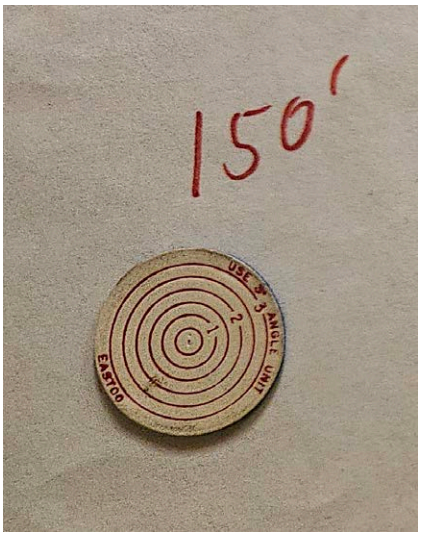
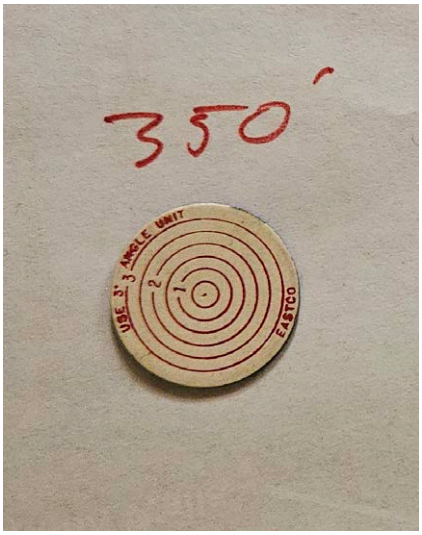
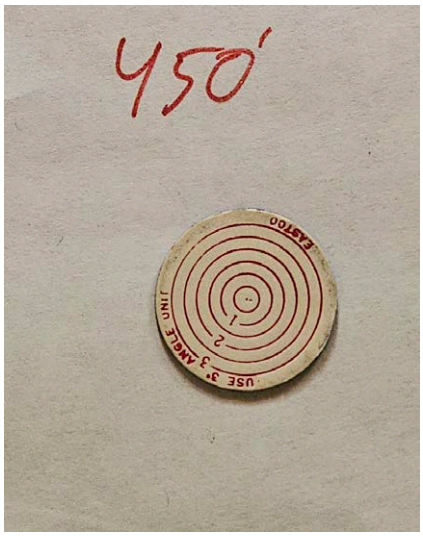
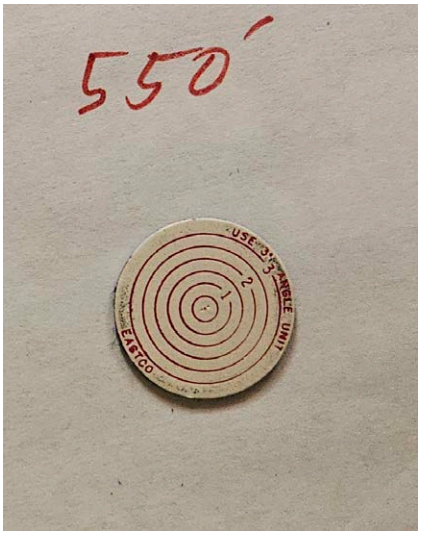
APPENDIX E
Geophysical Logs and Surveys

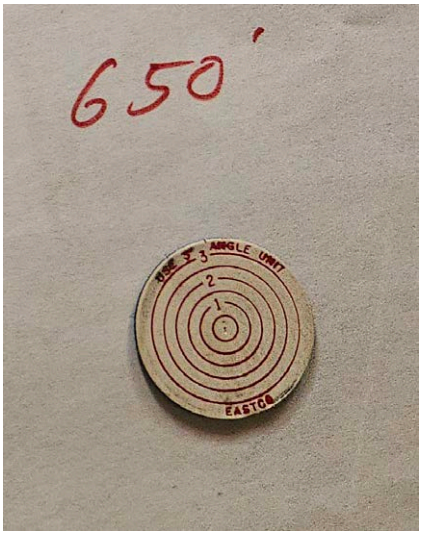
E-1: Inclinometer Results
E-2: Borehole Deviation Survey
E-3: E-Logs
E-4: Caliper Log
E-5: Spinner Survey
E-6: Well Casing Deviation Survey
E-7: Downhole Video Survey











Notes:
Survey results.

Inclinometer Survey
City of Pasadena, Water & Power Department
Pasadena, California

Geosyntec consultants

Appendix
E

PROJECT NO: HPA110005 | June 2025

PACIFIC SURVEYS

DEVIATION SURVEY

Job No. 33121

File No.

Company LAYNE

Well CITY OF PASADENA EXPLORER WELL

Field ALTADENA

County LOS ANGELES State CA

Location:
JPL BRIDGE
EXPLORER RD
GPS: 34.2002451 , -118.1658108
Sec. Twp. Rge.

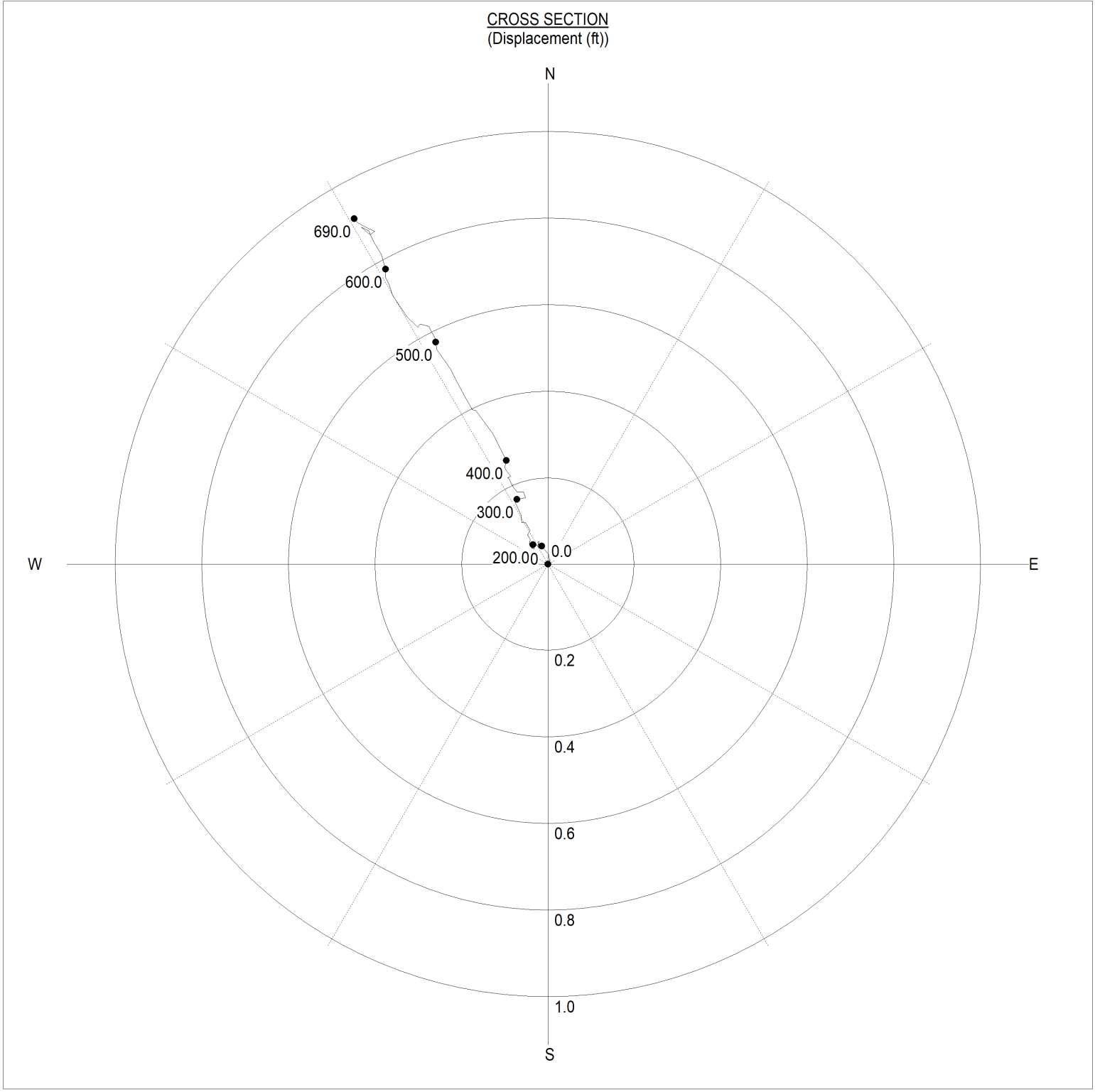
Other Services:
ELOG
LL3

Permanent Datum	G.L.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
Log Measured From	G.L. 0'		
Drilling Measured From	G.L.		

Date	12/10/2024		
Run Number	ONE		
Depth Driller	690'		
Depth Logger	693'		
Bottom Logged Interval	693'		
Top Log Interval	0'		
Casing Driller	36"@96'		
Casing Logger	96'		
Bit Size	17.5"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	8.8 / 33		
pH / Fluid Loss	8 / 13		
Source of Sample	BORE		
Rm @ Meas. Temp	7.8 @ 70 Degf		
Rmf @ Meas. Temp	7.6 @ 70 DegF		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	N/A		
Time Circulation Stopped	6:00 PM		
Time Logger on Bottom	11:20 PM		
Max. Recorded Temperature	N/A		
Equipment Number	PS-17		
Location	L.A.		
Recorded By	D. NAISAN		
Witnessed By	E. VIRAMONTES		

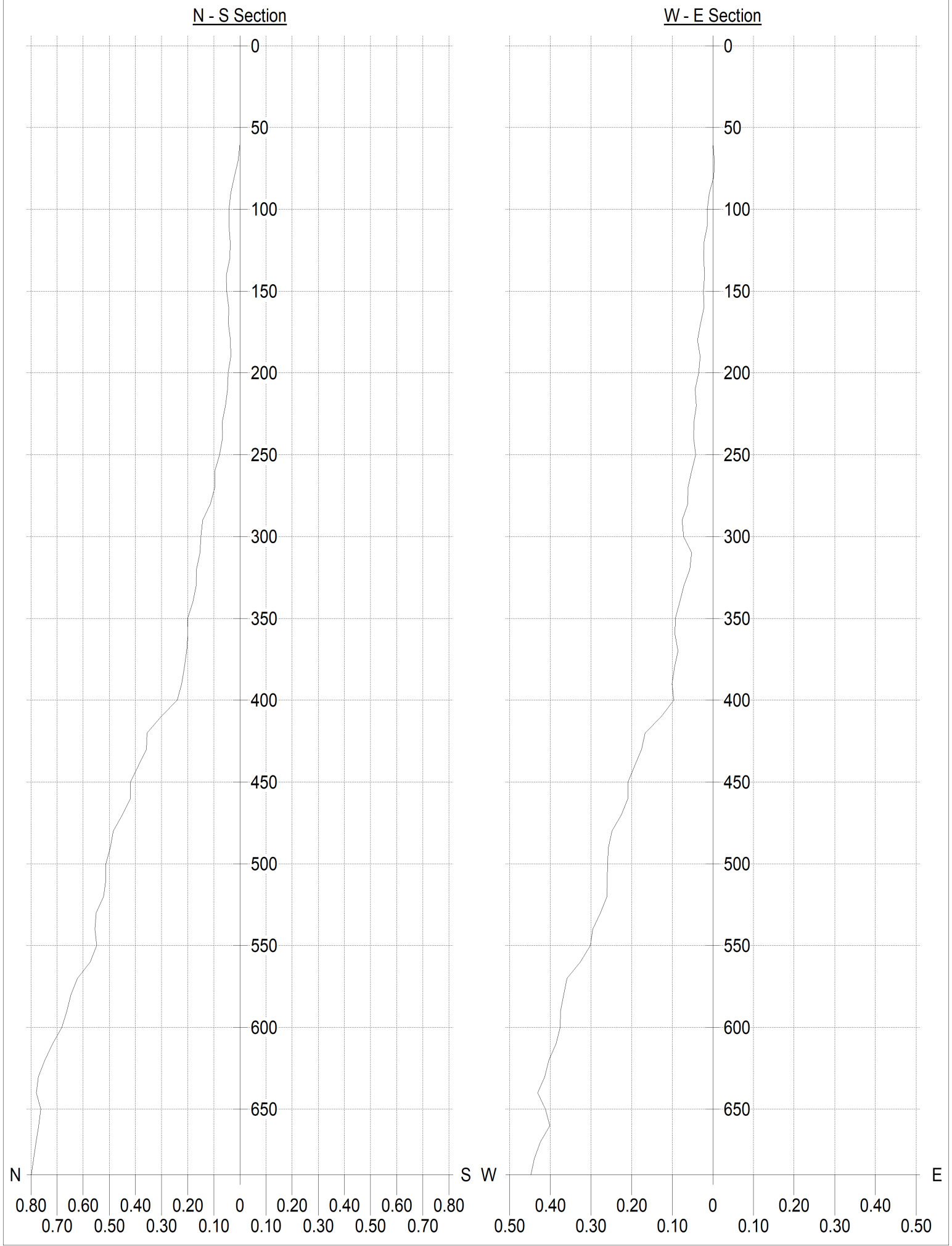
<< Fold Here >>>

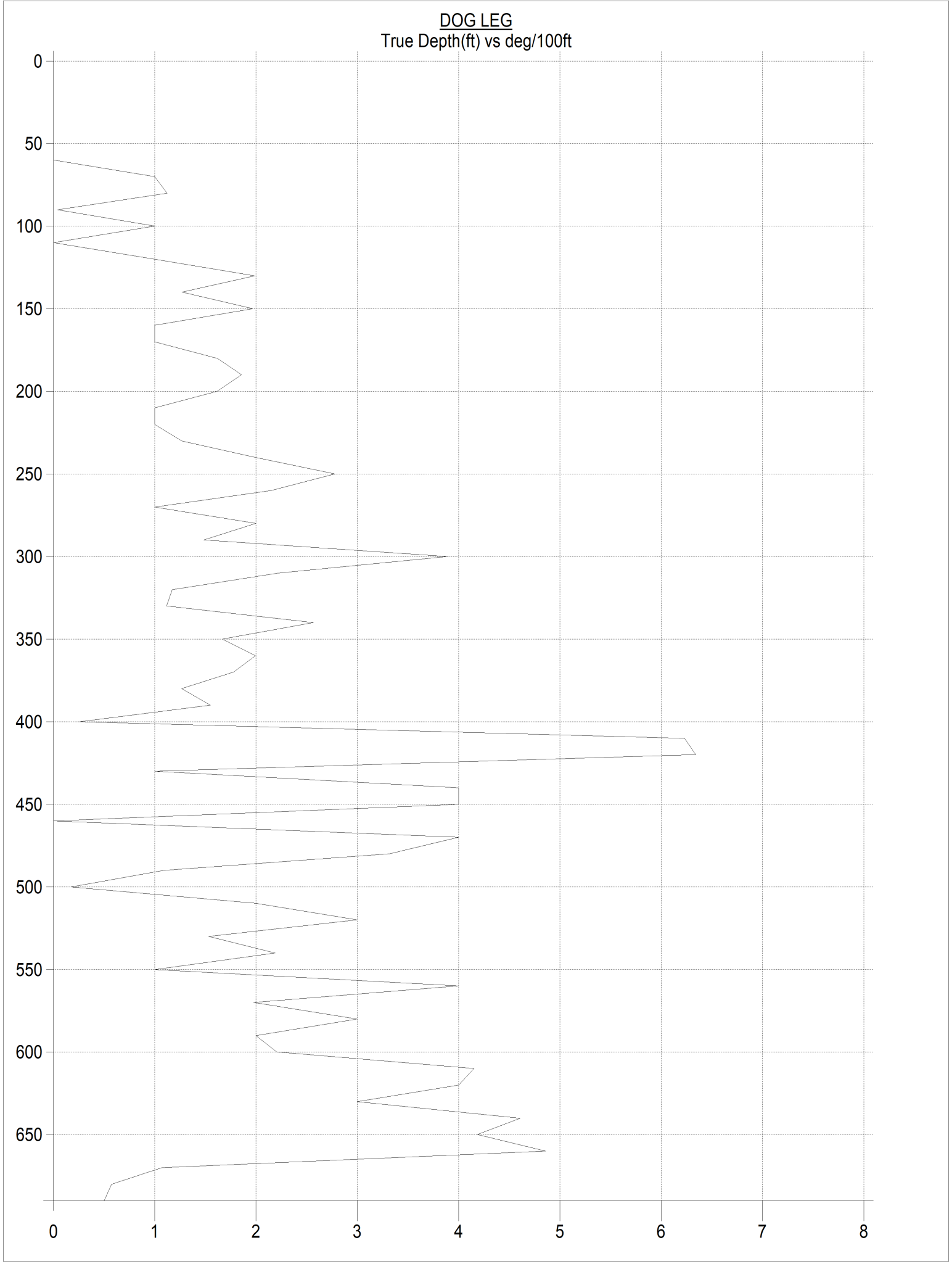
Comments

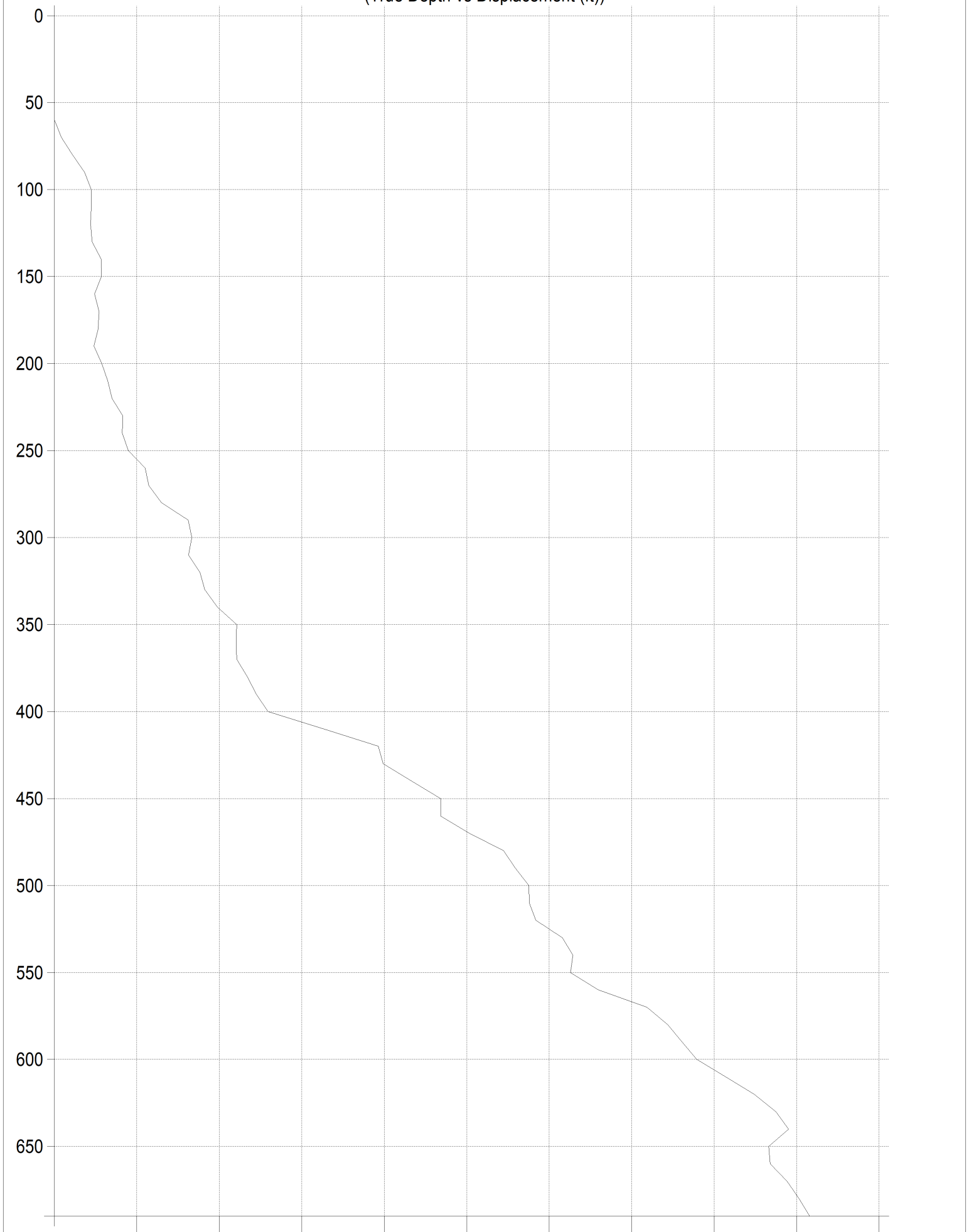

CROSS SECTION
(Displacement (ft))
N
W
E
S
690.0
600.0
500.0
400.0
300.0
200.00
0.0
0.2
0.4
0.6
0.8
1.0

CLOSURE SECTIONS

(True Depth vs Displacement (ft))




DOG LEG
True Depth(ft) vs deg/100ft
0
50
100
150
200
250
300
350
400
450
500
550
600
650
0
1
2
3
4
5
6
7
8


IN THE PLANE OF CLOSURE
(True Depth vs Displacement (ft))
0
50
100
150
200
250
300
350
400
450
500
550
600
650
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

TVD Report (Minimum Curvature Method)

Database File 33121.db
Dataset Pathname ./../../_tvd_/1
Dataset Creation Wed Dec 11 00:07:47 2024

