

Survey type:

Company: International Ocean Discovery Program

Well: Expedition 356, Site U1463B

Field: Indonesian Throughflow

Country: Australia

Run: 1

Date: 15-Sep-2015

Recorded by: K. Swain

Witnessed by: M. Gurnis, Z. Mateo, D. Vleeschouwer

## Introduction

This was a Vertical Seismic Profile Zero Offset (VSP-ZO) survey conducted from the JOIDES Resolution during IODP Expedition 356 on 15 Sep 2015. IODP provided the dual gun array which was lowered by crane and supported by floating buoy on the port side of the ship.

## Survey Results: Zero Offset VSP

Only 1 level was successfully made due to whale activity in the area. The resulting stacked level was sufficient for a good checkshot and single seismic profile.

## Recommendations and Conclusion

No processing could be done as no multiple levels were made.



SURFACE EQUIPMENT

WSAM  
WITM (EDTS)-A

DOWNHOLE EQUIPMENT

LEH-QT  
LEH-QT 301 9.93

AH-369  
AH-369 1 9.04

EDTC-B  
EDTH-B 8303  
EDTC-B 8317  
EDTG-A/B 8305 8.60

MDSB\_EDTC  
Mud Tempe

CTEM 7.54

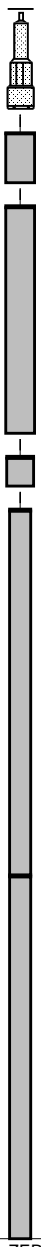
Gamma Ray  
EFTB DIAG  
TelStatus  
EDTCB Ele 6.97  
6.62

AH-241  
AH-241 6.62

VSIT-C  
VSPCH-A  
VSCCH-A  
VSIC-C 6.36

DF ACCZ  
VSIC Meas HV  
VSIC Stat  
Tension  
TOOL ZERO 0.00

MAXIMUM STRING DIAMETER 3.63 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN METERS



## Downhole Equipment Information

<b>Tool Type</b>	VSI – Single Shuttle Configuration
<b>Surface Equipment</b>	2 x GI Gun (250 in <sup>3</sup> @ 2000 PSI)
<b>Combined Tool</b>	LEHQT-EDTCB-VSI
<b>Number of Shuttles</b>	1
<b>Nominal Receiver Spacing</b>	N/A
<b>Gimbaled (Y/N)</b>	Y
<b>Downhole Geophone Type</b>	GAC-D
<b>Sensitivity</b>	0.54
<b>Natural Frequency</b>	20.0
<b>Damping Factor</b>	5.74
<b>DC Resistance</b>	1500
<b>Receiver #1</b>	VSIS-P 8008
<b>Receiver #2</b>	n/a

Production String

(in) (M)  
OD ID MD

Well Schematic

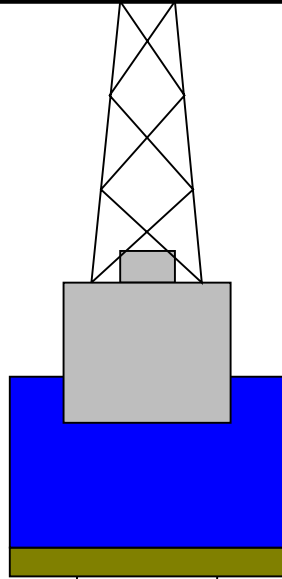
(M) (in)  
MD OD ID

Casing String

Kelly Bushing Elevation  
Derrick Floor Elevation

Mean Sea Level

-156.3  
-156.3  
-145.3



4.1



0 4.1  
82 11.4375  
530

Sea Floor  
Open Hole  
Total Depth



## General Information

<b>Survey Type</b>	Offset VSP
<b>Surface Recording Length</b>	500.0 ms
<b>Surface Sampling Rate</b>	1.0 ms
<b>Downhole Recording Length</b>	3000.0 ms
<b>Downhole Sampling Rate</b>	1.0 ms
<b>Top of Survey</b>	585.1 m
<b>Bottom of Survey</b>	585.1 m
<b>Number of Shots</b>	6
<b>Number of Downhole Traces</b>	6
<b>Number of Downhole Traces used for Processing</b>	5



