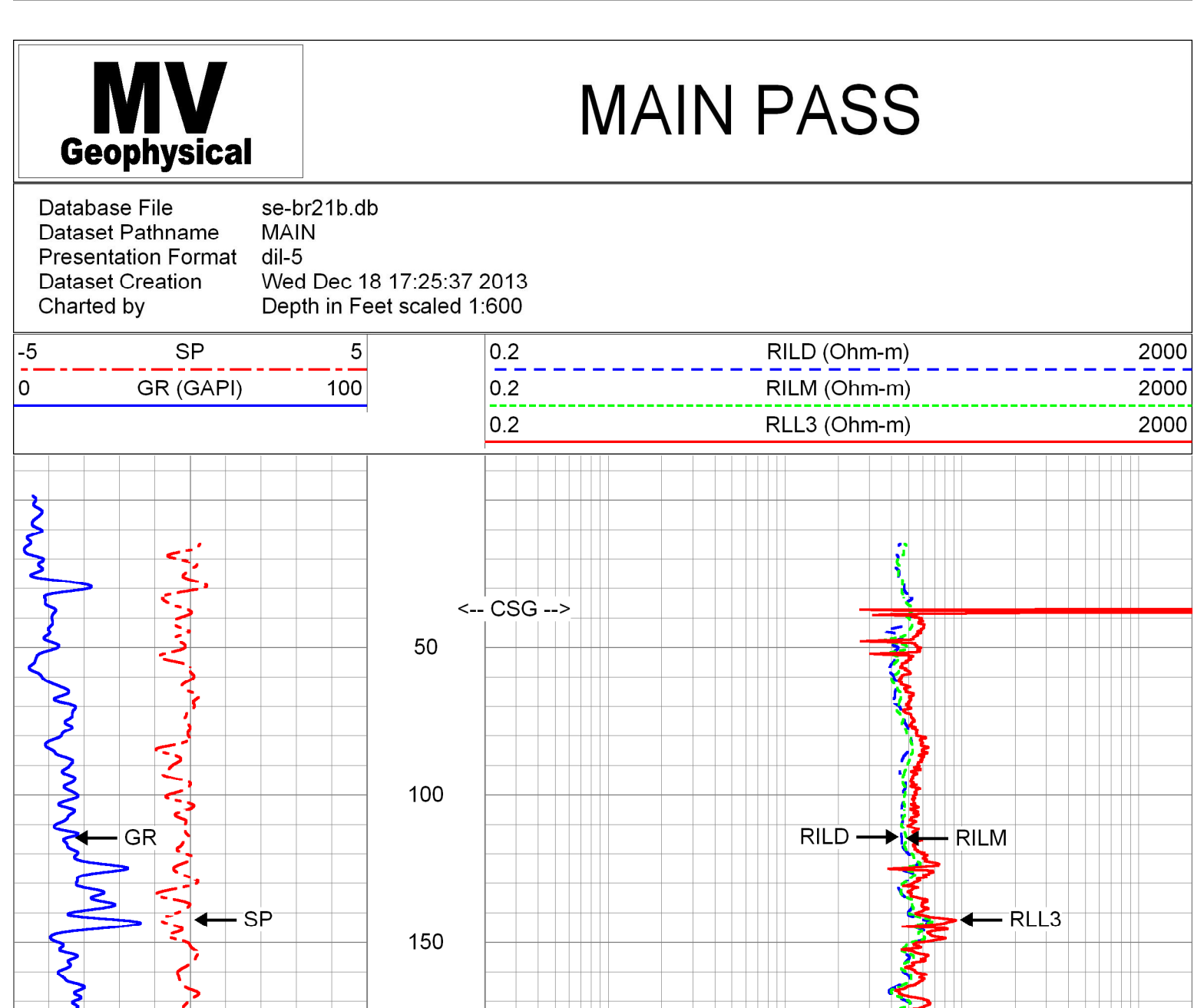
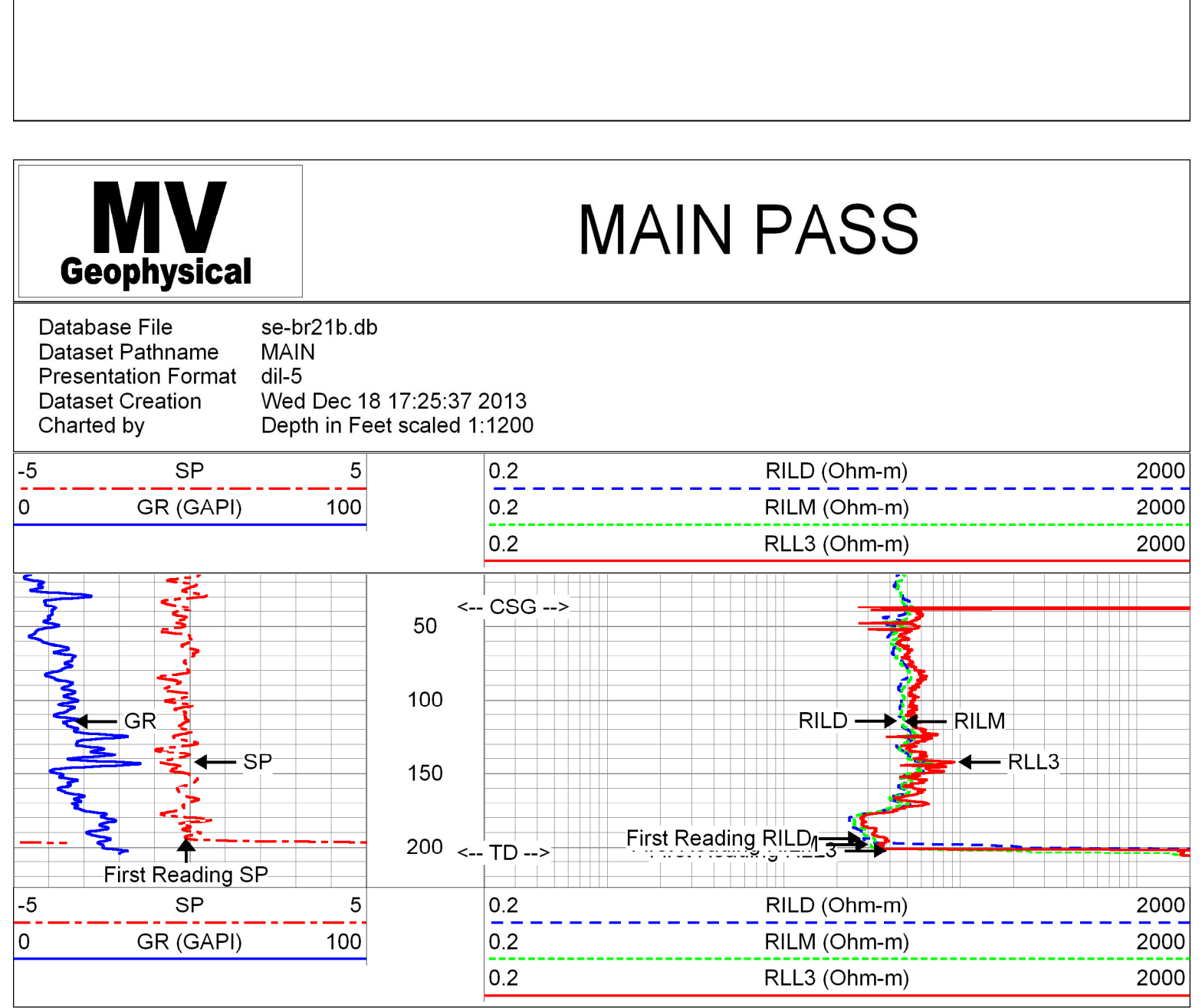
Run Number ONE  
Bit From 37"  
To 205"  
Size 37"  
Weight From  
To  
Borehole Record  
Casing Record 8" PVC  
Surface String 8" ID  
Prod. String Temporary  
Production String