Meas. Depth (ft)	Incline (deg)	Azimuth (deg)	TVD (ft)	North (ft)	East (ft)	Dog Leg (deg/100ft)	Closure Dis (ft)	Closure Dir (deg)	Vert. Sec. (ft)
Vertical Section Direction 0.00									
0.0	0.00	270.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.0	0.00	273.14	10.00	0.00	0.00	0.00	0.00	0.00	0.00
20.0	0.00	286.54	20.00	0.00	0.00	0.00	0.00	0.00	0.00
30.0	0.00	280.30	30.00	0.00	0.00	0.00	0.00	0.00	0.00
40.0	0.00	293.12	40.00	0.00	0.00	0.00	0.00	0.00	0.00
50.0	0.00	295.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00
60.0	0.00	299.70	60.00	0.00	0.00	0.00	0.00	0.00	0.00
70.0	0.10	27.10	70.00	0.01	0.00	1.00	0.01	27.10	0.01
80.0	0.10	318.70	80.00	0.02	0.00	1.12	0.02	5.66	0.02
90.0	0.10	321.20	90.00	0.04	-0.01	0.04	0.04	-14.30	0.04
100.0	0.00	37.90	100.00	0.04	-0.01	1.00	0.04	-18.95	0.04
110.0	0.00	312.80	110.00	0.04	-0.01	0.00	0.04	-18.95	0.04
120.0	0.10	240.40	120.00	0.04	-0.02	1.00	0.04	-30.21	0.04
130.0	0.10	48.20	130.00	0.04	-0.02	1.99	0.05	-30.43	0.04
140.0	0.10	329.50	140.00	0.05	-0.02	1.27	0.06	-21.79	0.05
150.0	0.10	169.50	150.00	0.05	-0.02	1.97	0.06	-24.84	0.05
160.0	0.00	26.10	160.00	0.04	-0.02	1.00	0.05	-27.38	0.04
170.0	0.10	278.40	170.00	0.04	-0.03	1.00	0.05	-34.90	0.04
180.0	0.10	170.20	180.00	0.04	-0.04	1.62	0.05	-45.79	0.04
190.0	0.10	33.70	190.00	0.04	-0.03	1.86	0.05	-41.65	0.04
200.0	0.10	285.80	200.00	0.05	-0.04	1.62	0.06	-37.92	0.05
210.0	0.00	182.40	210.00	0.05	-0.04	1.00	0.06	-42.49	0.05
220.0	0.10	15.70	220.00	0.06	-0.04	1.00	0.07	-36.39	0.06
230.0	0.10	296.80	230.00	0.07	-0.05	1.27	0.08	-34.35	0.07
240.0	0.10	127.90	240.00	0.07	-0.05	1.99	0.08	-35.43	0.07
250.0	0.20	354.90	250.00	0.08	-0.04	2.78	0.09	-28.19	0.08
260.0	0.10	270.20	260.00	0.10	-0.05	2.15	0.11	-28.62	0.10
270.0	0.00	89.10	270.00	0.10	-0.06	1.00	0.11	-32.45	0.10
280.0	0.20	356.70	280.00	0.11	-0.06	2.00	0.13	-28.70	0.11
290.0	0.20	313.10	290.00	0.14	-0.08	1.49	0.16	-27.98	0.14
300.0	0.20	106.30	300.00	0.15	-0.07	3.89	0.17	-25.63	0.15
310.0	0.10	17.30	310.00	0.15	-0.05	2.22	0.16	-18.95	0.15
320.0	0.10	305.50	320.00	0.17	-0.06	1.17	0.18	-18.92	0.17
330.0	0.10	237.60	330.00	0.17	-0.07	1.12	0.18	-23.19	0.17
340.0	0.20	351.00	340.00	0.18	-0.08	2.57	0.20	-24.44	0.18
350.0	0.10	294.70	350.00	0.20	-0.09	1.67	0.22	-24.72	0.20
360.0	0.10	123.70	360.00	0.20	-0.09	1.99	0.22	-25.00	0.20
370.0	0.10	357.90	370.00	0.20	-0.09	1.78	0.22	-22.95	0.20
380.0	0.10	279.30	380.00	0.21	-0.10	1.27	0.23	-24.00	0.21
390.0	0.10	20.80	390.00	0.22	-0.10	1.55	0.25	-24.26	0.22
400.0	0.10	6.00	400.00	0.24	-0.10	0.26	0.26	-21.92	0.24
410.0	0.70	329.00	410.00	0.30	-0.13	6.23	0.33	-22.90	0.30
420.0	0.10	283.30	420.00	0.36	-0.17	6.34	0.39	-25.18	0.36
430.0	0.00	33.10	430.00	0.36	-0.18	1.00	0.40	-26.16	0.36
440.0	0.40	331.30	440.00	0.39	-0.19	4.00	0.43	-26.37	0.39
450.0	0.00	241.80	450.00	0.42	-0.21	4.00	0.47	-26.54	0.42
460.0	0.00	99.20	460.00	0.42	-0.21	0.00	0.47	-26.54	0.42
470.0	0.40	333.20	470.00	0.45	-0.22	4.00	0.50	-26.56	0.45
480.0	0.10	291.70	480.00	0.48	-0.25	3.32	0.54	-27.18	0.48
490.0	0.10	357.60	490.00	0.50	-0.26	1.09	0.56	-27.40	0.50

Meas. Depth (ft)	Incline (deg)	Azimuth (deg)	TVD (ft)	North (ft)	East (ft)	Dog Leg (deg/100ft)	Closure Dis (ft)	Closure Dir (deg)	Vert. Sec. (ft)
Vertical Section Direction 0.00									
500.0	0.10	347.70	500.00	0.51	-0.26	0.17	0.58	-26.80	0.51
510.0	0.10	172.60	510.00	0.51	-0.26	2.00	0.58	-26.88	0.51
520.0	0.20	353.70	520.00	0.52	-0.26	3.00	0.58	-26.56	0.52
530.0	0.20	308.60	530.00	0.55	-0.28	1.53	0.62	-26.68	0.55
540.0	0.10	221.50	540.00	0.55	-0.30	2.19	0.63	-28.08	0.55

550.0	0.00	41.20	550.00	0.55	-0.30	1.00	0.63	-28.83	0.55
560.0	0.40	314.30	560.00	0.57	-0.33	4.00	0.66	-29.71	0.57
570.0	0.30	342.80	570.00	0.62	-0.36	1.98	0.72	-30.03	0.62
580.0	0.00	248.80	580.00	0.65	-0.37	3.00	0.74	-29.58	0.65
590.0	0.20	332.80	590.00	0.66	-0.38	2.00	0.76	-29.52	0.66
600.0	0.10	60.80	600.00	0.68	-0.38	2.20	0.78	-28.83	0.68
610.0	0.40	329.00	610.00	0.72	-0.39	4.15	0.81	-28.31	0.72
620.0	0.00	259.90	620.00	0.75	-0.40	4.00	0.85	-28.42	0.75
630.0	0.30	337.40	630.00	0.77	-0.41	3.00	0.87	-28.25	0.77
640.0	0.20	204.00	640.00	0.78	-0.43	4.61	0.89	-28.97	0.78
650.0	0.30	91.90	650.00	0.76	-0.41	4.19	0.87	-28.40	0.76
660.0	0.20	299.60	660.00	0.77	-0.40	4.86	0.87	-27.52	0.77
670.0	0.10	284.10	670.00	0.78	-0.42	1.07	0.89	-28.55	0.78
680.0	0.10	317.40	680.00	0.79	-0.44	0.57	0.90	-29.09	0.79
690.0	0.05	316.25	690.00	0.80	-0.45	0.50	0.92	-29.29	0.80

PACIFIC SURVEYS

ELECTRIC LOG
LATEROLOG 3
GAMMA-RAY

Job No. 33121

File No.

Company LAYNE

Well CITY OF PASADENA EXPLORER WELL

Field ALTADENA

County LOS ANGELES State CA

Location:
JPL BRIDGE
EXPLORER RD
GPS: 34.2002451 , -118.1658108
Sec. Twp. Rge.

Other Services:
DEVIATION
LL3

			Elevation
Permanent Datum	G.L.	Elevation above perm. datum	K.B.
Log Measured From	G.L. 0'		D.F.
Drilling Measured From	G.L.		G.L.

Date	12/10/2024		
Run Number	ONE		
Depth Driller	690'		
Depth Logger	693'		
Bottom Logged Interval	693'		
Top Log Interval	80'		
Casing Driller	36"@96'		
Casing Logger	96'		
Bit Size	17.5"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	8.8 / 33		
pH / Fluid Loss	8 / 13		
Source of Sample	BORE		
Rm @ Meas. Temp	7.8 @ 70 Degf		
Rmf @ Meas. Temp	7.6 @ 70 DegF		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	N/A		
Time Circulation Stopped	6:00 PM		
Time Logger on Bottom	11:20 PM		
Max. Recorded Temperature	N/A		
Equipment Number	PS-17		
Location	L.A.		
Recorded By	D. NAISAN		
Witnessed By	E. VIRAMONTES		

<<< Fold Here >>>

Comments

Calibration Report

Database File 33121.db
Dataset Pathname ELOG
Dataset Creation Tue Dec 10 23:22:38 2024

ELOG Calibration Report

Serial:	PS-5
Model:	DTQ
Shop Calibration Performed:	Fri Jun 7 10:34:19 2024
Before Survey Verification Performed:	Thu Mar 3 10:07:12 2022
After Survey Verification Performed:	Thu Mar 3 10:07:23 2022

Shop Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	0.821	51.621		0.500	50.000	Ohm-m	0.974	-0.300
Long	3.914	207.499		2.000	200.000	Ohm-m	0.973	-1.807
IEE	27.480	4853.640	counts	0.030	5.312	A		
VSN	51.520	5559.920	counts	0.983	106.049	V		
VLN	150.360	1443.880	counts	2.868	27.540	V		

Before Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	163.989	102.056		155.138	102.004	Ohm-m	0.858	14.447
Long	1448.760	107.451		107.471	107.471	Ohm-m	0.953	5.083
IEE	45.060	5047.340	counts	0.049	5.524	A		
VSN	83.020	5787.320	counts	1.584	110.386	V		
VLN	183.360	1523.320	counts	3.497	29.055	V		

After Survey Verification

	Readings			References			Results	
	Zero	Cal		Zero	Cal		Gain	Offset
Short	164.862	102.044		163.989	102.056	Ohm-m	0.986	1.450
Long	1471.250	107.311		107.451	107.451	Ohm-m	0.983	1.920
IEE	44.260	5117.640	counts	0.048	5.601	A		
VSN	81.980	5867.240	counts	1.564	111.910	V		
VLN	182.900	1542.520	counts	3.489	29.422	V		

After Survey Verification compared to Before Survey Calibration

	Zero			Cal		
	Before	After		Before	After	
Short	155.138	163.989	Ohm-m	102.004	102.056	Ohm-m
Long	1385.580	1448.760	Ohm-m	107.471	107.451	Ohm-m

Gamma Ray Calibration Report

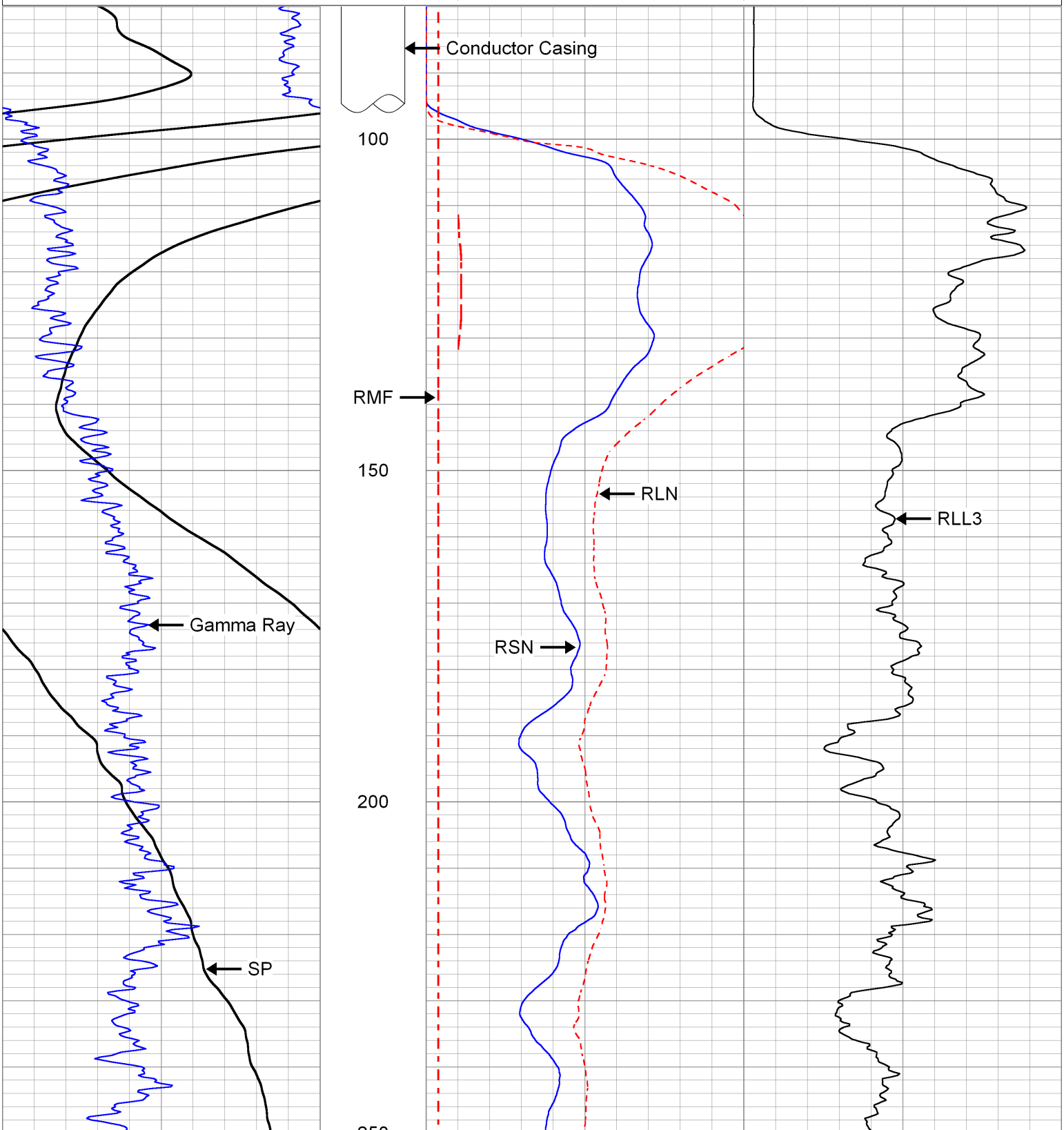
Serial Number:	D4	
Tool Model:	ELOG	
Performed:	Fri Jun 7 10:32:51 2024	
Calibrator Value:	162.0	GAPI
Background Reading:	124.7	cps
Calibrator Reading:	352.0	cps
Sensitivity:	0.7129	GAPI/cps

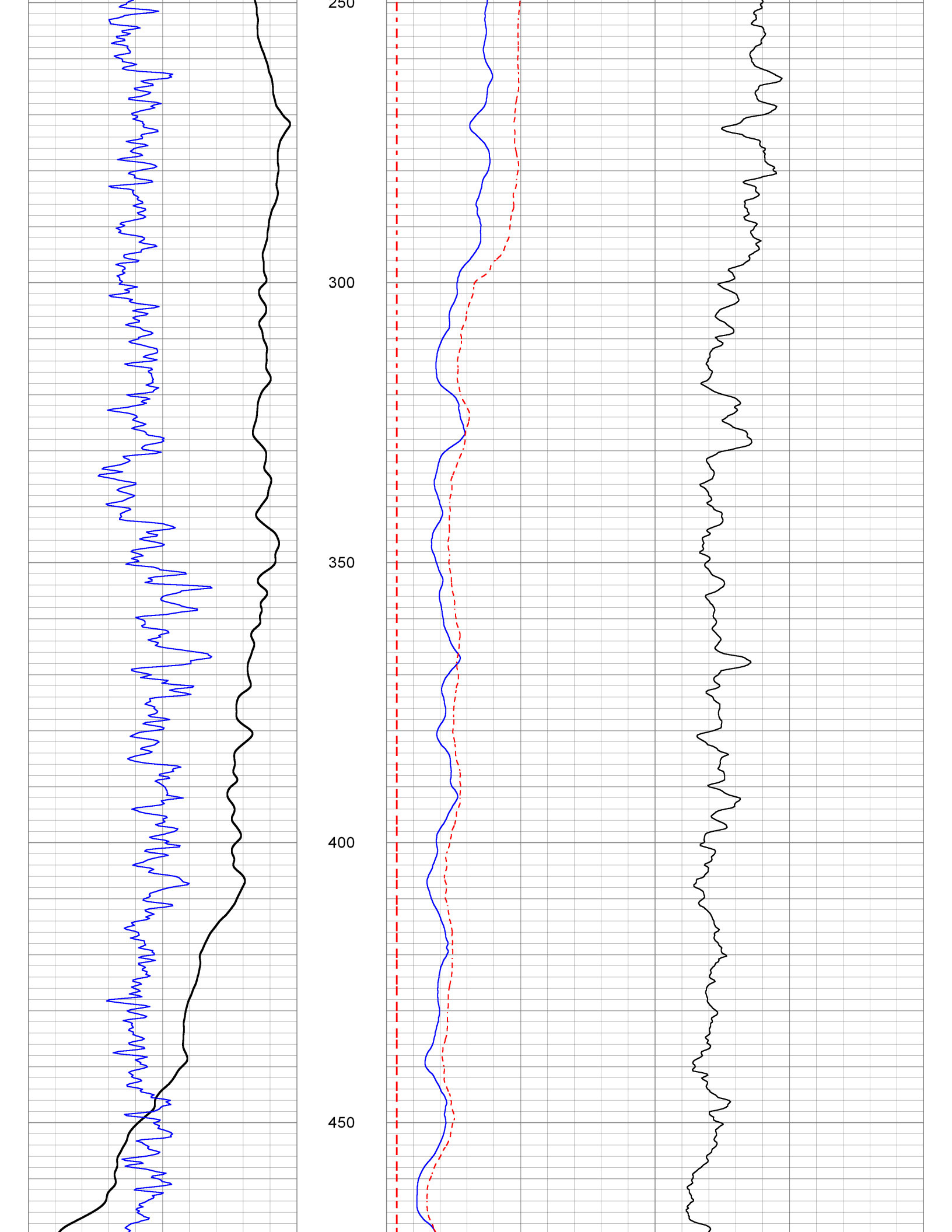
Database File	33121.db
Dataset Pathname	ELOG
Presentation Format	elog_cwa
Dataset Creation	Tue Dec 10 23:22:38 2024
Charted by	Depth in Feet scaled 1:240

-40	SP (mV)	60
100	Gamma-Ray (GAPI)	350

0	RSN (Ohm-m)	200
0	RLN (Ohm-m)	200
0	RMF (Ohm-m)	200
200	RSN x 10 (Ohm-m)	2000
200	RLN x 10 (Ohm-m)	2000

0	RLL3 (Ohm-m)	200
200	RLL3 x 10 (Ohm-m)	2000

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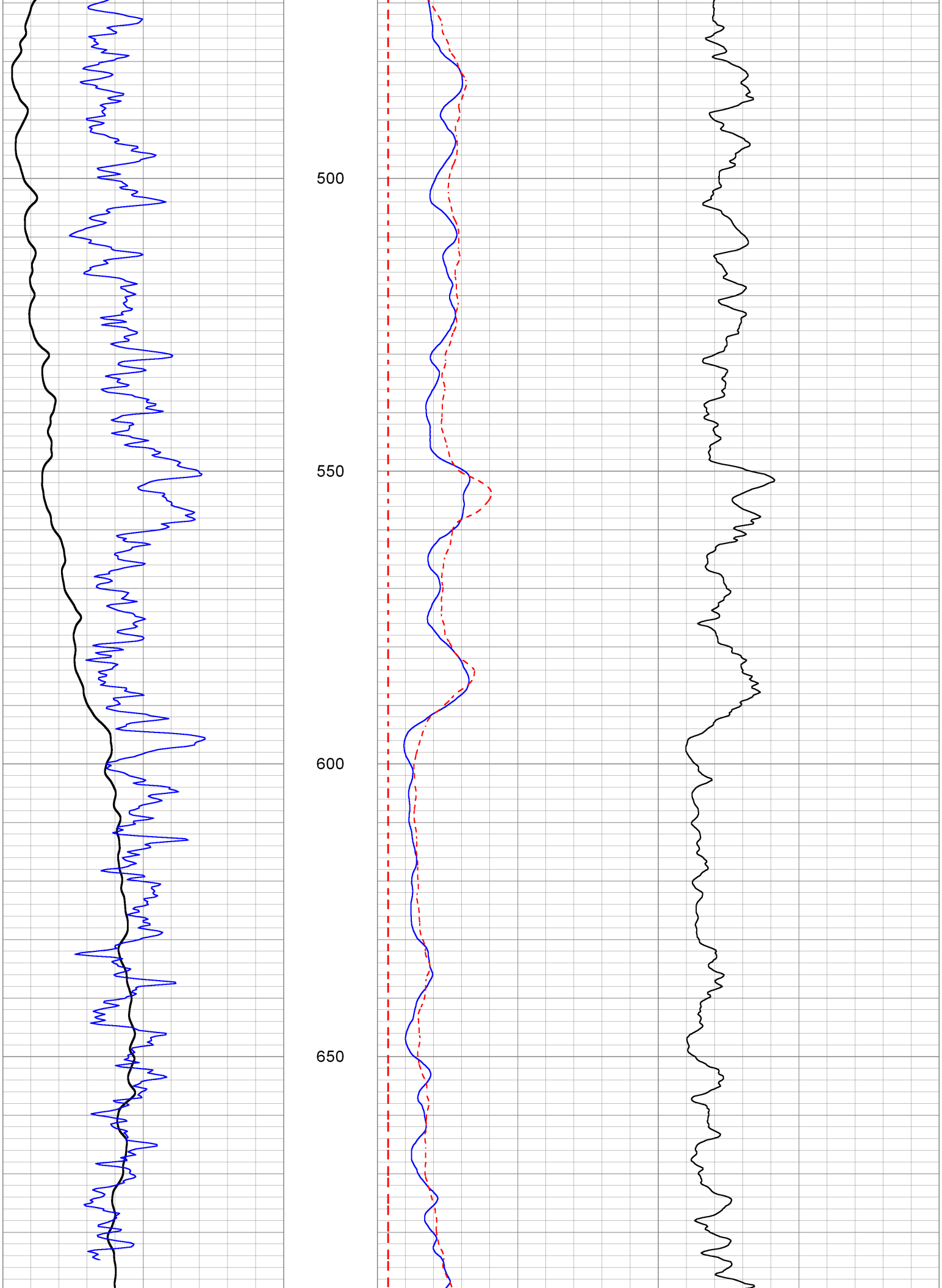
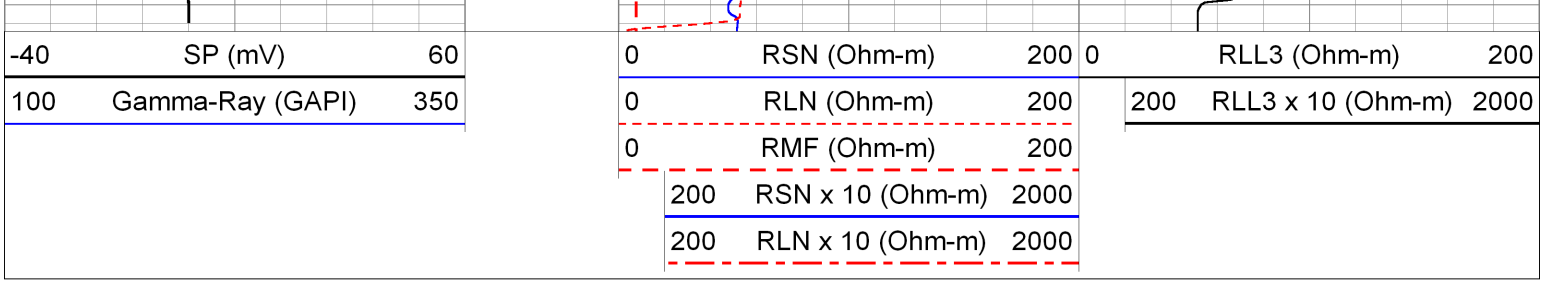
300
350
400
450


500
550
600
650



Log Variables

DatabaseC:\ProgramData\Warrior\Data\33121.db
Dataset field/well/run1/ELOG/_vars_

Top - Bottom

BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	PERFS	RM_MEAS_R Ohm-m	RM_MEAS_T degF
17.5	78	5.5	0	No	7.8	70

RMF Ohm-m	RSH Ohm-m	SPSHIFT mV	SRFTEMP degF	TDEPTH ft	TempGrad degF/ft
7.6	20	0	60	690	0.01235

Variable Description

BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
PERFS : Perforation Flag
RM_MEAS_R : Mud Resistivity Measured
RM_MEAS_T : Mud Temperature Measured
RMF : Resistivity of Mud Filtrate
RSH : Resistivity of Shale
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
TDEPTH : Total Depth
TempGrad : Temperature Gradient

Filter Report

Database File 33121.db
Dataset Pathname ELOG
Dataset Creation Tue Dec 10 23:22:38 2024

Filter Name	Filter Type	Filter Length (ft)
LSPD	Gaussian	10.00
LTEN	None	
LSPDRT	None	
IEE	None	
VSN	None	
VLN	None	
SP	Gaussian	5.00
RSN	Gaussian	2.00
RLN	Gaussian	3.00
SPR	Gaussian	1.00
GR	Gaussian	2.00
HVOLT	Gaussian	1.00
INCL	None	
AZI	None	
ROLL	None	
MAG ROLL	None	
ACC TOTAL	None	
MTEMP	None	
Cwa	Triangle	4.00

PACIFIC SURVEYS

LATEROLOG 3
GAMMA-RAY

Job No. 33121

File No.