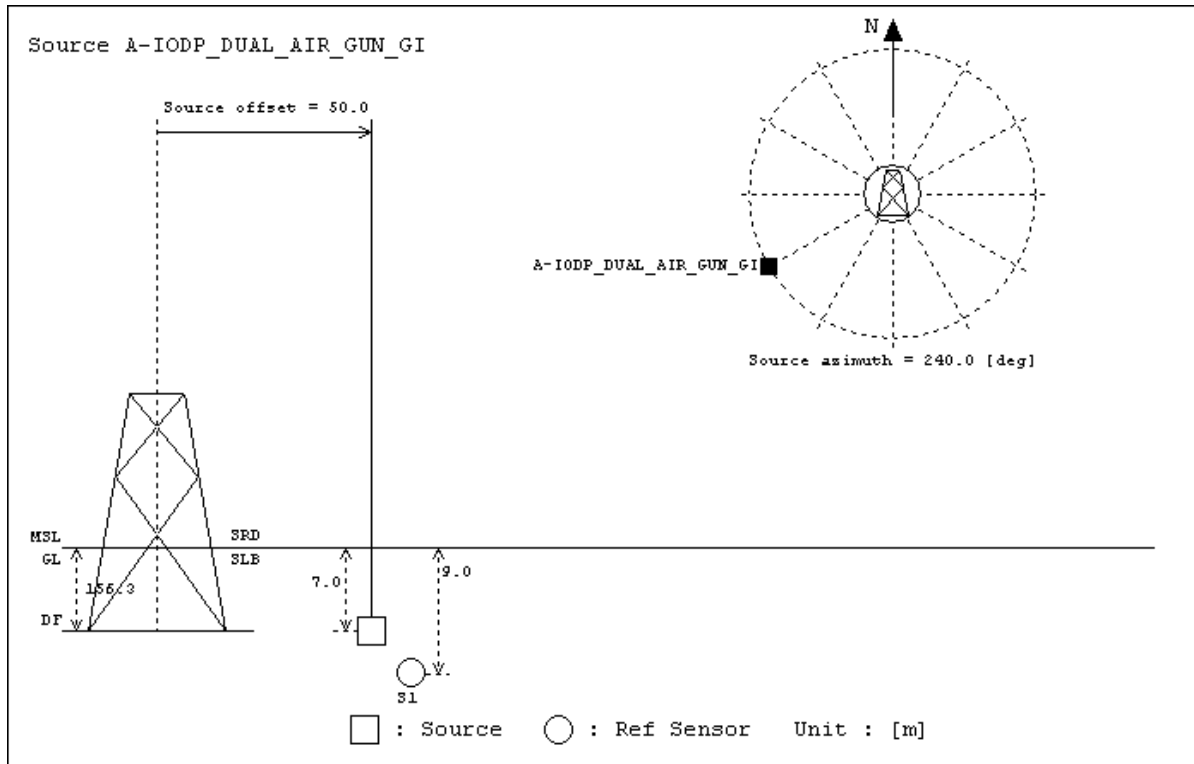
**Shot Summary Listing (1/1)**

<b>Measured Depth [m]</b>	<b>Tool Number</b>	<b>Stack Number</b>	<b>Relative Bearing [deg]</b>	<b>Caliper [in]</b>	<b>Anchoring force [kg]</b>	<b>Shot number</b>
585.1	1	2	-78.5	11.4	665.9	15, 16, 17, 18, 19

### Observer's Note (1/1)

Well depth[m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
0.0	11:28:04	ENLO	1			
0.0	11:28:27	ENHI	2			
0.0	11:28:37	ETHD	3			
0.0	11:28:51	DRNG	4			
0.0	11:29:06	GA02	5			
0.0	11:29:16	GA04	6			
0.0	11:29:26	GA08	7			
0.0	11:29:36	GA16	8			
0.0	11:29:46	GA32	9			
0.0	11:30:01	XTLK	10			
0.0	11:30:19	XTLK	11			
0.0	11:30:37	XTLK	12			
0.0	11:30:56	EIMP	13			
585.1	14:36:14	SHOT	14	2	A- IODP_DUAL_AIR_GUN_GI	bad
585.1	14:36:54	SHOT	15	2	A- IODP_DUAL_AIR_GUN_GI	ok
585.1	14:37:59	SHOT	16	2	A- IODP_DUAL_AIR_GUN_GI	ok
585.1	14:38:55	SHOT	17	2	A- IODP_DUAL_AIR_GUN_GI	ok
585.1	14:39:25	SHOT	18	2	A- IODP_DUAL_AIR_GUN_GI	ok
585.1	14:39:44	SHOT	19	2	A- IODP_DUAL_AIR_GUN_GI	ok