Line# 2013181  
Voice No. 2609485  
se-br21b.db  
\* FIELD PRINT \*

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### Comments

Rm=6.254 ohm-m @ 83.2 deg



### Calibration Report

Database File: se-br21b.db  
Dataset Pathname: pass4  
Dataset Creation: Wed Dec 18 16:01:57 2013

#### Dual Induction Calibration Report

Serial-Model: 5390-R  
Surface Cal Performed: Wed Apr 21 11:17:23 2010  
Downhole Cal Performed: Wed Apr 21 11:04:55 2010  
After Survey Verification Performed: Wed Apr 21 11:04:55 2010

Loop:	Readings		References	Results	
	Air	Loop		m	b
Deep	0.050	0.645	0.000	400.000	672.269
Medium	0.018	0.735	0.000	464.000	647.120

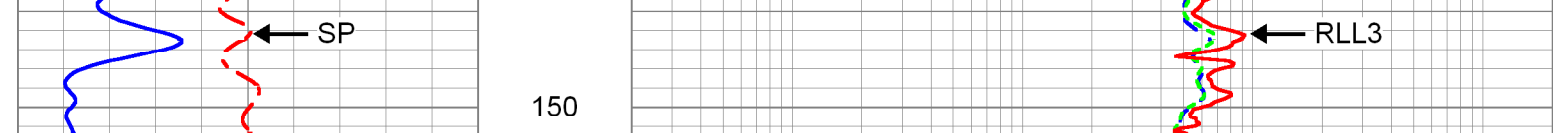
Internal:	Readings		References	Results	
	Zero	Cal		m	b
Deep	0.011	0.641	0.000	400.000	634.921
Medium	0.005	0.739	0.000	464.000	632.408

Internal:	Readings		References	Results	
	Zero	Cal		m	b
Deep	-43.158	78.288	-42.562	77.983	0.993
Medium	-9.475	466.701	-8.097	466.698	0.997
Shallow	2.517	0.025	494.500	2.000	197.682

Internal:	Readings		Targets	Results	
	Zero	Cal		m'	b'
Deep	0.000	0.000	-43.158	78.288	0.993
Medium	0.000	0.000	-9.475	466.701	0.997
Shallow	0.000	0.000	494.500	2.000	1.000

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
SP CILD	10.60 10.60		R (5390)	20.90	4.00	345.00
CILM	6.80					
RLL3	1.70					

Dataset: se-br21b.db: field/well/run1/pass4  
Total length: 20.90 ft  
Total weight: 345.00 lb  
O.D.: 4.00 in



Company Southeast Drilling Services, Inc.  
Well BR-21B  
Field Palm Beach Gardens  
County Palm Beach  
State Florida  
Country USA