Company LAYNE

Well CITY OF PASADENA EXPLORER WELL

Field ALTADENA

County LOS ANGELES State CA

Location:
JPL BRIDGE
EXPLORER RD
GPS: 34.2002451 , -118.1658108
Sec. Twp. Rge.

Other Services:
DEVIATION
ELOG

Permanent Datum	G.L.	Elevation above perm. datum	Elevation K.B. D.F. G.L.
Log Measured From	G.L. 0'		
Drilling Measured From	G.L.		

Date	12/10/2024		
Run Number	ONE		
Depth Driller	690'		
Depth Logger	693'		
Bottom Logged Interval	693'		
Top Log Interval	80'		
Casing Driller	36"@96'		
Casing Logger	96'		
Bit Size	17.5"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	8.8 / 33		
pH / Fluid Loss	8 / 13		
Source of Sample	BORE		
Rm @ Meas. Temp	7.8 @ 70 Degf		
Rmf @ Meas. Temp	7.6 @ 70 DegF		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	N/A		
Time Circulation Stopped	6:00 PM		
Time Logger on Bottom	12:00 AM(12/11/2024)		
Max. Recorded Temperature	N/A		
Equipment Number	PS-17		
Location	L.A.		
Recorded By	D. NAISAN		
Witnessed By	E. VIRAMONTES		

<<< Fold Here >>>

Comments

Calibration Report

Database File 33121.db
Dataset Pathname LL3
Dataset Creation Wed Dec 11 00:02:21 2024

Gamma Ray Calibration Report

Serial Number:	12	
Tool Model:	GROH	
Performed:	Tue Sep 8 16:48:35 2015	
Calibrator Value:	162.0	GAPI
Background Reading:	54.1	
Calibrator Reading:	193.3	
Sensitivity:	1.1641	GAPI/

RLL3 (Resistivity Laterolog 3) Calibration Report:

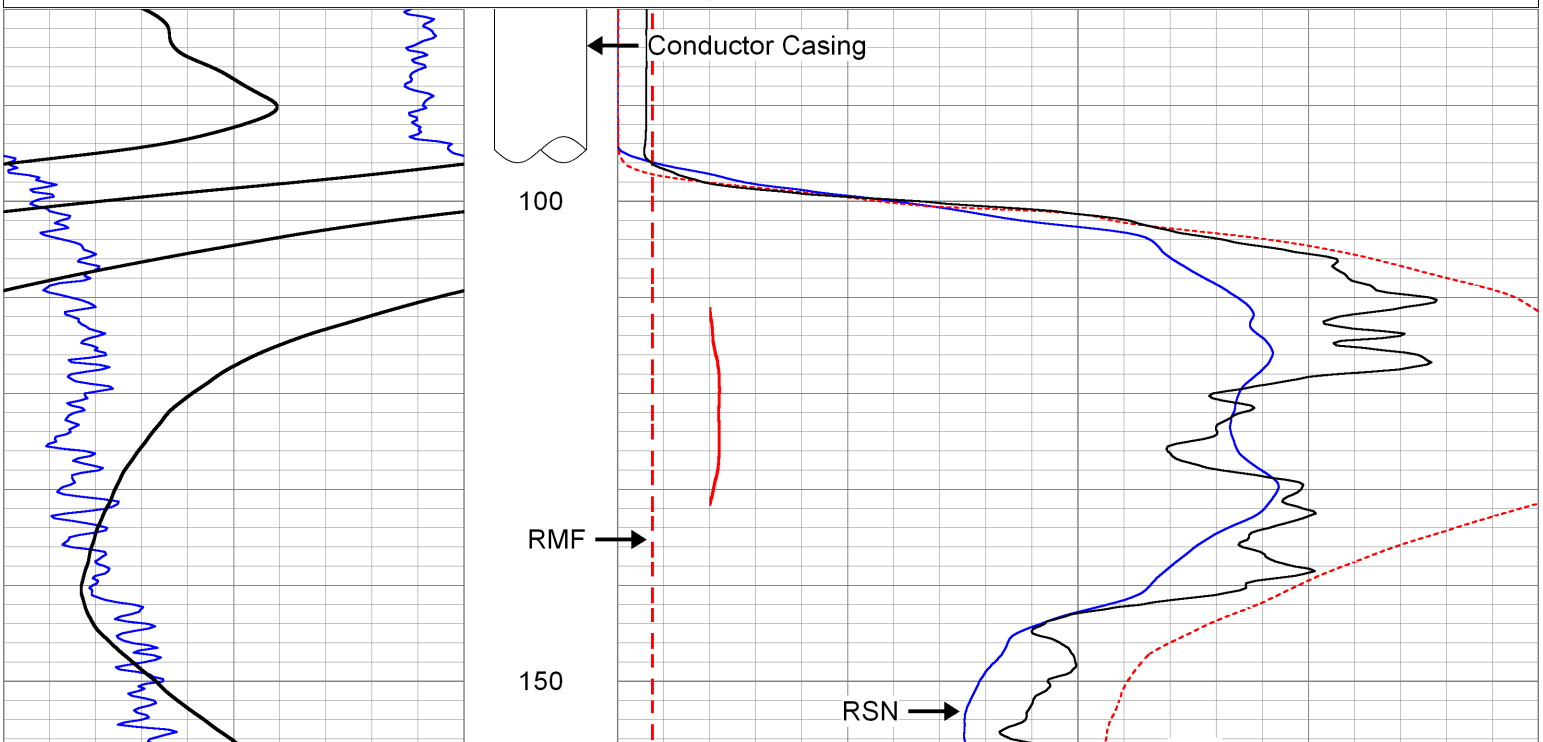
Serial Number:	47_Craig
Tool Model:	M&W
Performed:	Mon Oct 7 15:42:19 2024

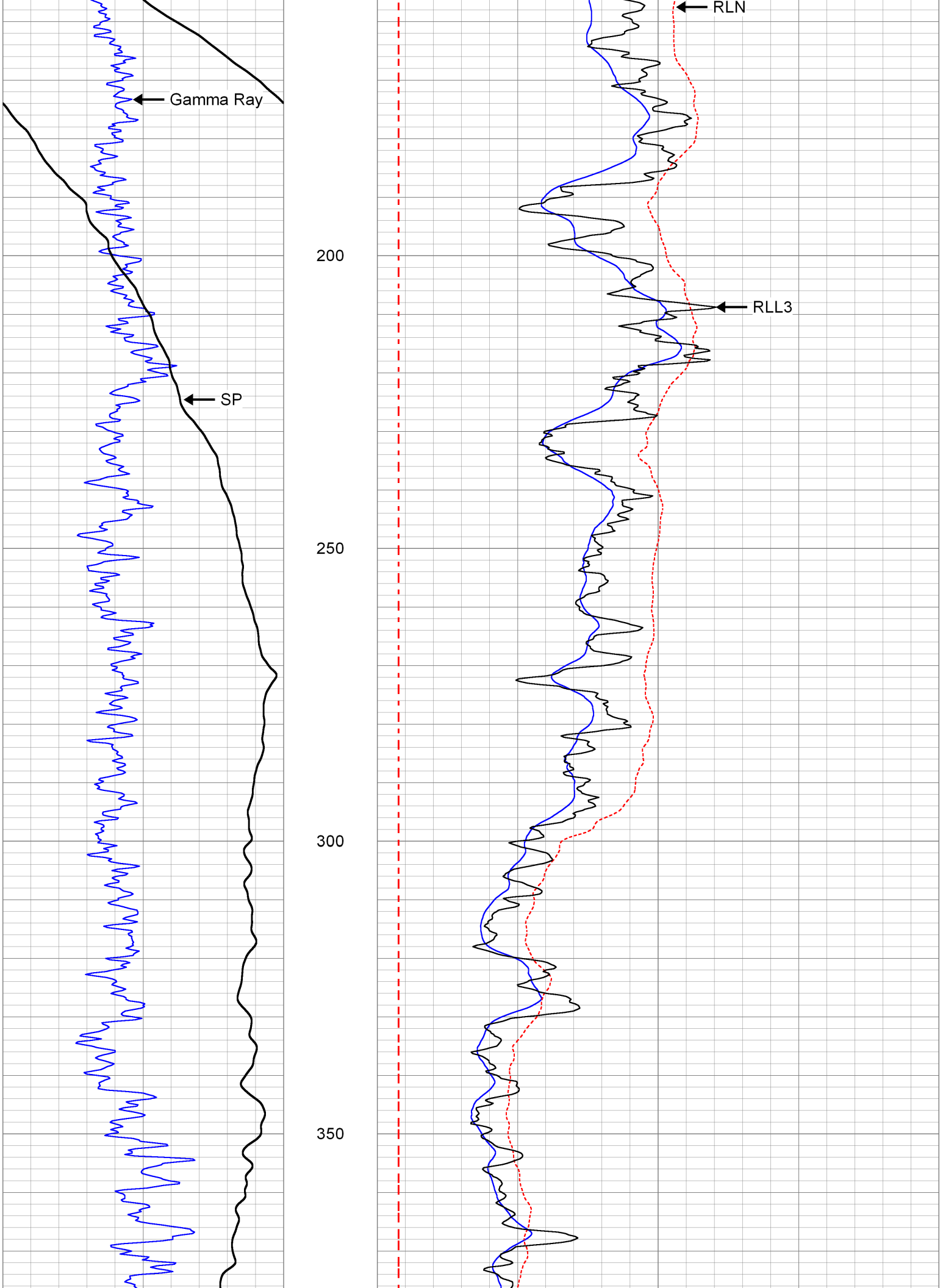
System Reading	Calibration Reference	
0.006	2.500	Ohm-m
0.012	5.000	
0.118	50.000	
0.568	250.000	
1.094	500.000	

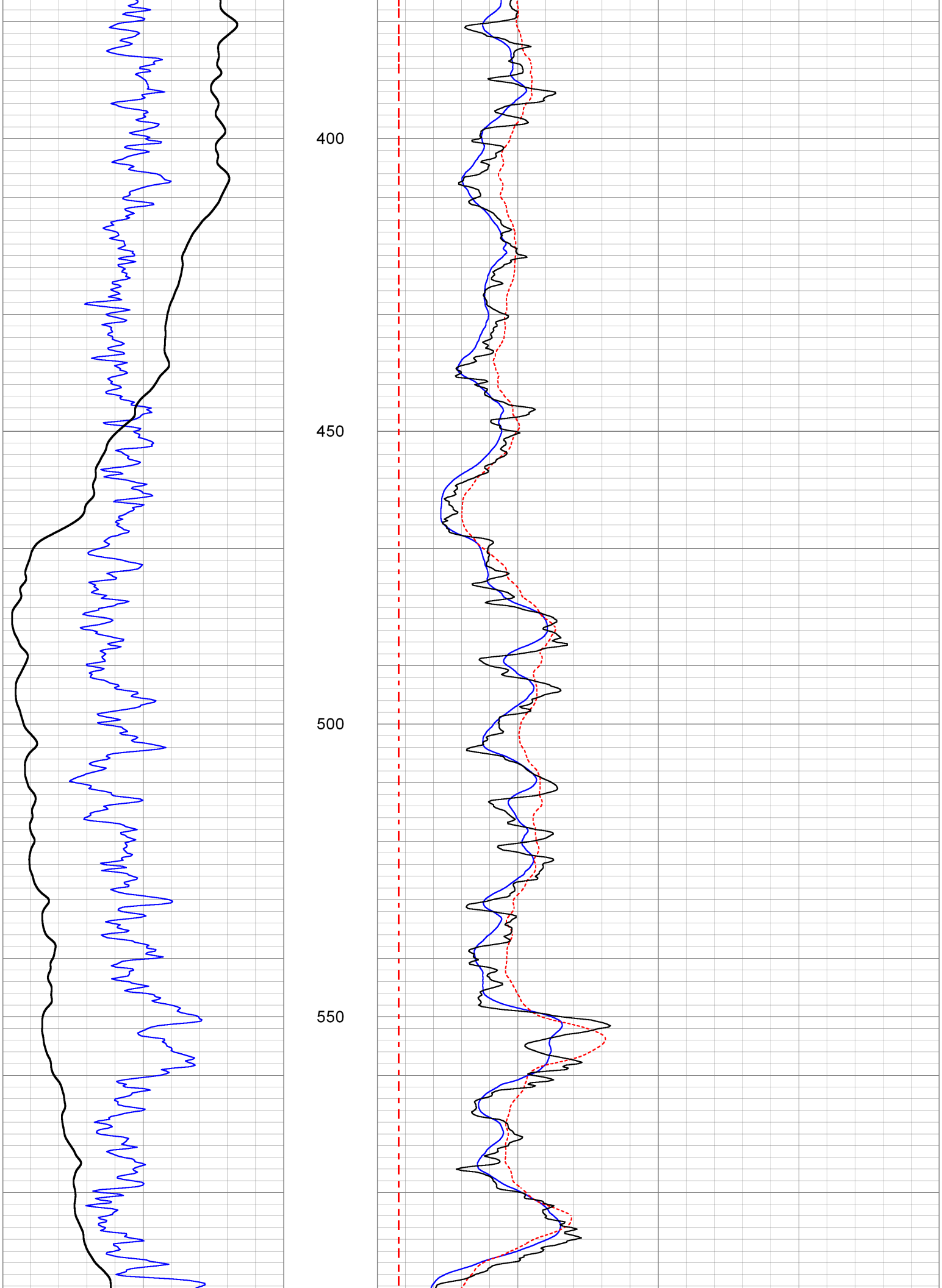
Database File	33121.db
Dataset Pathname	LL3
Presentation Format	guard
Dataset Creation	Wed Dec 11 00:02:21 2024
Charted by	Depth in Feet scaled 1:240

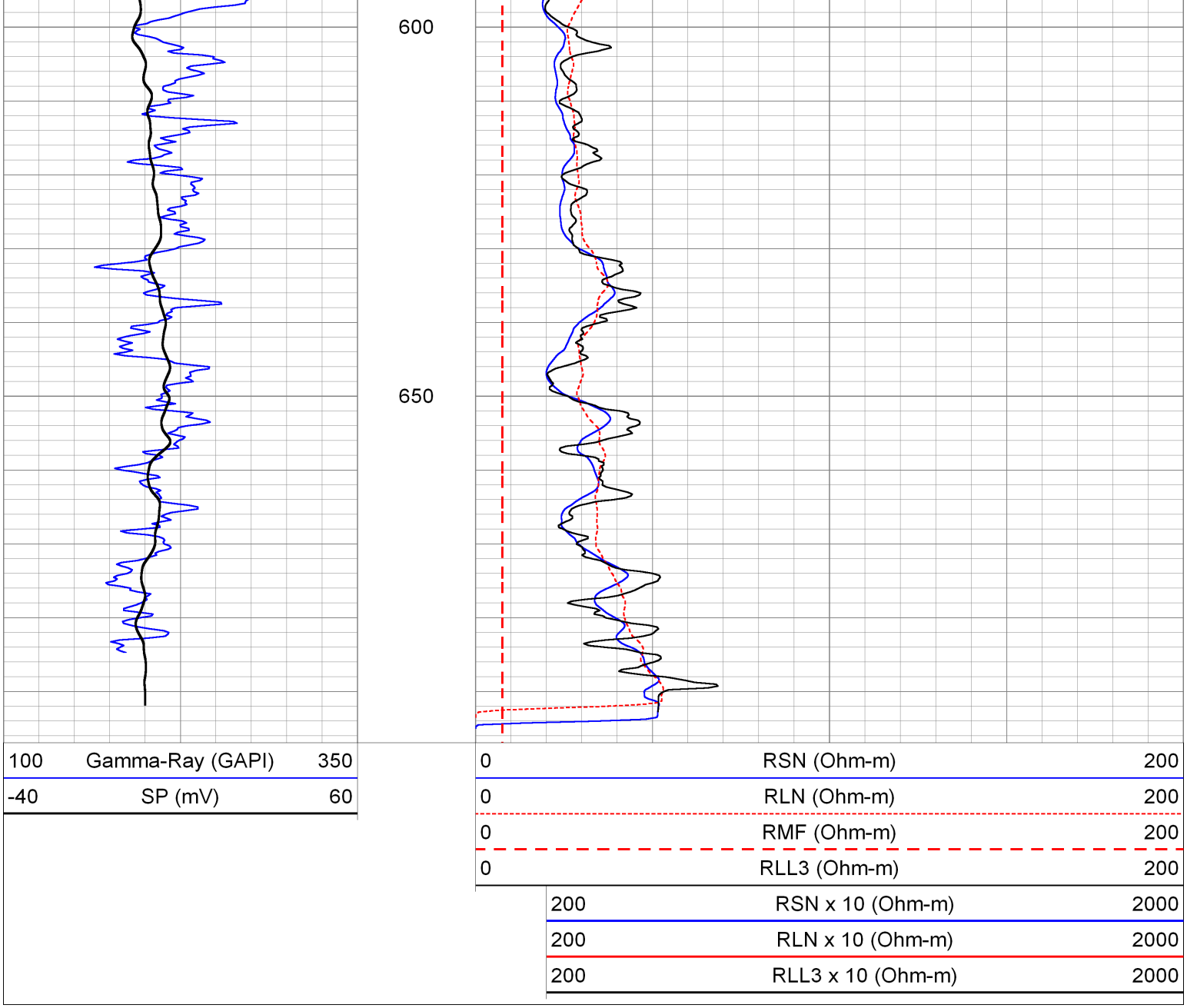
100	Gamma-Ray (GAPI)	350
-40	SP (mV)	60

0	RSN (Ohm-m)	200
0	RLN (Ohm-m)	200
0	RMF (Ohm-m)	200
0	RLL3 (Ohm-m)	200
200	RSN x 10 (Ohm-m)	2000
200	RLN x 10 (Ohm-m)	2000
200	RLL3 x 10 (Ohm-m)	2000




Gamma Ray
SP
200
250
300
350
RLN
RLL3


400
450
500
550



Log Variables

DatabaseC:\ProgramData\Warrior\Data\33121.db
Dataset field/well/run1/LL3/_vars_

Top - Bottom

BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	PERFS	RM_MEAS_R Ohm-m	RM_MEAS_T degF
17.5	78	5.5	0	No	7.8	70

RMF Ohm-m	RSH Ohm-m	SPSHIFT mV	SRFTEMP degF	TDEPTH ft	TempGrad degF/ft
7.6	20	0	60	690	0.01235

Variable Description

BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
PERFS : Perforation Flag
RM_MEAS_R : Mud Resistivity Measured
RM_MEAS_T : Mud Temperature Measured
RMF : Resistivity of Mud Filtrate
RSH : Resistivity of Shale
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
TDEPTH : Total Depth
TempGrad : Temperature Gradient

Filter Report

Database File 33121.db
Dataset Pathname LL3
Dataset Creation Wed Dec 11 00:02:21 2024

Filter Name	Filter Type	Filter Length
		(ft)
LSPD	Gaussian	10.00
LTEN	None	
LSPDRT	None	
GR	Triangle	2.00
RLL3	Gaussian	1.00
RMFCorr	Triangle	4.00

PACIFIC SURVEYS

CALIPER
BOREHOLE VOLUMES

Job No. 32247

Company LAYNE

Well CITY OF PASADENA EXPLORER WELL

Field ALTADENA

County LOS ANGELES State CA

File No.

Location:
JPL BRIDGE
EXPLORER RD
GPS: 34.2002451 -118.1658108
Sec. Twp. Rge.

Other Services:
NONE

Permanent Datum G.L. Elevation
Log Measured From G.L. 0' above perm. datum K.B.
Drilling Measured From G.L. D.F.
G.L.