# Source Geometry Sketch



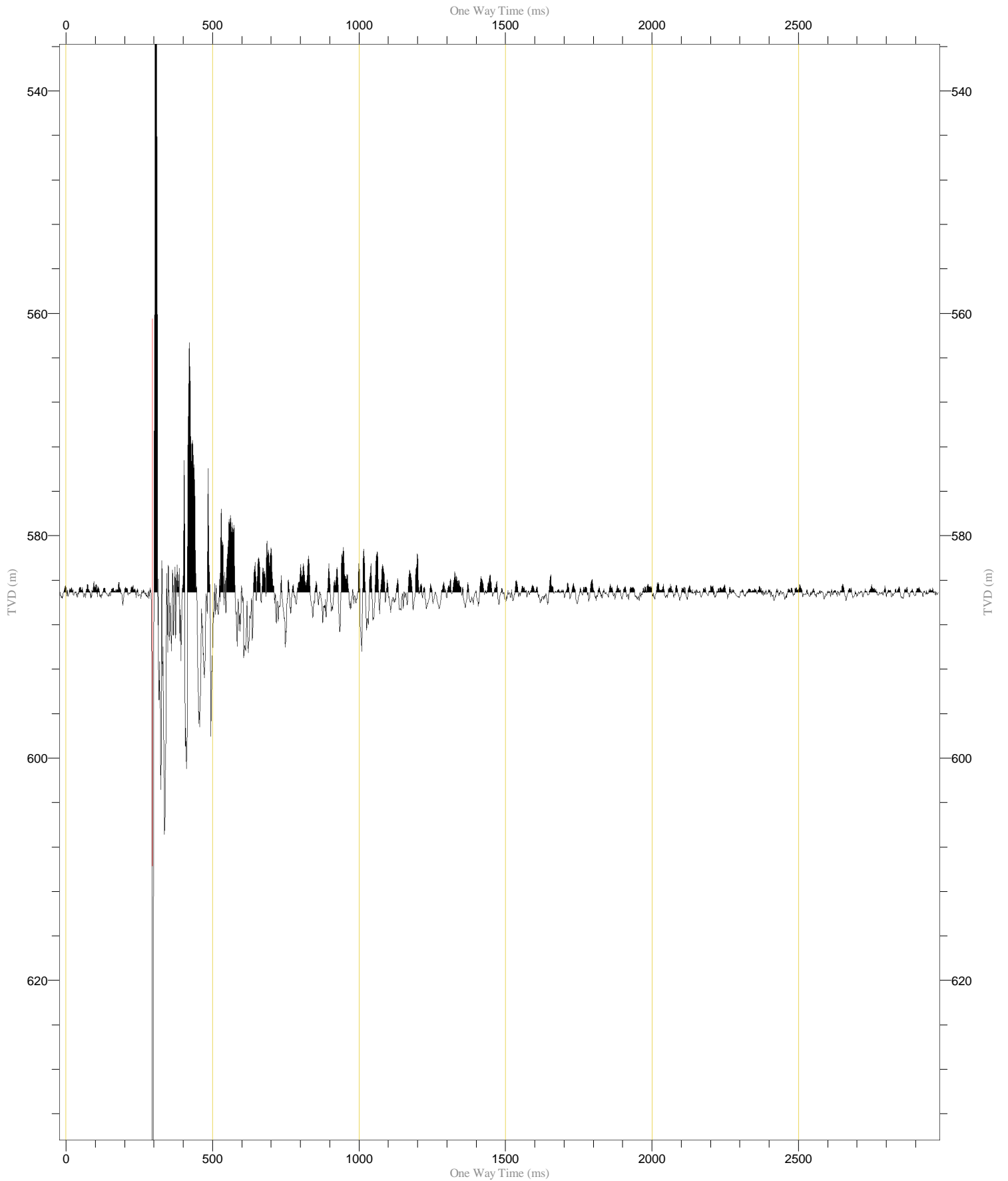
Raw Stack (Z)