Elevation

Date	3/19/2025
Run Number	ONE
Depth Driller	680'
Depth Logger	680'
Bottom Logged Interval	680'
Top Log Interval	0'
Type Caliper	3 ARM
Type Fluid in Hole	BENTONITE
Density / Viscosity	8.3 / 32
Max. Recorded Temp.	N/A
pH/Fluid Loss	N/A
Time Well Ready	7:30 PM
Time Logger on Bottom	7:45 PM
Equipment Number	PS-14
Location	L.A.
Recorded By	ABREAU
Witnessed By	PRATT / ROLFE

Borehole Record

Run Number	Bit	From	To
ONE	32"	96'	443'
TWO	28"	443'	680'

Gravel Feed/Tubing Schedule

Size	Type	From	To
4"	GRAVEL	0'	343'
3"	SOUNDING	0'	345'
4"	GRAVEL	0'	433'

Casing Schedule

	Size	Wgt/Ft	Top	Bottom
Surface String	36" OD	N/A	0'	96'
Production String	18" ID	.3125" WALL	0'	670'
Production String				
Production String				
Production String				

<<< Fold Here >>>

Comments

CASING: 18" ID x 0.3125" WALL SST
PERFORATIONS: SST FUL-FLO FROM 350'-390', 440'-650'

Calibration Report

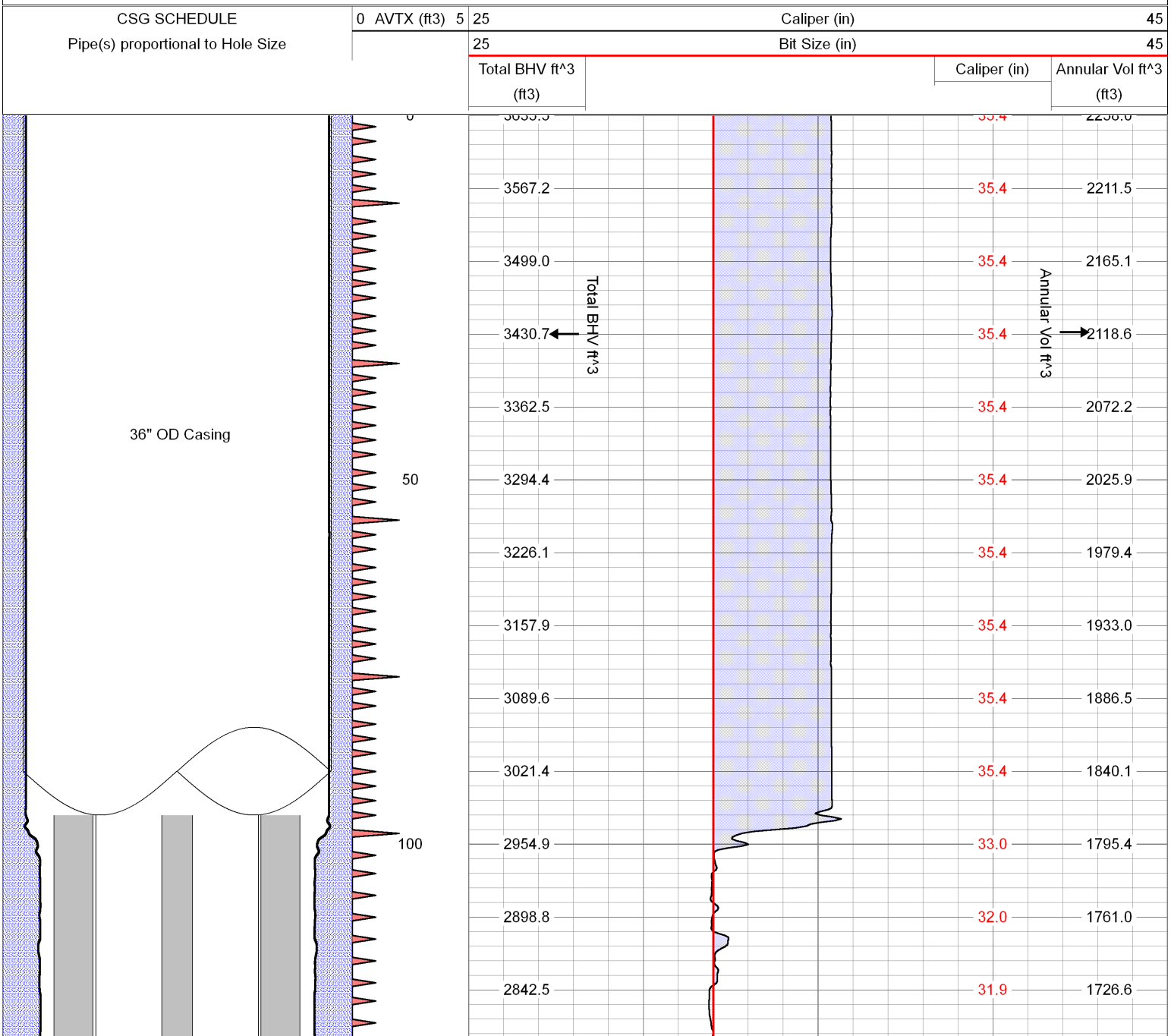
Database File	32247.db
Dataset Pathname	CALIPER
Dataset Creation	Wed Mar 19 20:18:12 2025

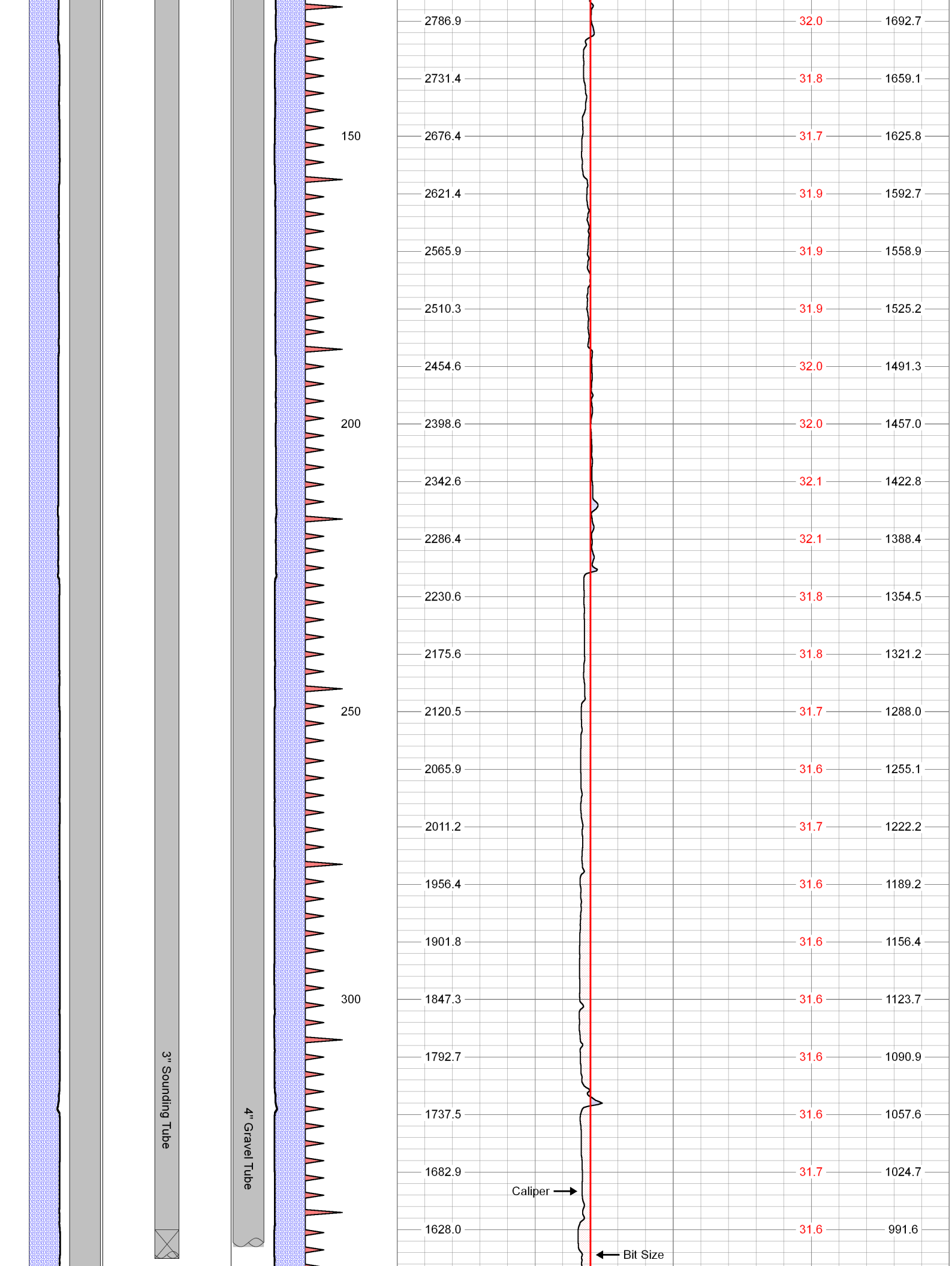
XY Caliper Calibration Report

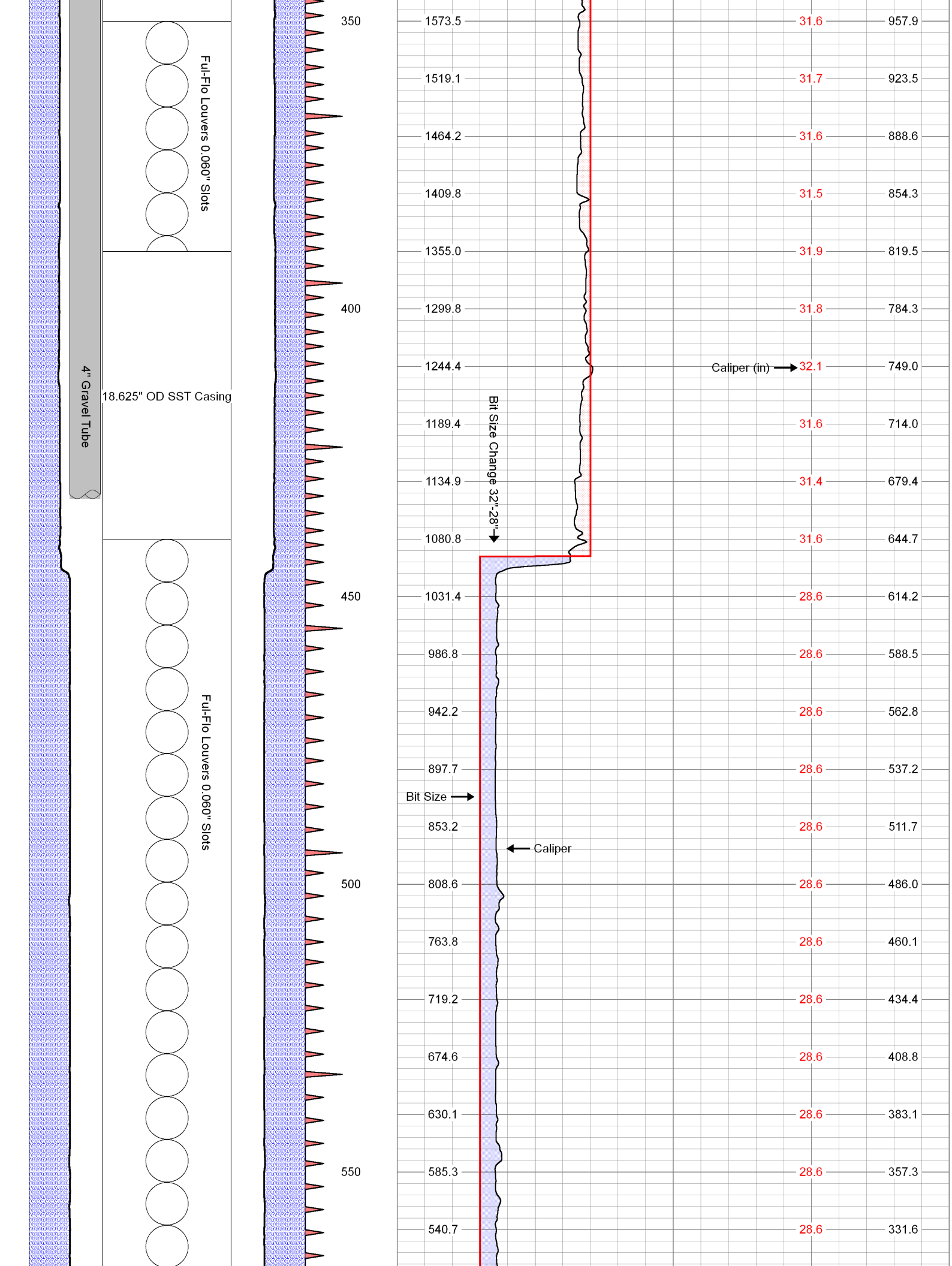
Serial Number/Model:	Cal-3 Long-Comprobe
Performed:	Wed Jan 22 14:42:50 2025

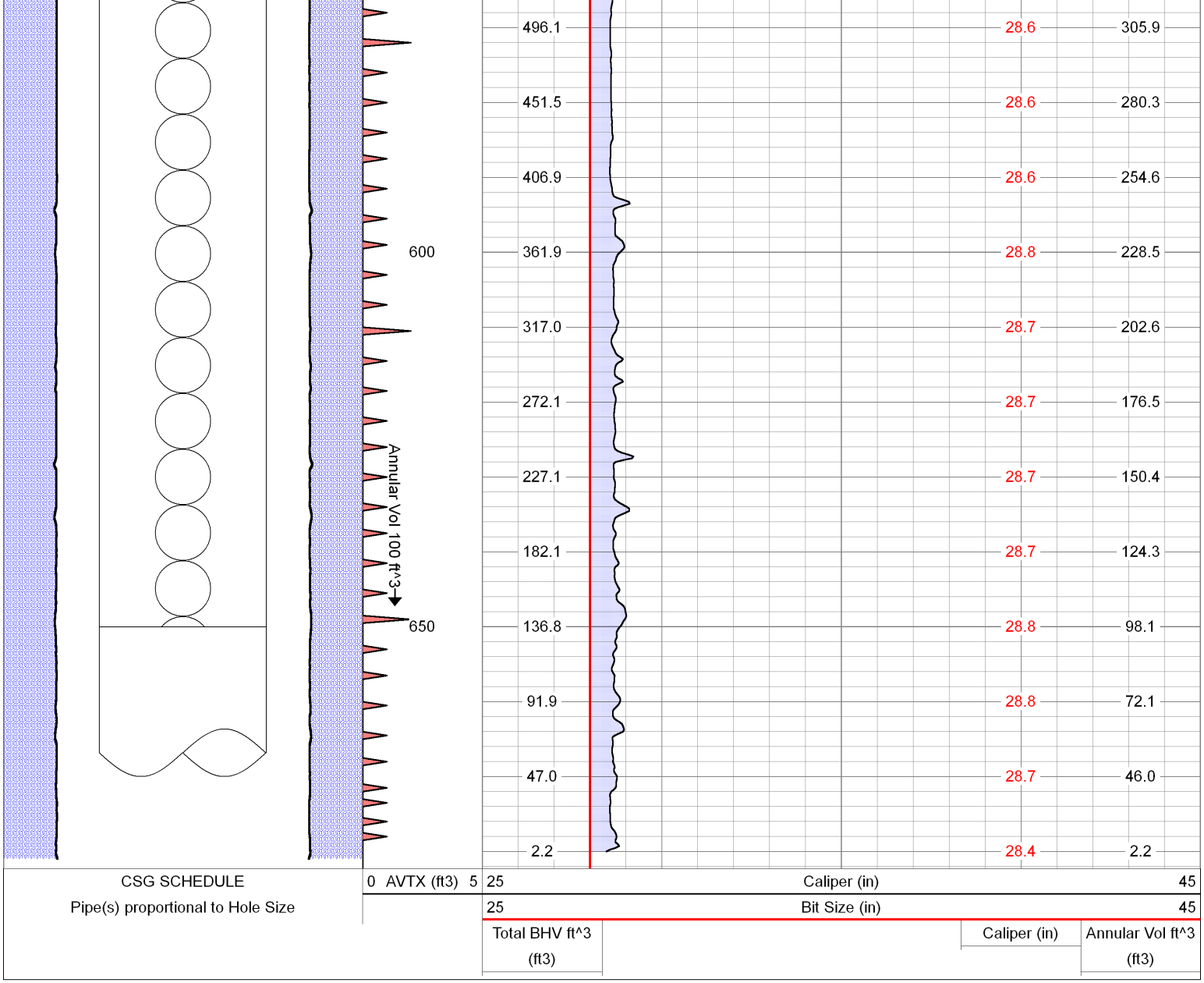
	Ring		X Caliper		Y Caliper	
1:	14.00	in	355.42	cps	355.42	cps
2:	20.00	in	468.28	cps	468.28	cps
3:	26.00	in	581.53	cps	581.53	cps
4:	32.00	in	694.89	cps	694.89	cps
5:	38.00	in	808.46	cps	808.46	cps
6:	44.00	in	943.49	cps	943.49	cps
7:		in		cps		cps
8:		in		cps		cps
9:		in		cps		cps
10:		in		cps		cps

Database File	32247.db
Dataset Pathname	CALIPER
Presentation Format	xyc_gph_final
Dataset Creation	Wed Mar 19 20:18:12 2025
Charted by	Depth in Feet scaled 1:240




150
200
250
300
2786.9
32.0
1692.7
2731.4
31.8
1659.1
2676.4
31.7
1625.8
2621.4
31.9
1592.7
2565.9
31.9
1558.9
2510.3
31.9
1525.2
2454.6
32.0
1491.3
2398.6
32.0
1457.0
2342.6
32.1
1422.8
2286.4
32.1
1388.4
2230.6
31.8
1354.5
2175.6
31.8
1321.2
2120.5
31.7
1288.0
2065.9
31.6
1255.1
2011.2
31.7
1222.2
1956.4
31.6
1189.2
1901.8
31.6
1156.4
1847.3
31.6
1123.7
1792.7
31.6
1090.9
1737.5
31.6
1057.6
1682.9
31.7
1024.7
Caliper
1628.0
31.6
991.6
Bit Size
3" Sounding Tube
4" Gravel Tube


Ful-Flo Louvers 0.060" Slots
4" Gravel Tube
18.625" OD SST Casing
Ful-Flo Louvers 0.060" Slots
350
400
450
500
550
1573.5
1519.1
1464.2
1409.8
1355.0
1299.8
1244.4
1189.4
1134.9
1080.8
1031.4
986.8
942.2
897.7
853.2
808.6
763.8
719.2
674.6
630.1
585.3
540.7
31.6
31.7
31.6
31.5
31.9
31.8
32.1
31.6
31.4
31.6
28.6
28.6
28.6
28.6
28.6
28.6
28.6
28.6
28.6
28.6
28.6
957.9
923.5
888.6
854.3
819.5
784.3
749.0
714.0
679.4
644.7
614.2
588.5
562.8
537.2
511.7
486.0
460.1
434.4
408.8
383.1
357.3
331.6
Caliper (in)
Bit Size Change 32"-28"
Bit Size
Caliper



Log Variables

DatabaseC:\ProgramData\Warrior\Data\32247.db
Dataset field/well/run1/CALIPER/_vars_

Top - 343.00 ft

BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	PERFS	SRFTEMP degF	TDEPTH ft
32	100	19.991	0	No	0	343

343.00 ft - 345.00 ft

BOREID in	BOTTEMP degF	**CASEOD in**	CASETHCK in	PERFS	SRFTEMP degF	**TDEPTH ft**
32	100	**19.478**	0	No	0	**345**

345.00 ft - 433.00 ft

BOREID in	BOTTEMP degF	**CASEOD in**	CASETHCK in	PERFS	SRFTEMP degF	**TDEPTH ft**
32	100	**19.1609**	0	No	0	**433**

433.00 ft - 443.00 ft

BOREID	BOTTEMP	**CASEOD**	CASETHCK	PERFS	SRFTEMP	**TDEPTH**

BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	PERFS	SRFTEMP degF	TDEPTH ft
32	100	**18.625**	0	No	0	**443**

443.00 ft - 670.00 ft

BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	PERFS	SRFTEMP degF	**TDEPTH ft**
28	100	18.625	0	No	0	**670**

670.00 ft - Bottom

BOREID in	BOTTEMP degF	**CASEOD in**	CASETHCK in	PERFS	SRFTEMP degF	**TDEPTH ft**
28	100	**0**	0	No	0	**680**

Variable Description

BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
PERFS : Perforation Flag
SRFTEMP : Surface Temperature
TDEPTH : Total Depth

Filter Report

Database File 32247.db
Dataset Pathname CALIPER
Dataset Creation Wed Mar 19 20:18:12 2025

Filter Name	Filter Type	Filter Length (ft)
LSPD	Gaussian	10.00
LTEN	None	
LSPDRT	None	
XCAL	Gaussian	2.00
YCAL	Gaussian	2.00
Radius	Gaussian	2.00

PACIFIC SURVEYS

1.687 IN SPINNER
DOWN RUNS
PUMPING CONDITIONS

Job No. 33429

File No.

Company LAYNE

Well CITY OF PASADENA EXPLORER WELL

Field ALTADENA

County LOS ANGELES State CA

Location:
JPL BRIDGE
EXPLORER RD
GPS: 34.2002451 -118.1658108
Sec. Twp. Rge.

Other Services:
STOP COUNTS
SPINNER ANALYSIS

			Elevation
Permanent Datum	G.L.	Elevation above perm. datum	K.B.
Log Measured From	G.L. 0'		D.F.
Drilling Measured From	G.L.		G.L.

Date	4/29/2025		
Run Number	ONE		
Depth Driller	670'		
Depth Logger	660'		
Bottom Logged Interval	660		
Top Log Interval	300'		
Pump Set @	330'		
Time Pumping Prior to Survey	20 HRS		
Pumping Water Level	266'		
Max. Recorded Temp.	N/A		
Pump Rate (GPM)	483 GPM		
Time Well Ready	4:30 AM		
Time Logger on Bottom	5:00 AM		
Equipment Number	PS-9		
Location	L.A.		
Recorded By	D. NAISAN		
Witnessed By	----		

Perforation Record				Perforation Record			
Type	Slot Size	From	To	Type	Slot Size	From	To
FUL-FLO	0.060"	390'	390'				
FUL-FLO	0.060"	440'	650'				

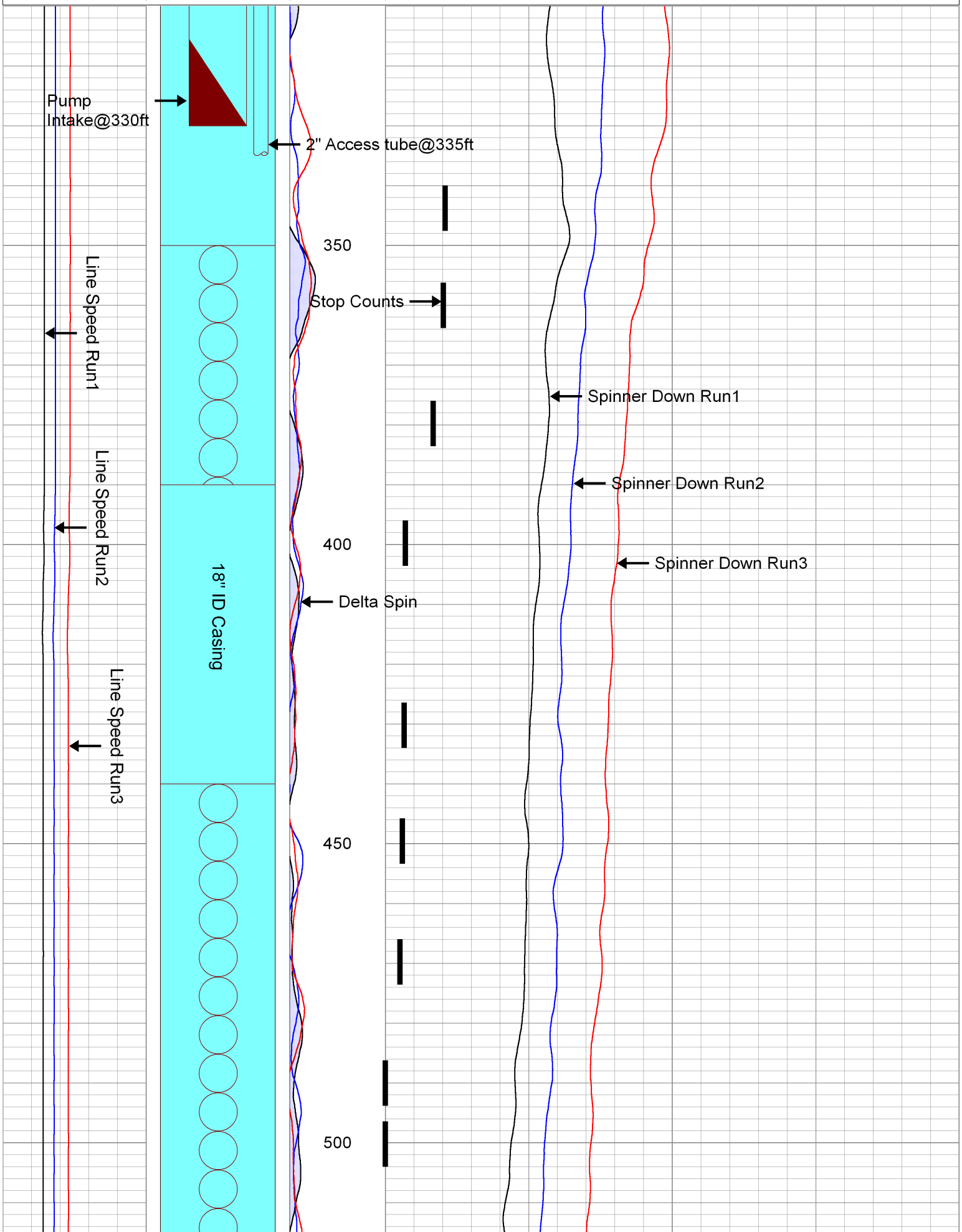
Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	36" OD	N/A	0'	96'
Camera Tube	18" ID	.3125" WALL	0'	670'
Production String				
Liner				

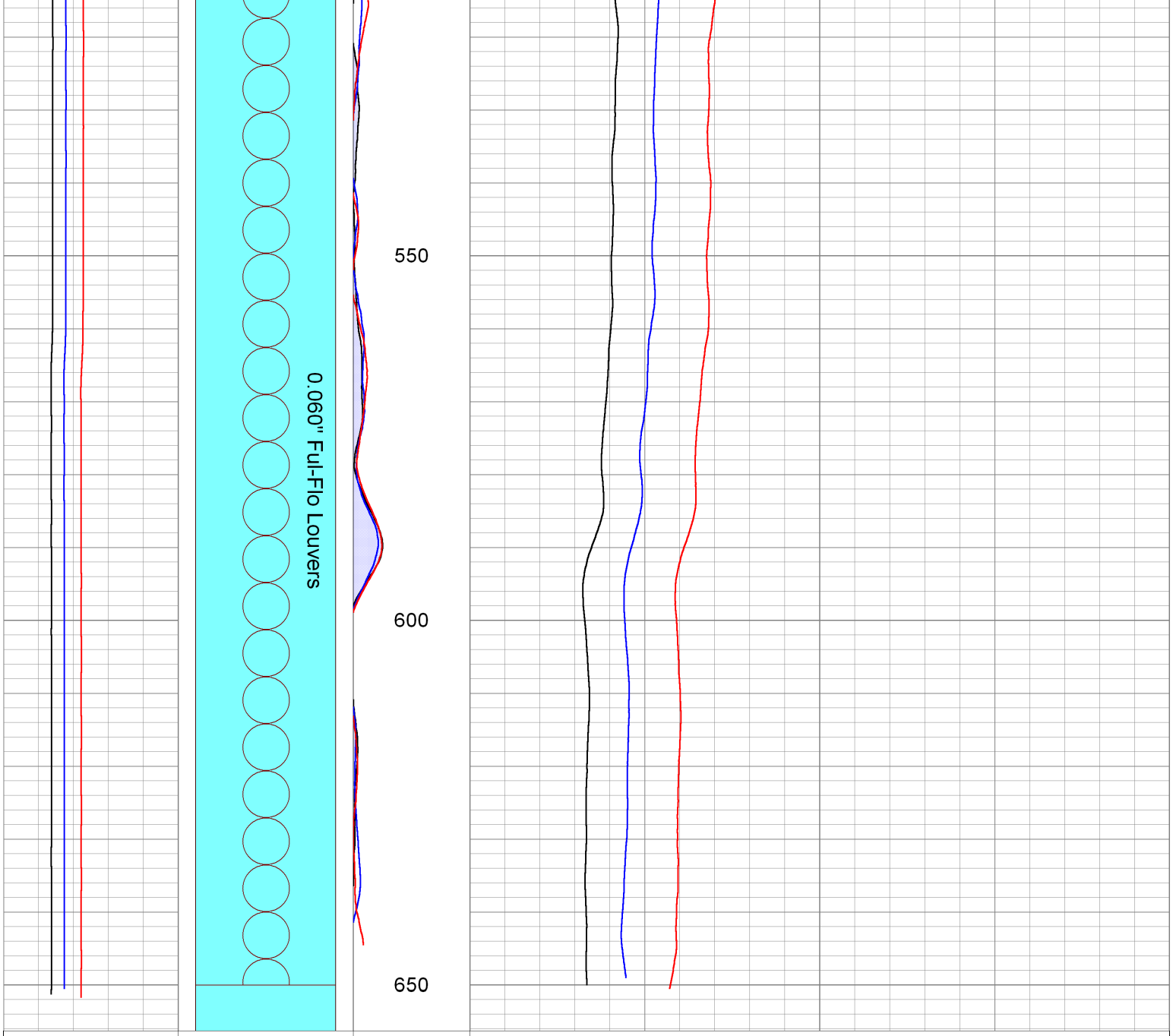
<<< Fold Here >>>

Comments

Database File c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname SPN.1
Presentation Format spinmerg
Dataset Creation Tue Apr 29 06:55:01 2025
Charted by Depth in Feet scaled 1:240

0	LS (ft/min)200	Delta Spin	0	Spinner Down Run (cps)	100
0	LS (ft/min)200	Delta Spin	0	Spinner Down Run (cps)	100
0	LS (ft/min)200	Delta Spin	0	Spinner Down Run (cps)	100





0	LS (ft/min)200		Delta Spin	0	Spinner Down Run (cps)	100
0	LS (ft/min)200		Delta Spin	0	Spinner Down Run (cps)	100
0	LS (ft/min)200		Delta Spin	0	Spinner Down Run (cps)	100

Filter Report

Database File c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname SPN.1
Dataset Creation Tue Apr 29 06:55:01 2025

Filter Name	Filter Type	Filter Length
		(ft)
LSPD	Gaussian	10.00
LTEN	Gaussian	6.00
LSPDRT	None	
FLOWP	Triangle	12.00
FLOWN	Triangle	4.00

PACIFIC SURVEYS

1.687 IN SPINNER STOP COUNTS PUMPING CONDITIONS

Job No. 33429

File No.

Company LAYNE

Well CITY OF PASADENA EXPLORER WELL

Field ALTADENA

County LOS ANGELES State CA

Location:
JPL BRIDGE
EXPLORER RD
GPS: 34.2002451 -118.1658108
Sec. Twp. Rge.

Other Services:
DOWN RUNS
SPINNER ANALYSIS

			Elevation
Permanent Datum	G.L.	Elevation above perm. datum	K.B.
Log Measured From	G.L. 0'		D.F.
Drilling Measured From	G.L.		G.L.

Date	4/29/2025		
Run Number	ONE		
Depth Driller	670'		
Depth Logger	660'		
Bottom Logged Interval	660		
Top Log Interval	300'		
Pump Set @	330'		
Time Pumping Prior to Survey	20 HRS		
Pumping Water Level	266'		
Max. Recorded Temp.	N/A		
Pump Rate (GPM)	483 GPM		
Time Well Ready	4:30 AM		
Time Logger on Bottom	5:00 AM		
Equipment Number	PS-9		
Location	L.A.		
Recorded By	D. NAISAN		
Witnessed By	----		

Perforation Record				Perforation Record			
Type	Slot Size	From	To	Type	Slot Size	From	To
FUL-FLO	0.060"	390'	390'				
FUL-FLO	0.060"	440'	650'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	36" OD	N/A	0'	96'
Camera Tube	18" ID	.3125" WALL	0'	670'
Production String				
Liner				

<<< Fold Here >>>

Comments

Database File c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname STOP@340
Presentation Format spnstop
Dataset Creation Tue Apr 29 05:26:49 2025
Charted by Time scaled 30/hour

Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop
0	344			10.2
60	344			9.8
120	344			11.2
				7.5
				10.0
Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop

Database File	c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname	STOP@360
Presentation Format	spnstop
Dataset Creation	Tue Apr 29 05:30:34 2025
Charted by	Time scaled 30/hour

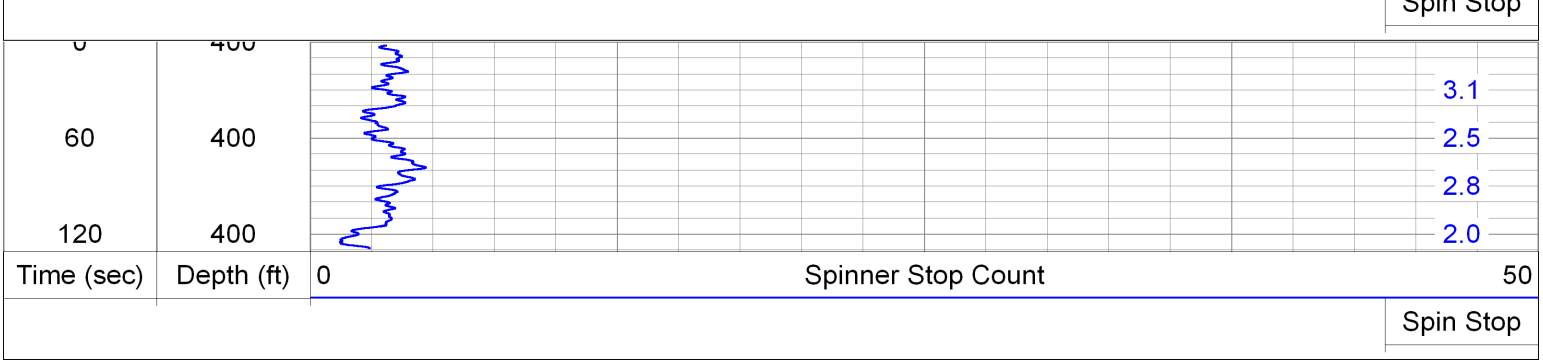
Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop
0	360			7.7
60	360			9.4
120	360			7.6
				10.2
Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop

Database File	c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname	STOP@380
Presentation Format	spnstop
Dataset Creation	Tue Apr 29 05:33:44 2025
Charted by	Time scaled 30/hour

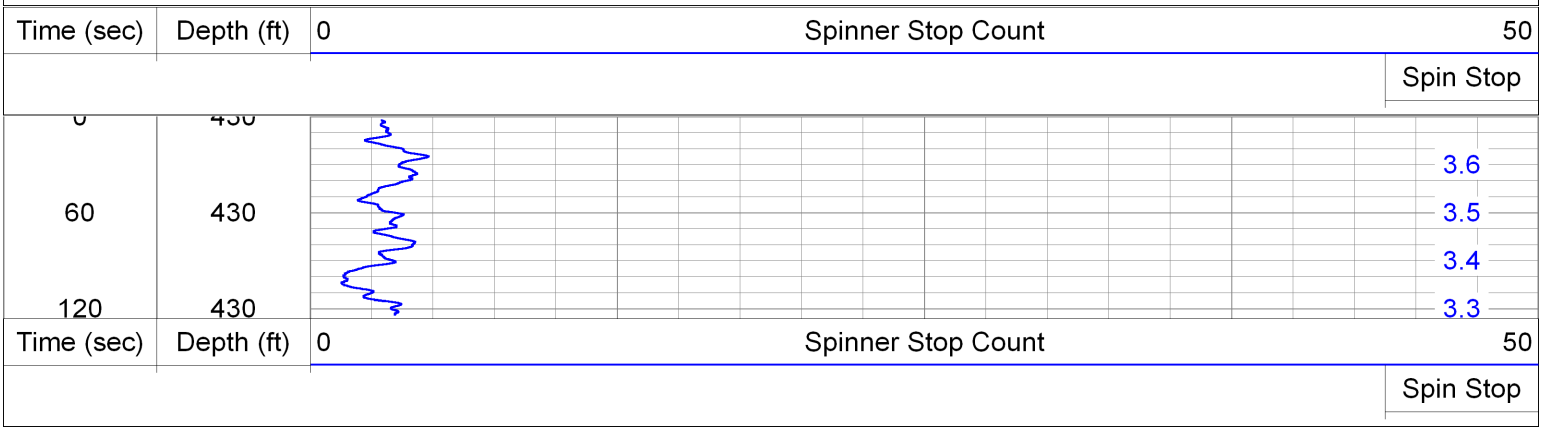
Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop
0	380			6.6
60	380			6.9
120	380			7.0
				5.3
Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop

Database File	c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname	STOP@400
Presentation Format	spnstop
Dataset Creation	Tue Apr 29 05:36:47 2025
Charted by	Time scaled 30/hour

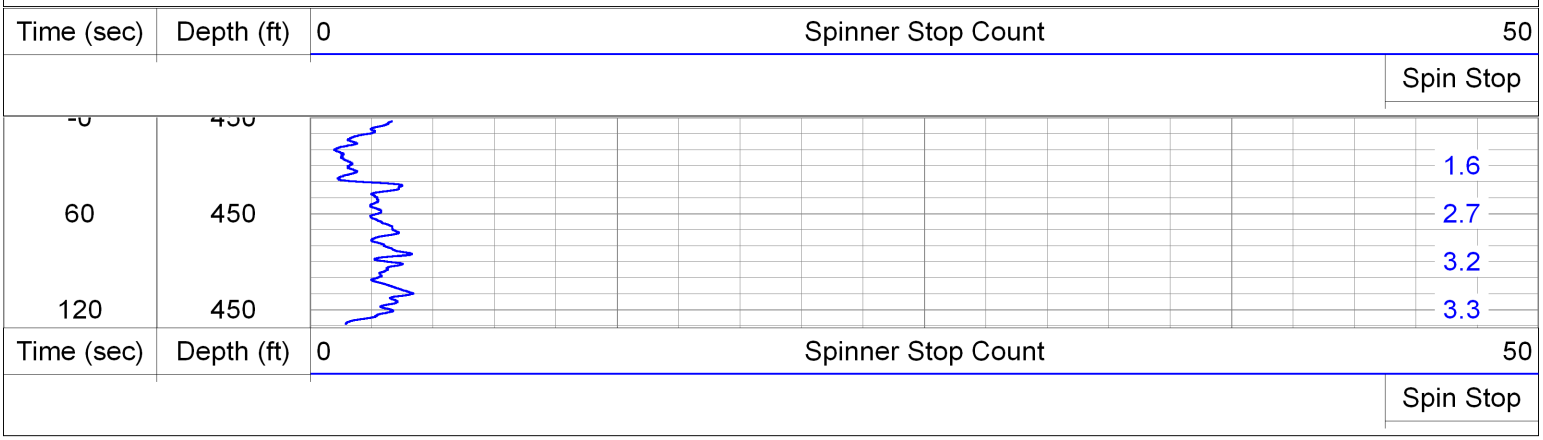
Time (sec)	Depth (ft)	0	Spinner Stop Count	50



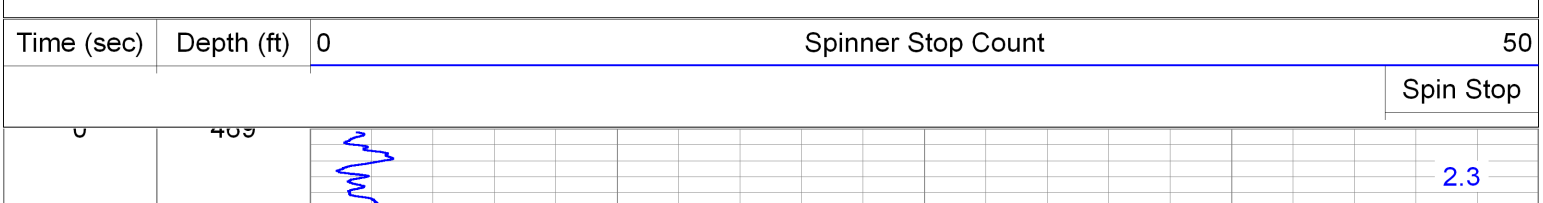
Database File	c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname	STOP@430
Presentation Format	spnstop
Dataset Creation	Tue Apr 29 05:39:51 2025
Charted by	Time scaled 30/hour

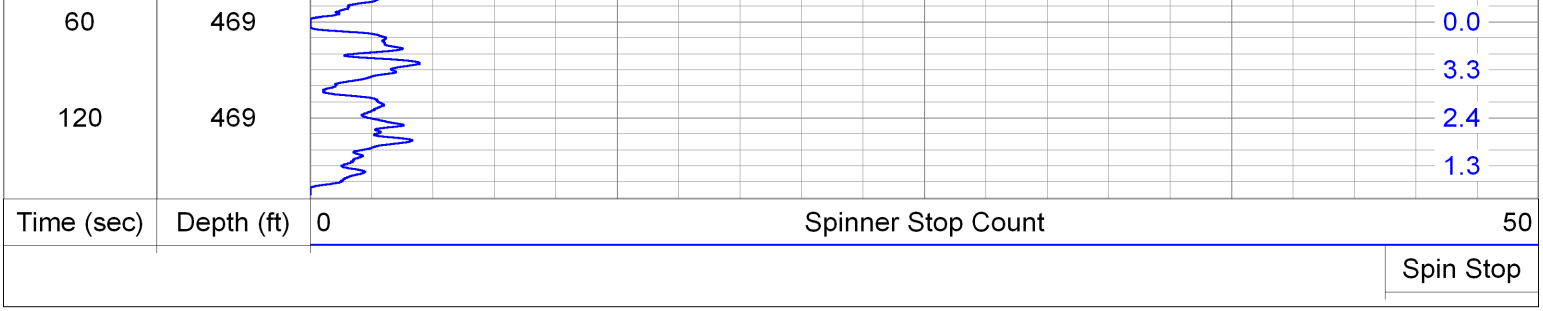


Database File	c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname	STOP@450
Presentation Format	spnstop
Dataset Creation	Tue Apr 29 05:42:43 2025
Charted by	Time scaled 30/hour



Database File	c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname	STOP@470
Presentation Format	spnstop
Dataset Creation	Tue Apr 29 05:45:30 2025
Charted by	Time scaled 30/hour

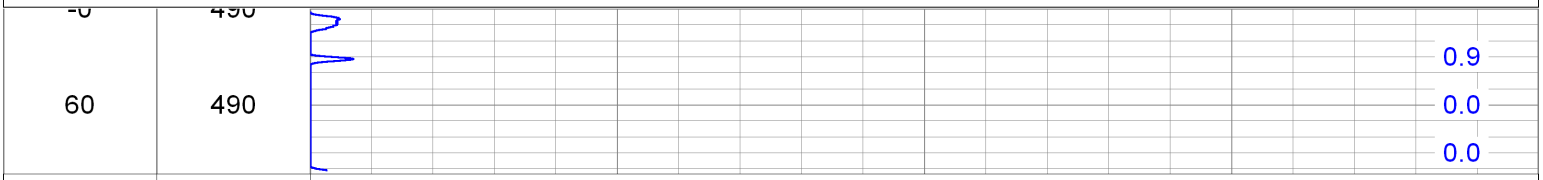




Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop

Database File	c:\users\group\onedrive\desktop\33429\33429.db
Dataset Pathname	STOP@490
Presentation Format	spnstop
Dataset Creation	Tue Apr 29 05:48:57 2025
Charted by	Time scaled 30/hour

Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop



Time (sec)	Depth (ft)	0	Spinner Stop Count	50
				Spin Stop

PACIFIC SURVEYS

GYROSCOPIC SURVEY
DOWN RUN

Job No.
33460

Company LAYNE
Well CITY OF PASADENA EXPLORER WELL
Field ALTADENA
County LOS ANGELES State CA

Location:
JPL BRIDGE
EXPLORERE ROAD
GPS: 34.2002451 -118.1658108
Sec. Twp. Rge.

Other Services:
VIDEO SURVEY

			Elevation
Permanent Datum	G.L.	Elevation above perm. datum	K.B.
Log Measured From	G.L. 0'		D.F.
Drilling Measured From	G.L.		G.L.