Normalization Trace by Trace (250%)

Polarity Normal

One Way Time (ms)

Scaling 5.8 cm/sec, 1/450



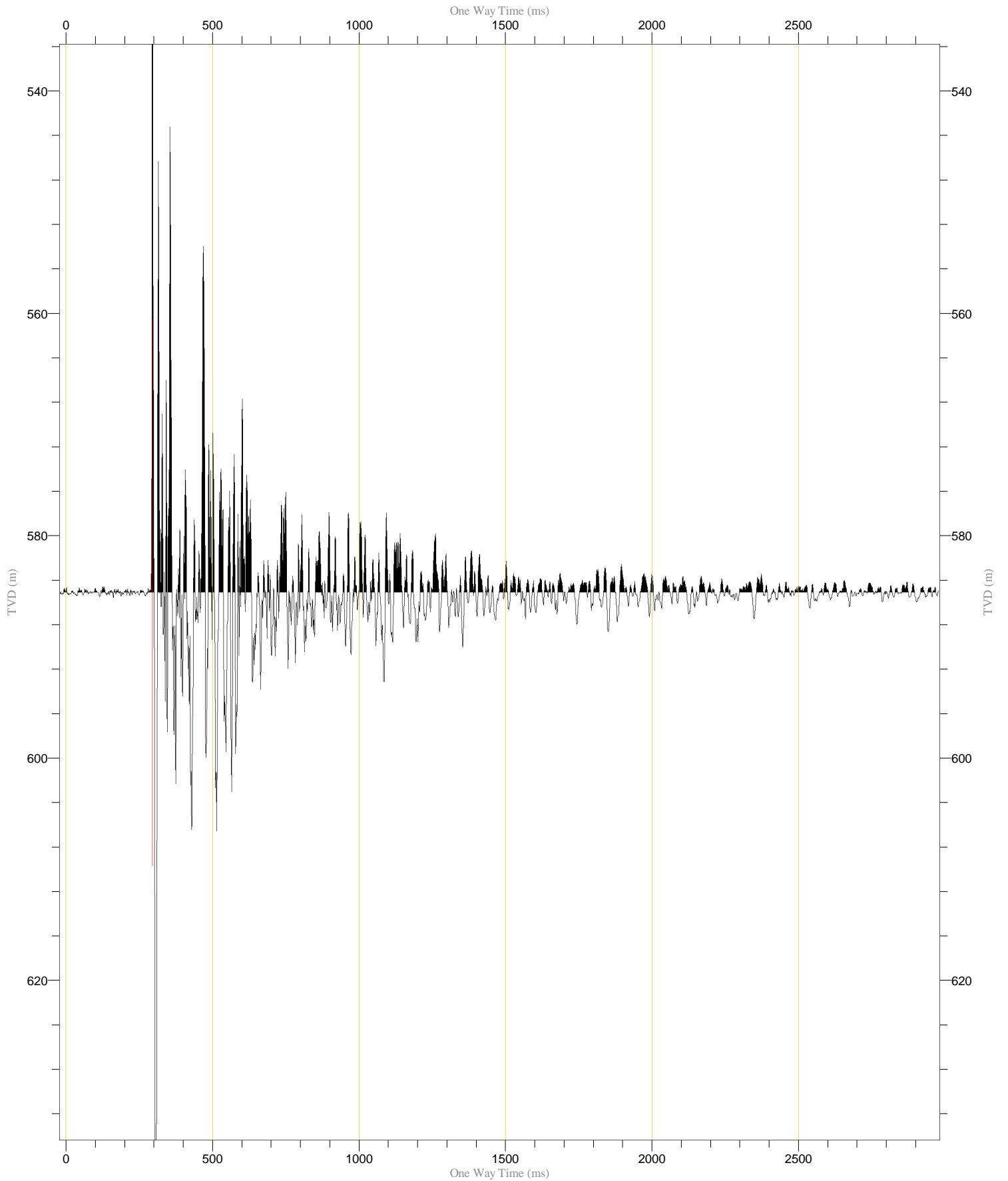
Raw Stack (X)