Date	05/12/2025		
Run Number	ONE		
Depth Driller	670'		
Depth Logger			
Bottom Logged Interval	660'		
Top Log Interval	0'		
Pump Set @	N/A		
Time Pumping Prior to Survey	N/A		
Density / Viscosity	N/A		
Max. Recorded Temp.	N/A		
Pump Rate (GPM)	N/A		
Time Well Ready	8:30 AM		
Time Logger on Bottom	9:10 AM		
Equipment Number	PS-9		
Location	LA		
Recorded By	E. AFOH		
Witnessed By	M. PRATT		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	32"	96'	443'	4"	GRAVEL	0'	343'
ONE	28"	443'	680'	3"	SOUNDING	0'	345'
				4"	GRAVEL	0'	433'

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	36" OD	N/A	0'	96'
Prot. String	18" ID	0.3125" WALL	0'	670'
Production String				
Liner				

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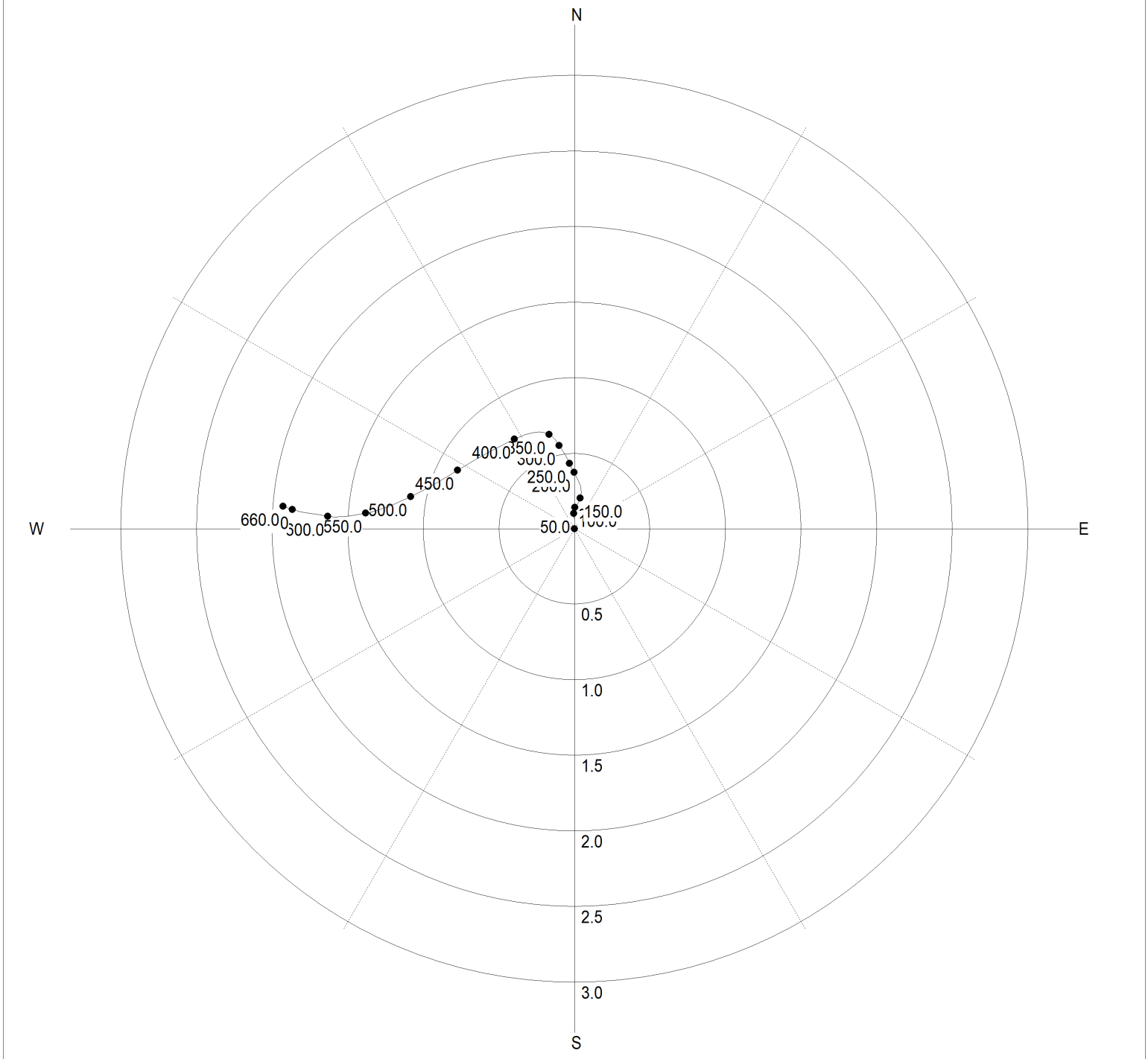
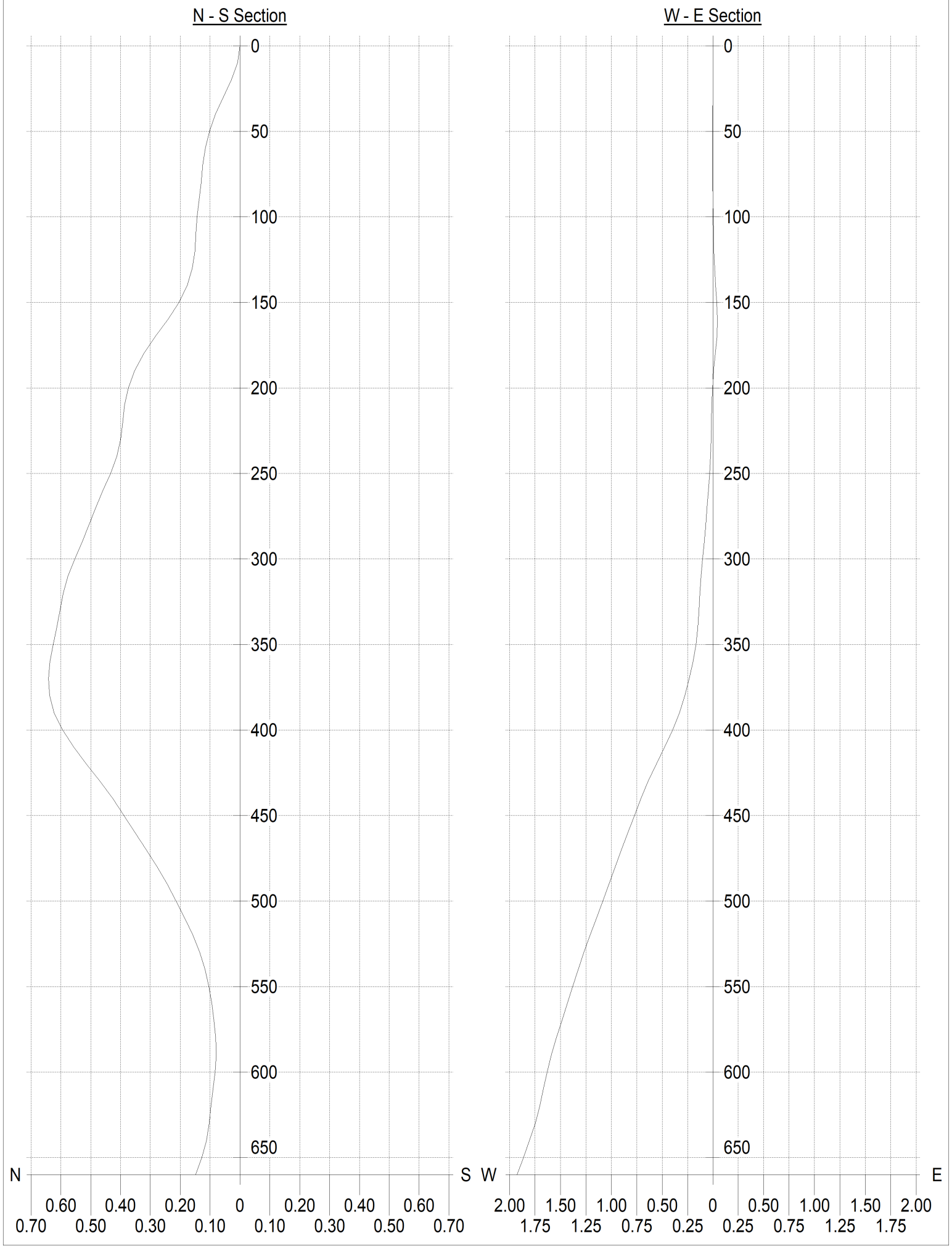
Comments

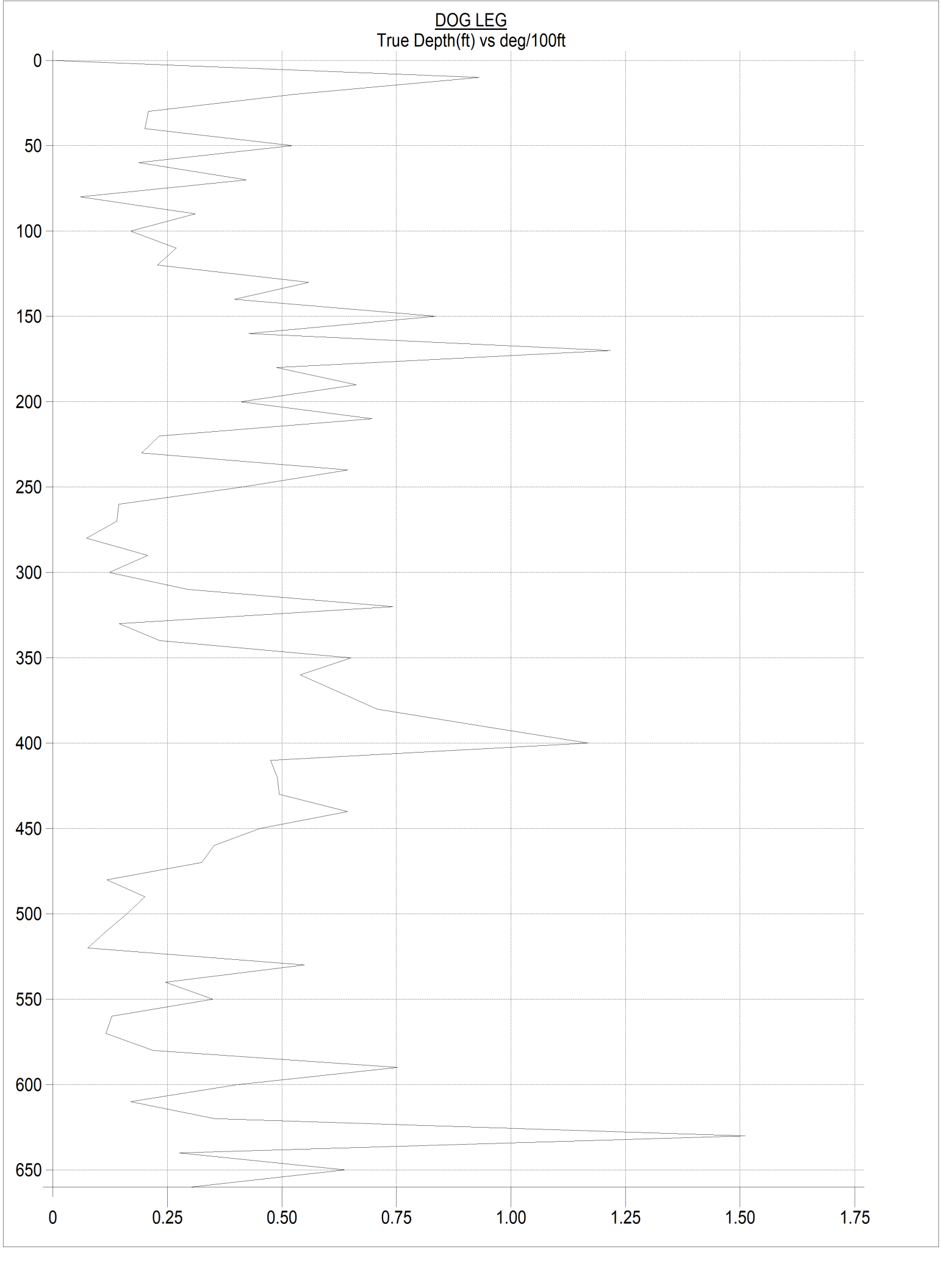
CROSS SECTION
(Displacement (ft))

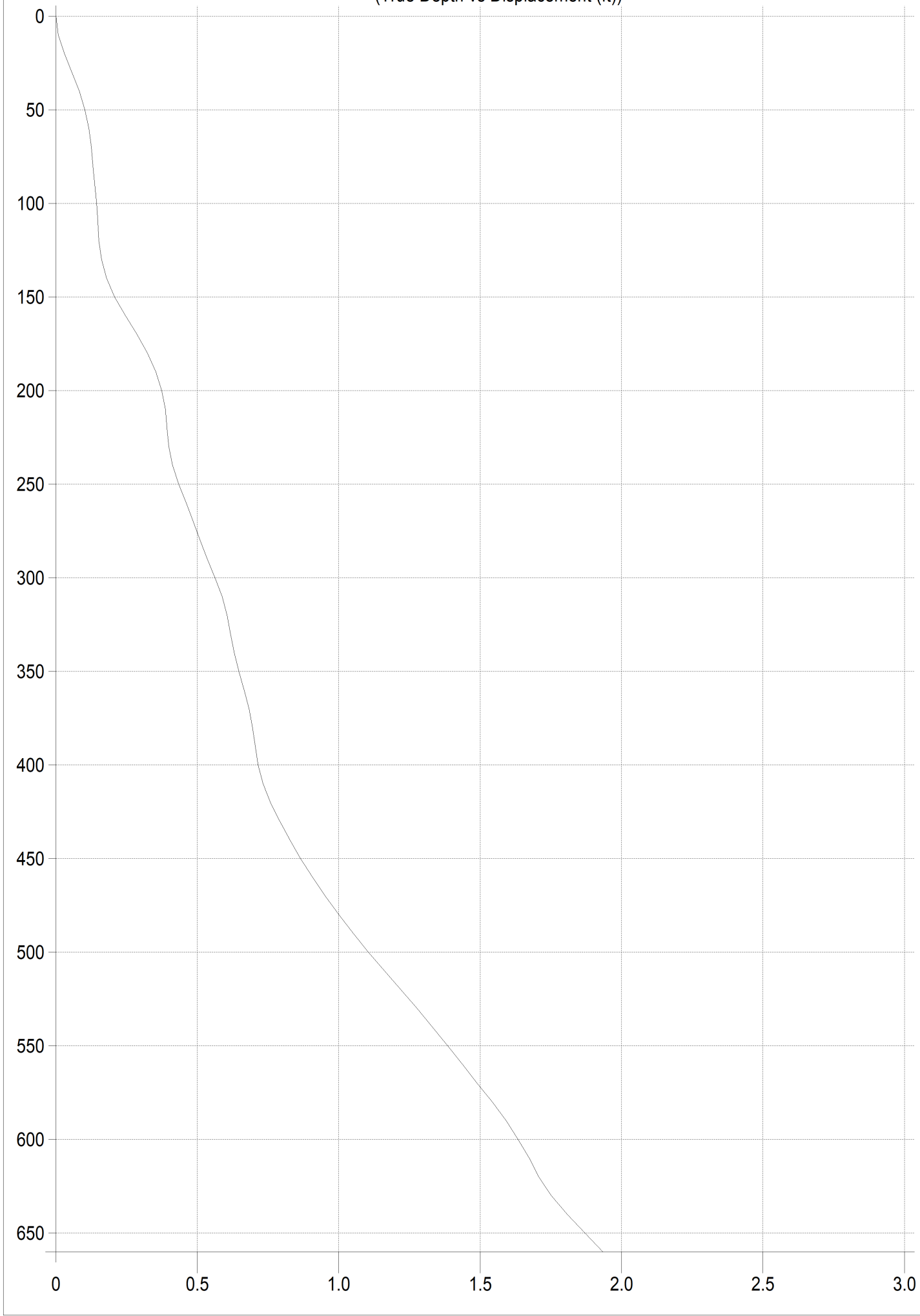


CLOSURE SECTIONS

(True Depth vs Displacement (ft))




DOG LEG
True Depth(ft) vs deg/100ft
0
50
100
150
200
250
300
350
400
450
500
550
600
650
0
0.25
0.50
0.75
1.00
1.25
1.50
1.75


IN THE PLANE OF CLOSURE
(True Depth vs Displacement (ft))
0
50
100
150
200
250
300
350
400
450
500
550
600
650
0
0.5
1.0
1.5
2.0
2.5
3.0

TVD Report (Minimum Curvature Method)

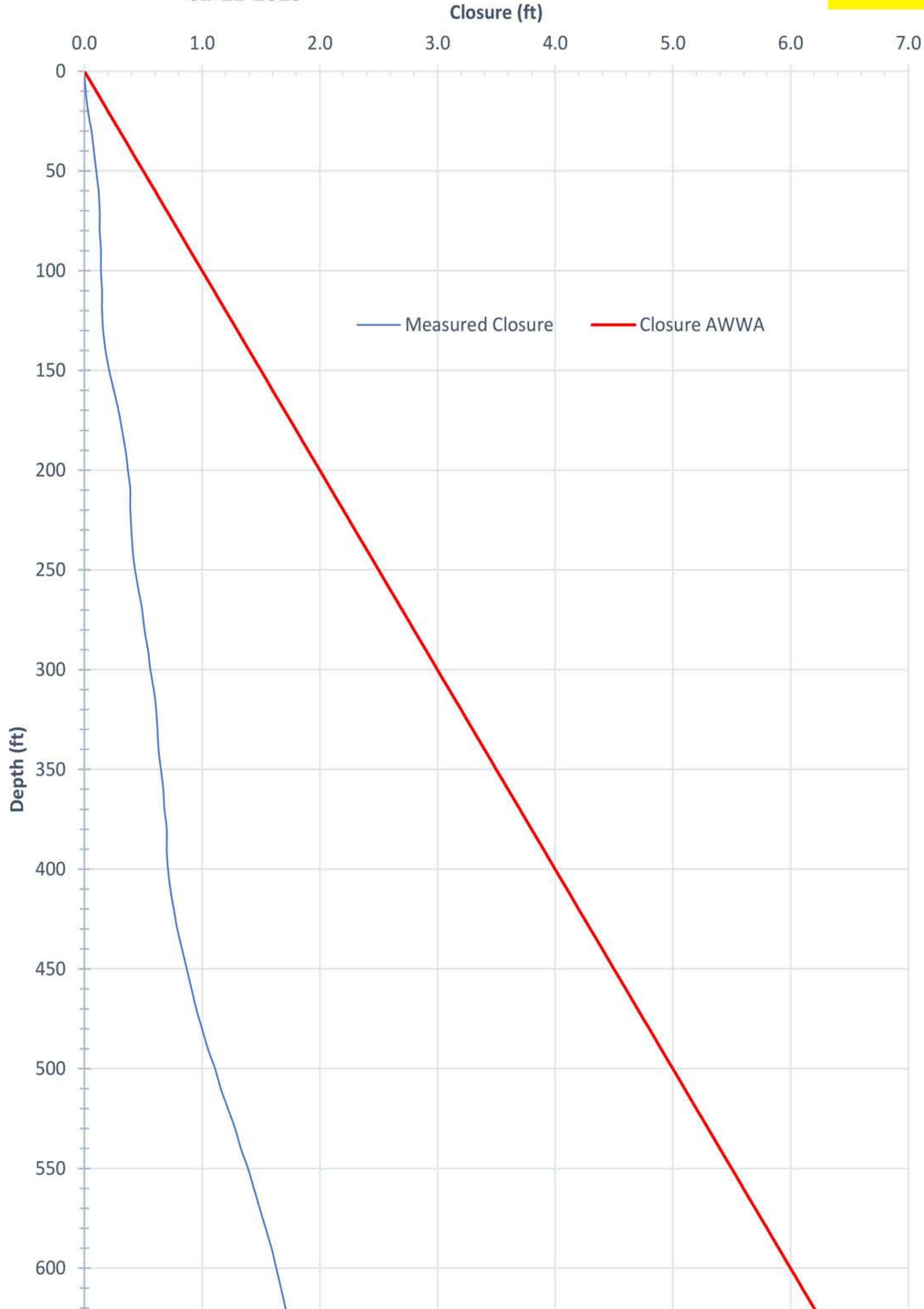
Database File 33460.db
Dataset Pathname ./../../_tvd_/1
Dataset Creation Mon May 12 13:24:48 2025

Meas. Depth (ft)	Incline (deg)	Azimuth (deg)	TVD (ft)	North (ft)	East (ft)	Dog Leg (deg/100ft)	Closure Dis (ft)	Closure Dir (deg)	Vert. Sec. (ft)
Vertical Section Direction 0.00									
0.0	0.00	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.0	0.10	2.74	10.00	0.01	0.00	0.93	0.01	2.73	0.01
20.0	0.15	358.61	20.00	0.03	0.00	0.53	0.03	0.95	0.03
30.0	0.16	352.85	30.00	0.06	-0.00	0.21	0.06	-1.60	0.06
40.0	0.14	353.88	40.00	0.08	-0.00	0.20	0.08	-3.21	0.08
50.0	0.09	355.96	50.00	0.10	-0.01	0.52	0.10	-3.62	0.10
60.0	0.07	3.39	60.00	0.12	-0.01	0.19	0.12	-3.27	0.12
70.0	0.03	12.10	70.00	0.13	-0.01	0.42	0.13	-2.60	0.13
80.0	0.03	18.46	80.00	0.13	-0.00	0.06	0.13	-1.92	0.13
90.0	0.06	30.57	90.00	0.14	-0.00	0.31	0.14	-0.47	0.14
100.0	0.04	41.76	100.00	0.14	0.00	0.17	0.14	1.54	0.14
110.0	0.02	45.53	110.00	0.15	0.01	0.27	0.15	2.84	0.15
120.0	0.04	44.03	120.00	0.15	0.01	0.23	0.15	4.03	0.15
130.0	0.09	37.13	130.00	0.16	0.02	0.56	0.16	6.39	0.16
140.0	0.13	26.86	140.00	0.18	0.03	0.40	0.18	8.99	0.18
150.0	0.21	16.85	150.00	0.20	0.04	0.84	0.21	10.62	0.20
160.0	0.23	7.74	160.00	0.24	0.05	0.43	0.25	10.84	0.24
170.0	0.26	340.38	170.00	0.28	0.04	1.22	0.29	8.28	0.28
180.0	0.23	332.86	180.00	0.32	0.02	0.49	0.32	4.32	0.32
190.0	0.16	329.97	190.00	0.35	0.01	0.66	0.35	1.33	0.35
200.0	0.12	327.96	200.00	0.37	-0.00	0.41	0.37	-0.70	0.37
210.0	0.05	327.42	210.00	0.39	-0.01	0.70	0.39	-1.88	0.39
220.0	0.03	331.45	220.00	0.39	-0.02	0.23	0.39	-2.39	0.39
230.0	0.05	335.71	230.00	0.40	-0.02	0.19	0.40	-2.77	0.40
240.0	0.11	338.23	240.00	0.41	-0.02	0.64	0.41	-3.43	0.41
250.0	0.15	336.48	250.00	0.43	-0.03	0.42	0.43	-4.45	0.43
260.0	0.16	332.60	260.00	0.46	-0.05	0.14	0.46	-5.69	0.46
270.0	0.15	329.69	270.00	0.48	-0.06	0.14	0.49	-6.96	0.48
280.0	0.15	328.94	280.00	0.51	-0.07	0.07	0.51	-8.13	0.51
290.0	0.17	327.56	290.00	0.53	-0.09	0.21	0.54	-9.30	0.53
300.0	0.18	324.97	300.00	0.55	-0.10	0.12	0.56	-10.55	0.55
310.0	0.15	326.88	310.00	0.58	-0.12	0.29	0.59	-11.65	0.58
320.0	0.07	325.28	320.00	0.59	-0.13	0.74	0.61	-12.32	0.59
330.0	0.08	318.37	330.00	0.60	-0.14	0.14	0.62	-12.87	0.60
340.0	0.10	308.33	340.00	0.61	-0.15	0.23	0.63	-13.68	0.61
350.0	0.16	298.08	350.00	0.63	-0.17	0.65	0.65	-15.09	0.63
360.0	0.20	284.74	360.00	0.64	-0.20	0.54	0.67	-17.24	0.64
370.0	0.24	272.00	370.00	0.64	-0.23	0.62	0.68	-20.09	0.64
380.0	0.28	259.06	380.00	0.64	-0.28	0.71	0.70	-23.63	0.64
390.0	0.35	249.24	390.00	0.62	-0.33	0.94	0.70	-28.06	0.62
400.0	0.47	245.18	400.00	0.59	-0.40	1.17	0.71	-33.79	0.59
410.0	0.51	244.44	410.00	0.56	-0.47	0.48	0.73	-40.43	0.56
420.0	0.55	241.38	420.00	0.51	-0.56	0.49	0.76	-47.30	0.51
430.0	0.51	239.40	430.00	0.47	-0.64	0.49	0.79	-53.70	0.47
440.0	0.44	238.15	440.00	0.43	-0.71	0.64	0.83	-59.02	0.43
450.0	0.40	240.92	450.00	0.39	-0.77	0.45	0.87	-63.34	0.39
460.0	0.44	239.06	460.00	0.35	-0.84	0.35	0.91	-67.21	0.35
470.0	0.40	239.22	470.00	0.31	-0.90	0.32	0.95	-70.77	0.31
480.0	0.41	240.55	480.00	0.28	-0.96	0.12	1.00	-73.86	0.28
490.0	0.40	242.38	490.00	0.24	-1.02	0.20	1.05	-76.56	0.24

Meas. Depth (ft)	Incline (deg)	Azimuth (deg)	TVD (ft)	North (ft)	East (ft)	Dog Leg (deg/100ft)	Closure Dis (ft)	Closure Dir (deg)	Vert. Sec. (ft)
Vertical Section Direction 0.00									
500.0	0.39	244.54	500.00	0.21	-1.08	0.16	1.11	-78.84	0.21
510.0	0.39	246.22	510.00	0.19	-1.15	0.12	1.16	-80.81	0.19
520.0	0.40	247.12	519.99	0.16	-1.21	0.08	1.22	-82.55	0.16
530.0	0.35	251.07	529.99	0.13	-1.27	0.55	1.28	-83.93	0.13
540.0	0.33	254.05	539.99	0.12	-1.33	0.25	1.33	-84.95	0.12

550.0	0.31	259.58	549.99	0.10	-1.38	0.35	1.39	-85.68	0.10
560.0	0.30	260.50	559.99	0.09	-1.43	0.13	1.44	-86.21	0.09
570.0	0.31	262.63	569.99	0.09	-1.49	0.12	1.49	-86.64	0.09
580.0	0.32	265.62	579.99	0.08	-1.54	0.22	1.54	-86.97	0.08
590.0	0.25	270.87	589.99	0.08	-1.59	0.75	1.59	-87.13	0.08
600.0	0.23	279.40	599.99	0.08	-1.63	0.40	1.63	-87.07	0.08
610.0	0.21	280.81	609.99	0.09	-1.67	0.17	1.67	-86.91	0.09
620.0	0.18	282.81	619.99	0.10	-1.70	0.35	1.71	-86.73	0.10
630.0	0.33	276.38	629.99	0.10	-1.75	1.51	1.75	-86.60	0.10
640.0	0.33	281.12	639.99	0.11	-1.81	0.28	1.81	-86.43	0.11
650.0	0.39	286.75	649.99	0.13	-1.87	0.64	1.87	-86.07	0.13
660.0	0.37	290.95	659.99	0.15	-1.93	0.30	1.93	-85.57	0.15

AWWA Closure Plot Down Run
City of Pasadena Explorer Well
02-12-2025



PACIFIC SURVEYS

GYROSCOPIC SURVEY
UP RUN

Job No.
33460

Company LAYNE
Well CITY OF PASADENA EXPLORER WELL
Field ALTADENA
County LOS ANGELES State CA

Location:
JPL BRIDGE
EXPLORERE ROAD
GPS: 34.2002451 -118.1658108
Sec. Twp. Rge.

Other Services:
VIDEO SURVEY

			Elevation
Permanent Datum	G.L.	Elevation above perm. datum	K.B.
Log Measured From	G.L. 0'		D.F.
Drilling Measured From	G.L.		G.L.

Date	05/12/2025		
Run Number	ONE		
Depth Driller	670'		
Depth Logger			
Bottom Logged Interval	660'		
Top Log Interval	0'		
Pump Set @	N/A		
Time Pumping Prior to Survey	N/A		
Density / Viscosity	N/A		
Max. Recorded Temp.	N/A		
Pump Rate (GPM)	N/A		
Time Well Ready	8:30 AM		
Time Logger on Bottom	9:10 AM		
Equipment Number	PS-9		
Location	LA		
Recorded By	E. AFOH		
Witnessed By	M. PRATT		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	32"	96'	443'	4"	GRAVEL	0'	343'
ONE	28"	443'	680'	3"	SOUNDING	0'	345'
				4"	GRAVEL	0'	433'

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	36" OD	N/A	0'	96'
Prot. String	18" ID	0.3125" WALL	0'	670'
Production String				
Liner				

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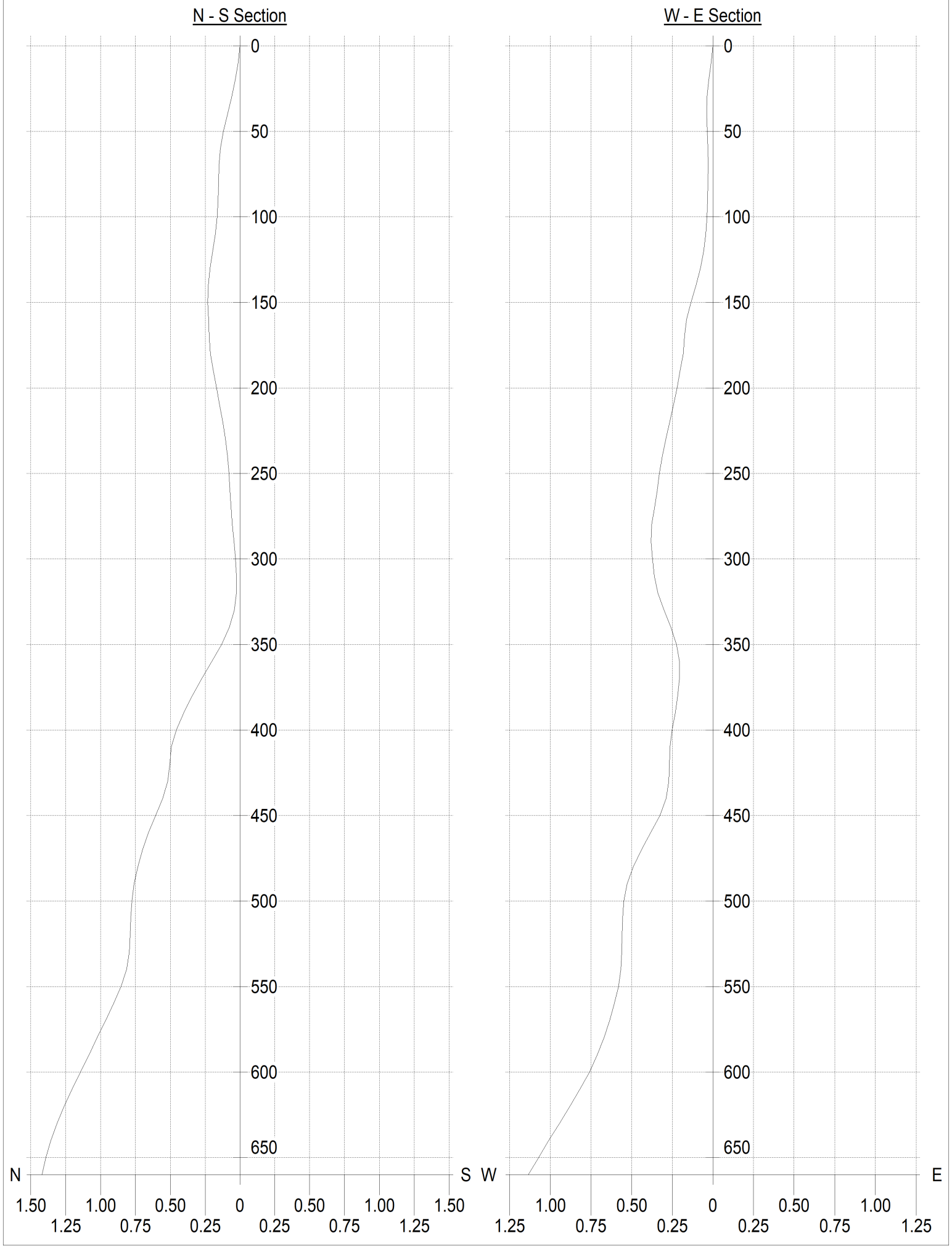
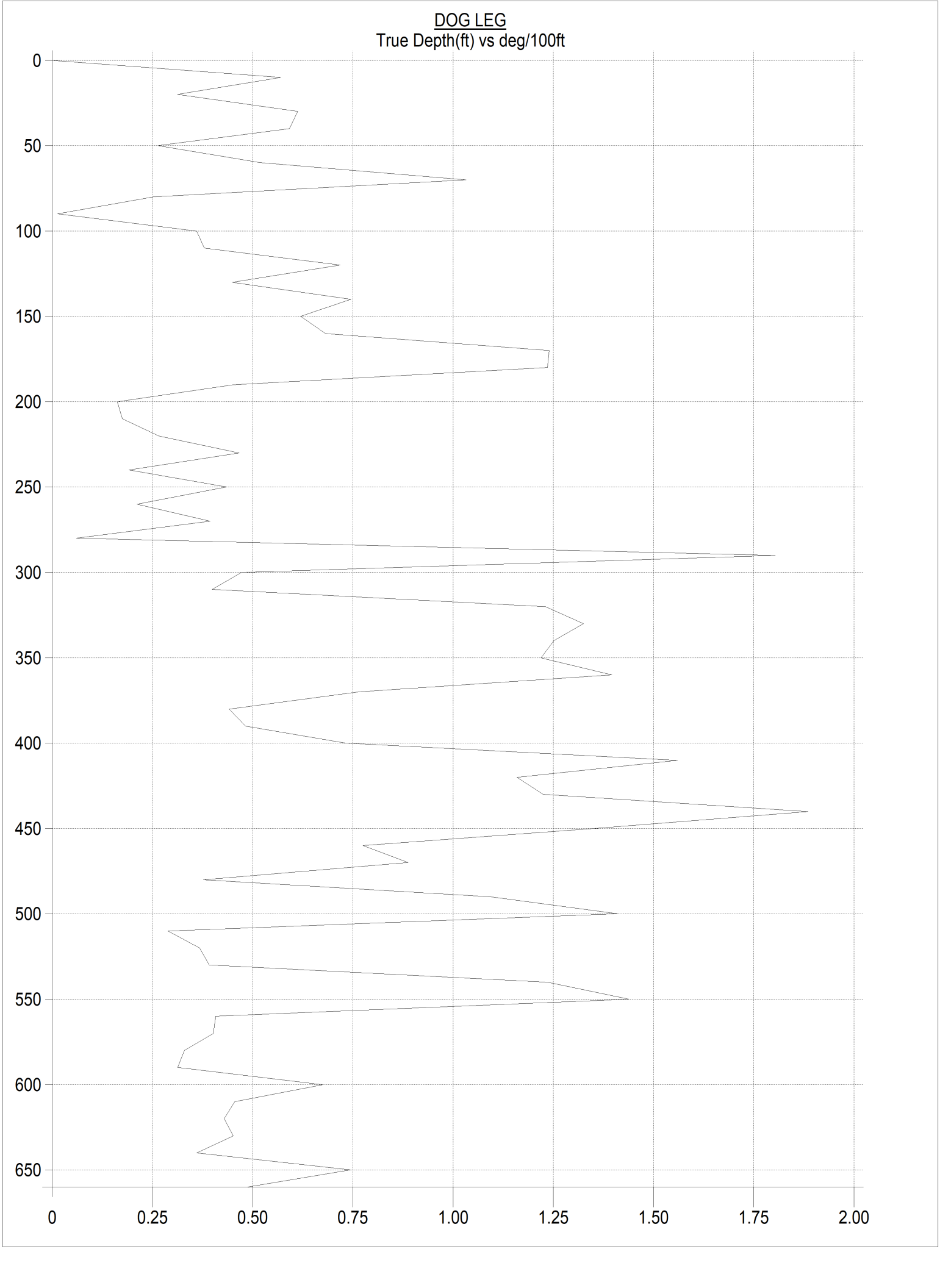
Comments

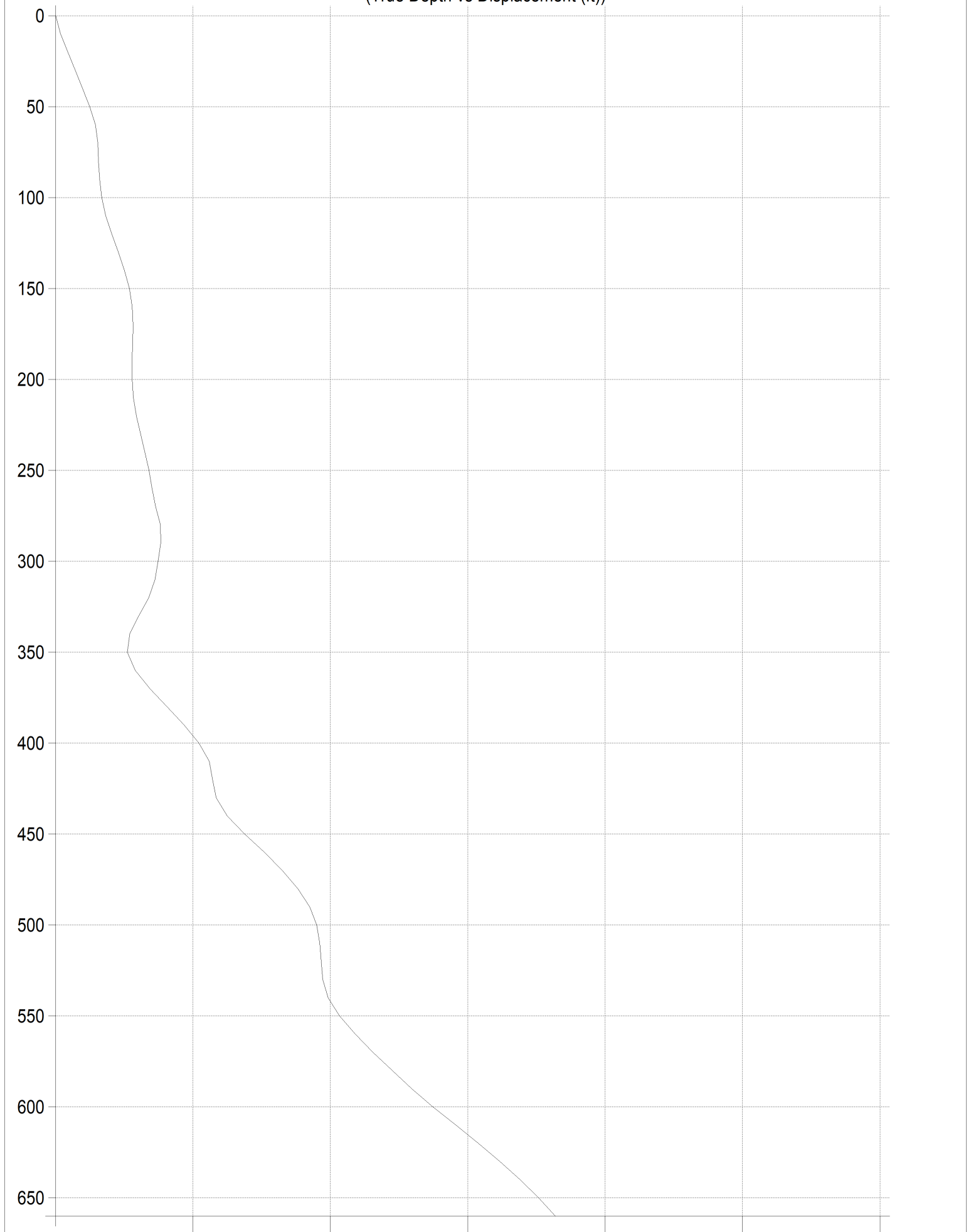

CROSS SECTION
(Displacement (ft))
N
W
E
S
660.0
600.0
550.0
450.0
400.0
350.0
300.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0

CLOSURE SECTIONS

(True Depth vs Displacement (ft))




DOG LEG
True Depth(ft) vs deg/100ft
0
50
100
150
200
250
300
350
400
450
500
550
600
650
0
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00


IN THE PLANE OF CLOSURE
(True Depth vs Displacement (ft))
0
50
100
150
200
250
300
350
400
450
500
550
600
650
0
0.5
1.0
1.5
2.0
2.5
3.0

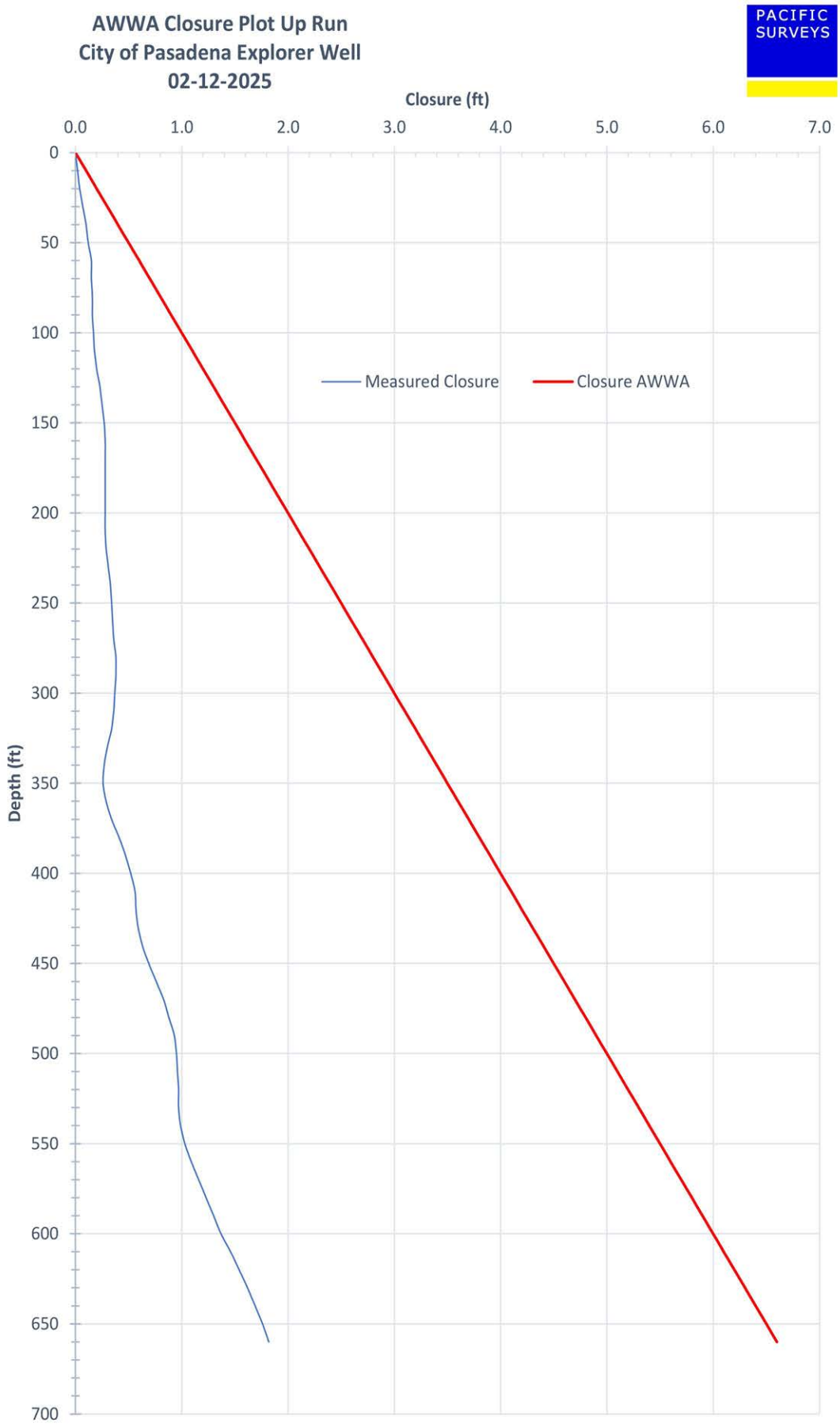
TVD Report (Minimum Curvature Method)

Database File 33460 up run.db
Dataset Pathname ./../../_tvd_/1
Dataset Creation Mon May 12 13:27:04 2025

Meas. Depth (ft)	Incline (deg)	Azimuth (deg)	TVD (ft)	North (ft)	East (ft)	Dog Leg (deg/100ft)	Closure Dis (ft)	Closure Dir (deg)	Vert. Sec. (ft)
Vertical Section Direction 0.00									
0.0	0.08	324.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.0	0.13	319.94	10.00	0.01	-0.01	0.57	0.02	-38.38	0.01
20.0	0.16	325.71	20.00	0.04	-0.03	0.31	0.04	-37.52	0.04
30.0	0.16	347.65	30.00	0.06	-0.04	0.61	0.07	-32.11	0.06
40.0	0.18	6.27	40.00	0.09	-0.04	0.59	0.10	-23.57	0.09
50.0	0.16	9.04	50.00	0.12	-0.04	0.26	0.12	-16.52	0.12
60.0	0.10	8.06	60.00	0.14	-0.03	0.52	0.15	-12.69	0.14
70.0	0.00	347.25	70.00	0.15	-0.03	1.03	0.15	-11.48	0.15
80.0	0.03	334.51	80.00	0.15	-0.03	0.25	0.16	-11.69	0.15
90.0	0.03	331.63	90.00	0.16	-0.03	0.01	0.16	-12.13	0.16
100.0	0.06	335.07	100.00	0.16	-0.04	0.36	0.17	-12.76	0.16
110.0	0.10	330.88	110.00	0.18	-0.04	0.38	0.18	-13.90	0.18
120.0	0.17	321.11	120.00	0.20	-0.06	0.72	0.20	-16.29	0.20
130.0	0.15	306.27	130.00	0.22	-0.08	0.45	0.23	-19.71	0.22
140.0	0.20	286.30	140.00	0.23	-0.10	0.75	0.25	-24.56	0.23
150.0	0.18	267.88	150.00	0.23	-0.14	0.62	0.27	-30.42	0.23
160.0	0.14	248.81	160.00	0.23	-0.16	0.68	0.28	-35.68	0.23
170.0	0.01	226.81	170.00	0.22	-0.17	1.24	0.28	-38.24	0.22
180.0	0.14	222.24	180.00	0.21	-0.18	1.24	0.28	-40.88	0.21
190.0	0.18	220.45	190.00	0.19	-0.20	0.45	0.28	-46.55	0.19
200.0	0.17	221.18	200.00	0.17	-0.22	0.16	0.28	-52.79	0.17
210.0	0.18	224.85	210.00	0.15	-0.24	0.17	0.28	-58.85	0.15
220.0	0.20	229.82	220.00	0.12	-0.27	0.27	0.29	-65.04	0.12
230.0	0.16	233.93	230.00	0.10	-0.29	0.47	0.31	-70.17	0.10
240.0	0.14	239.15	240.00	0.09	-0.31	0.19	0.33	-73.83	0.09
250.0	0.10	240.49	250.00	0.08	-0.33	0.44	0.34	-76.38	0.08
260.0	0.08	241.50	260.00	0.07	-0.34	0.21	0.35	-78.07	0.07
270.0	0.12	242.68	270.00	0.06	-0.36	0.39	0.36	-79.76	0.06
280.0	0.12	244.65	280.00	0.06	-0.38	0.06	0.38	-81.61	0.06
290.0	0.11	138.96	290.00	0.04	-0.38	1.80	0.38	-83.38	0.04
300.0	0.06	138.23	300.00	0.03	-0.37	0.47	0.37	-84.85	0.03
310.0	0.08	110.78	310.00	0.03	-0.36	0.40	0.36	-85.70	0.03
320.0	0.19	82.21	320.00	0.03	-0.34	1.23	0.34	-85.46	0.03
330.0	0.29	59.94	330.00	0.04	-0.30	1.33	0.30	-82.12	0.04
340.0	0.35	40.56	340.00	0.08	-0.26	1.25	0.27	-73.37	0.08
350.0	0.41	24.05	350.00	0.13	-0.22	1.22	0.26	-59.36	0.13
360.0	0.42	4.87	360.00	0.20	-0.21	1.40	0.29	-45.65	0.20
370.0	0.40	354.65	370.00	0.27	-0.21	0.77	0.34	-37.05	0.27
380.0	0.38	348.88	380.00	0.34	-0.22	0.44	0.41	-32.35	0.34
390.0	0.36	342.85	390.00	0.41	-0.23	0.48	0.47	-29.86	0.41
400.0	0.29	338.03	400.00	0.46	-0.25	0.73	0.52	-28.73	0.46
410.0	0.13	339.32	410.00	0.49	-0.26	1.56	0.56	-28.26	0.49
420.0	0.02	350.35	420.00	0.50	-0.27	1.16	0.57	-28.06	0.50
430.0	0.14	344.69	430.00	0.52	-0.27	1.22	0.59	-27.76	0.52
440.0	0.32	331.76	440.00	0.55	-0.29	1.89	0.63	-27.54	0.55
450.0	0.42	317.33	450.00	0.61	-0.33	1.35	0.69	-28.36	0.61
460.0	0.45	307.86	460.00	0.66	-0.38	0.78	0.76	-30.24	0.66
470.0	0.36	304.43	470.00	0.70	-0.44	0.89	0.83	-32.20	0.70
480.0	0.33	304.04	480.00	0.73	-0.49	0.38	0.88	-33.76	0.73
490.0	0.22	305.74	490.00	0.76	-0.53	1.09	0.93	-34.84	0.76

Meas. Depth (ft)	Incline (deg)	Azimuth (deg)	TVD (ft)	North (ft)	East (ft)	Dog Leg (deg/100ft)	Closure Dis (ft)	Closure Dir (deg)	Vert. Sec. (ft)
Vertical Section Direction 0.00									
500.0	0.08	313.26	500.00	0.78	-0.55	1.41	0.95	-35.30	0.78
510.0	0.05	324.36	510.00	0.78	-0.56	0.29	0.96	-35.38	0.78
520.0	0.01	339.66	520.00	0.79	-0.56	0.37	0.97	-35.36	0.79
530.0	0.05	342.53	530.00	0.79	-0.56	0.39	0.97	-35.26	0.79
540.0	0.18	345.53	540.00	0.81	-0.57	1.24	0.99	-34.86	0.81

550.0	0.32	336.07	550.00	0.85	-0.58	1.44	1.03	-34.27	0.85
560.0	0.36	335.01	560.00	0.91	-0.61	0.41	1.09	-33.75	0.91
570.0	0.39	331.08	570.00	0.97	-0.64	0.40	1.16	-33.37	0.97
580.0	0.41	327.61	580.00	1.03	-0.67	0.33	1.23	-33.22	1.03
590.0	0.41	323.25	590.00	1.08	-0.71	0.31	1.30	-33.29	1.08
600.0	0.47	318.80	600.00	1.14	-0.76	0.68	1.37	-33.62	1.14
610.0	0.50	314.59	609.99	1.21	-0.82	0.46	1.46	-34.18	1.21
620.0	0.47	311.03	619.99	1.26	-0.88	0.43	1.54	-34.88	1.26
630.0	0.47	305.49	629.99	1.31	-0.94	0.45	1.62	-35.72	1.31
640.0	0.45	301.59	639.99	1.36	-1.01	0.36	1.69	-36.67	1.36
650.0	0.38	296.73	649.99	1.39	-1.07	0.74	1.76	-37.63	1.39
660.0	0.42	291.98	659.99	1.42	-1.14	0.49	1.82	-38.67	1.42


AWWA Closure Plot Up Run
City of Pasadena Explorer Well
02-12-2025
PACIFIC SURVEYS
Closure (ft)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Depth (ft)
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
Measured Closure
Closure AWWA

Pacific Surveys

a full service geophysical well logging company

Video Survey Report

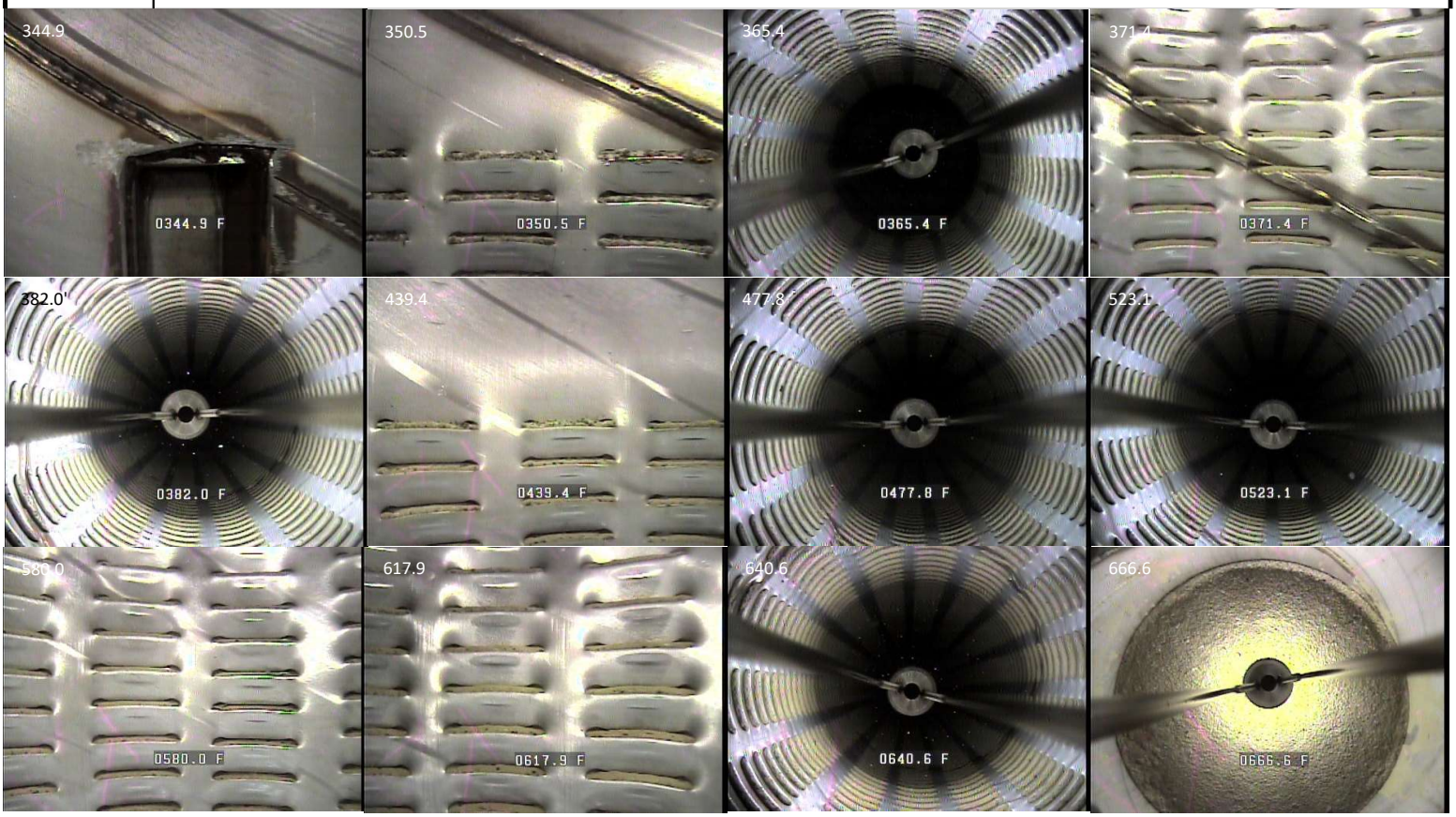
Company:	Layne		**Date:**	12-May-25	
Well:	City of Pasadena Explorer Well		**Run No.**	One	**Truck** PS-9
Field:	Altadena		**Job Ticket:**	33460	
State:	California		**Total Depth:**	669.0 ft	
Location:	JPL Bridge		**Water Level:**	171.0 ft	SWL
	Explorer Road		**Oil on Water:**	No	**Amount:** N/A
GPS:	34.2002451 -118.1658108		**Operator:**	Afoh	
Zero Datum:	Ground Level	**Tool Zero:** Side-Scan			**Dead Space** 1.75 ft
Reason for Survey:	New Well Construction		**Guides Set**	16 inch	

Depth	Observations
0.0 ft	Begin survey from ground level, 1.7-inch below top of casing.
171.0 ft	SWL: water is cloudy.
327.0 ft	Water column begins to clear. Visibility is fair.
335.0 ft	Water column becomes very clear. Visibility is good.
344.9 ft	Top of sounding tube. Bottom is at 347.0 feet.
350.5 ft	Top of perfs: all are open with minor fine sediments inside the louvers.
388.5 ft	Bottom of perfs: entire interval is open with some minor fine sediments inside the louvers.
439.4 ft	Top of perfs: all are open with minor fine sediments inside the louvers.
650.5 ft	Bottom of perfs: entire interval is open with some minor fine sediments inside the louvers.
668.4 ft	Top of soft fill.
669.0 ft	Hard fill tagged with the gyro tool at 669 feet.

Perforation:	**As-Built**
Ful-Flo Louvers	350.0 ft to 390.0 ft
	440.0 ft to 650.0 ft

Casing Size (in)		**As-Built**
OD	ID	
18.625	18.0	0.0 ft to 670.0 ft

Casing Material	Stainless Steel
Screen Material	Stainless Steel



800.919.7555
909.625.6262

1785 w. arrow rte., bdlg. d, ste. 3,4
upland, ca 91786
www.pacificsurveys.com

fax: 909.399.3180

APPENDIX F
Photograph Log

GEOSYNTEC CONSULTANTS
Photographic Record

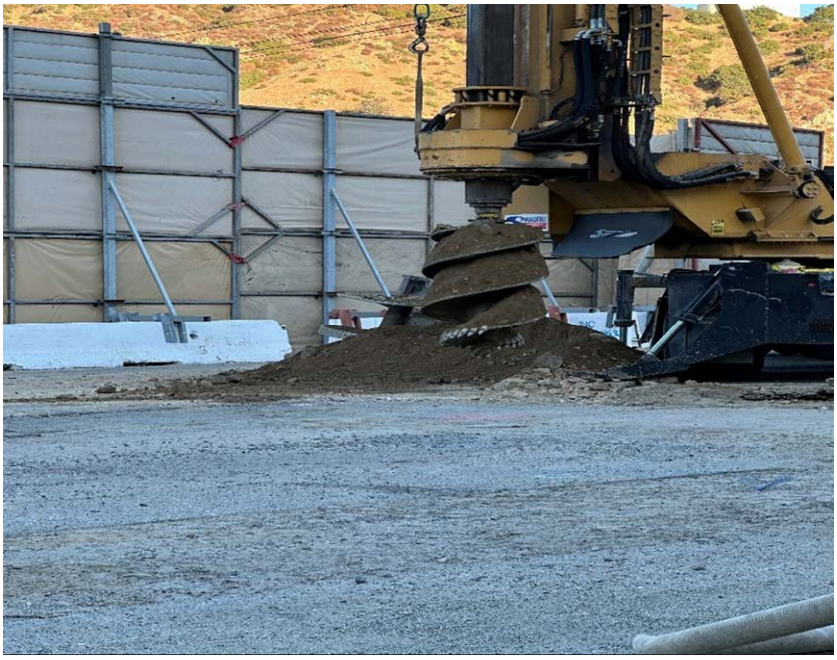
Client: City of Pasadena - Water & Power Department

Project Number: HPA110004/HPA110005

Site Name: Explorer Well

Site Location: Pasadena, CA

Photograph	
Date: 11/01/2024	
Sound Walls	
Comments: Sound walls ~20 ft high and security gate, north view.	

Photograph	
Date: 11/01/2024	
Conductor Casing	
Comments: Bucket Auger drilling for conductor casing.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 11/04/2024	
Conductor Casing	
Comments: Bucket auger reamer for conductor casing.	

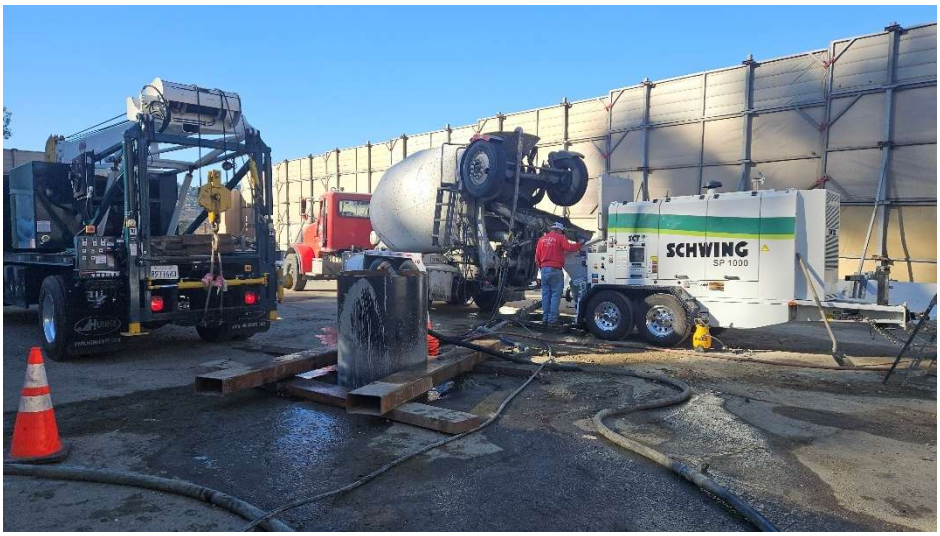
Photograph	
Date: 11/07/2024	
Conductor Casing	
Comments: Installation of Conductor Casing – welding centralizers to casing.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 11/07/2024	
Conductor Casing	
Comments: Sanitary Conductor Casing – one set of centralizers.	

Photograph	
Date: 11/09/2024	
Conductor Casing	
Comments: Pouring of cement in the annular space between the borehole and conductor casing.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 11/09/2024	
Conductor Casing	
Comments: Completed installation of conductor casing.	

Photograph	
Date: 12/10/2025	
Pilot Borehole	
Comments: Night-time pilot borehole drilling.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 12/10/2024	
Pilot Borehole	
Comments: Shaker box and soil sample collection location.	

Photograph	
Date: 12/10/2025	
Geophysical Logging	
Comments: Geophysical Logging by Pacific Surveys.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 02/03/2025	
Pilot Borehole	
Comments: Mill-tooth drill bid	

Photograph	
Date: 03/06/2025	
Borehole Reaming	
Comments: 28-in reaming bit.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 12/11/2024	
Zone Testing	
Comments: Temporary pump used for zone testing.	

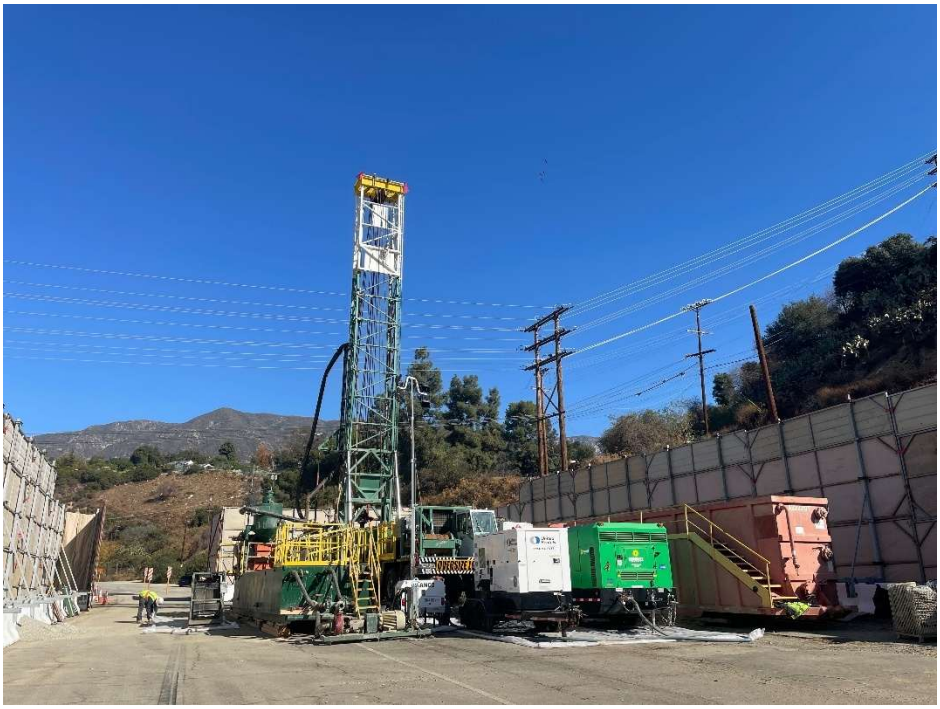
Photograph	
Date: 12/11/2024	
Zone Testing	
Comments: Zone testing tool perforations.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 3/21/2025	
Zone Testing Development	
Comments: Well Development - Swabbing tool.	

Photograph	
Date: 02/03/2025	
Drill Rig	
Comments: Zone Testing setup.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 3/20/2025	
Well Casing	
Comments: Stainless steel well casing bottom cap.	

Photograph	
Date: 3/20/2025	
Well Screen	
Comments: Flu-Flo louvered well screen.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 3/20/2025	
Well Casing	
Comments: Sounding tube connection to well casing.	

Photograph	
Date: 3/18/2025	
Well Casing and Tubing	
Comments: Well casing and tubing staged on site prior to construction.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 3/18/2025	
Well Casing	
Comments:	

Photograph	
Date: 3/19/2025	
Well Screen Installation	
Comments: Two pieces of well screen welded with centralizers.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 3/20/2025	
Well Casing	
Comments: Well casing installation	

Photograph	
Date: 3/20/2025	
Gravel Feed Tube	
Comments: Gravel feed tube installation	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 3/6/2025	
Well Development	
Comments: Swab tool length, approximately 18 feet.	

Photograph	
Date: 3/20/2025	
Well Development	
Comments: Swab tool length, approximately 18 feet.	

GEOSYNTEC CONSULTANTS
Photographic Record

Client: City of Pasadena - Water & Power Department

Project Number: HPA110004/HPA110005

Site Name: Explorer Well

Site Location: Pasadena, CA

Photograph	
Date: 3/6/2025	
Drill Rig	
Comments: Sound walls 16 and 20 ft high looking southeast.	

Photograph	
Date:	
Water Monitoring	
Comments: Water captured after sieving occurred in the shaker box.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 4/9/2025	
Temporary Pump	
Comments: Installation of temporary pump for pumping tests, pictue is showing pump bowls.	

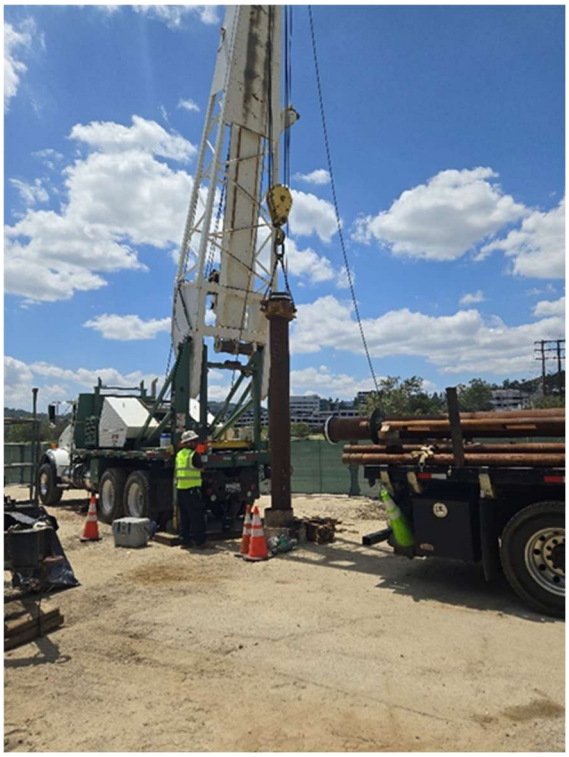
Photograph	
Date: 4/28/2025	
Temporary Pump	
Comments: 24-hour constant rate pump test.	

GEOSYNTEC CONSULTANTS
Photographic Record

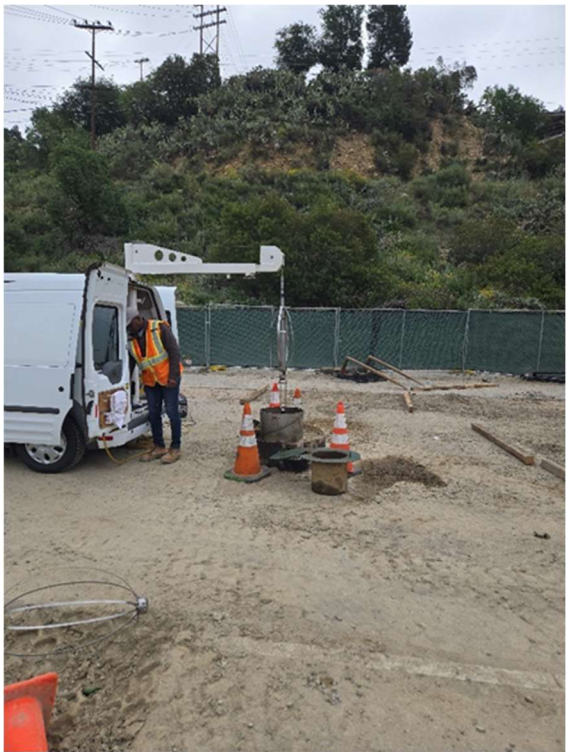
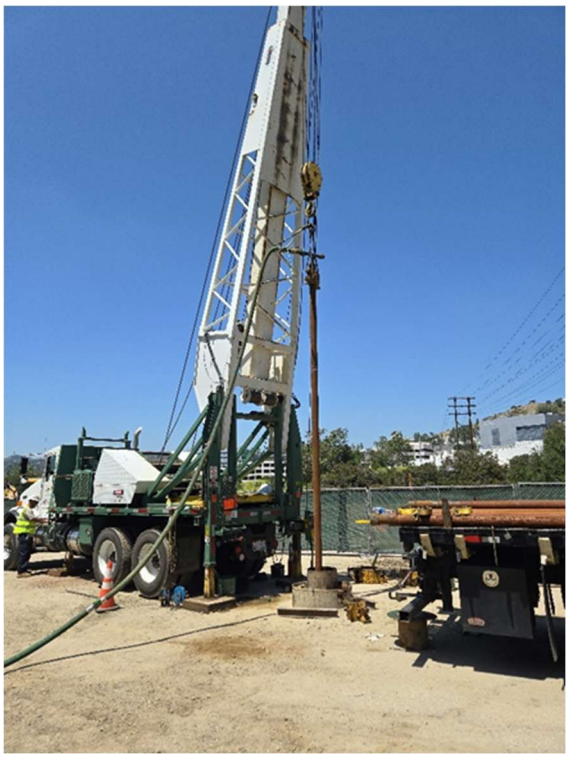
Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 4/29/2025	
Spinner Survey	
Comments: 24-hour constant rate pump test with Spinner Survey	

Photograph	
Date: 5/12/2025	
Casing Survey	
Comments: Layne – Plumbness & Alignment Survey	

GEOSYNTEC CONSULTANTS **Photographic Record**	Geosyntec consultants
Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph **Date:** 5/12/2025 **Downhole Video Survey** **Comments:** Pacific Surveys – Video Survey	
Photograph **Date:** 5/13/2025 **Well Disinfection** **Comments:** Layne – Disinfection of well	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Client: City of Pasadena - Water & Power Department	**Project Number:** HPA110004/HPA110005
Site Name: Explorer Well	**Site Location:** Pasadena, CA

Photograph	
Date: 5/15/2025	
Final Wellhead	
Comments: Cap of well and ancillary pipes.	

Photograph	
Date: 5/15/2025	
Wellhead	
Comments: Wellhead with caution markings and fence.	