Normalization Trace by Trace (250%)

Polarity Normal

One Way Time (ms)

Scaling 5.8 cm/sec, 1/450



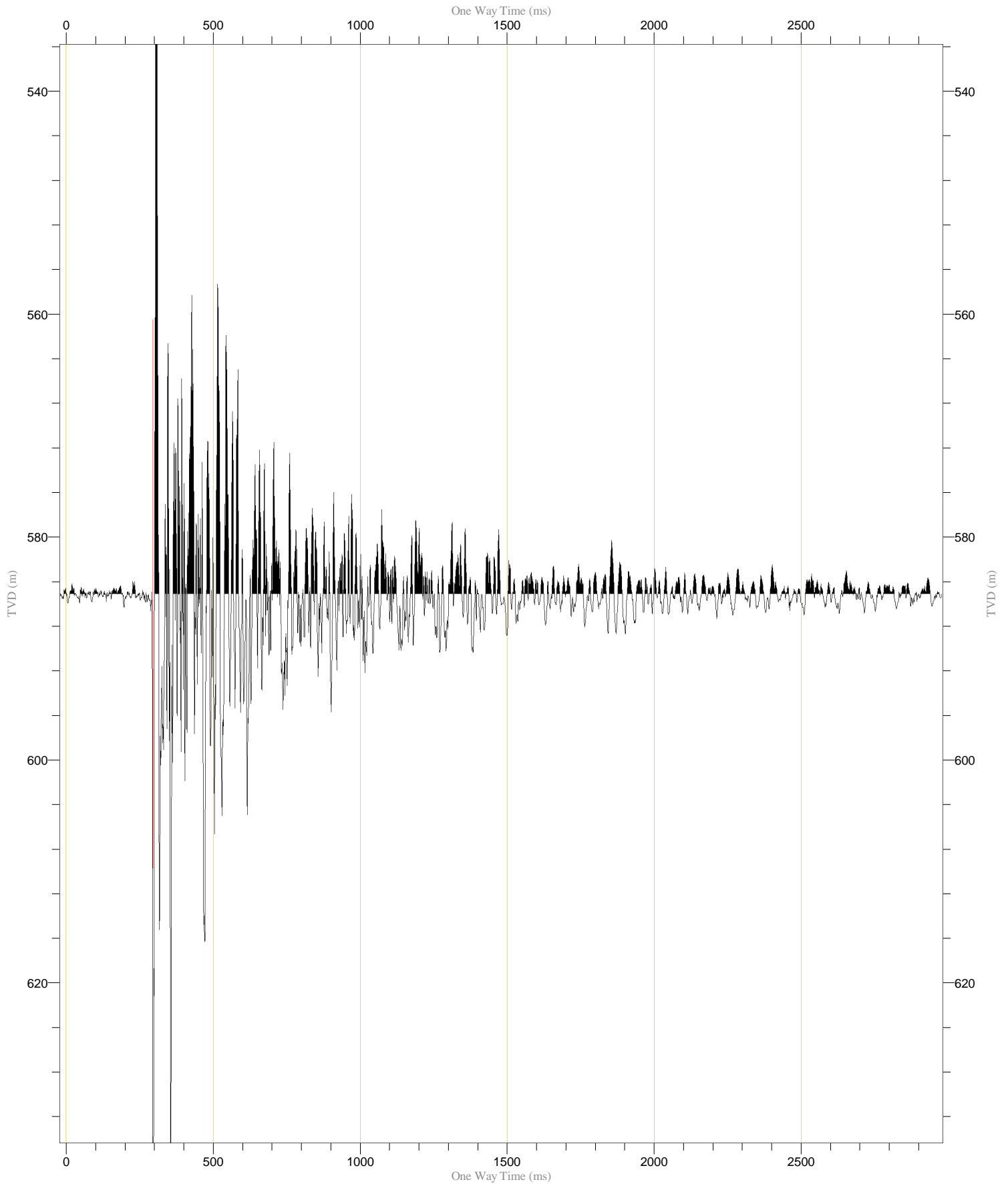
Raw Stack (Y)

Normalization Trace by Trace (250%)

Polarity Normal

One Way Time (ms)

Scaling 5.8 cm/sec, 1/450



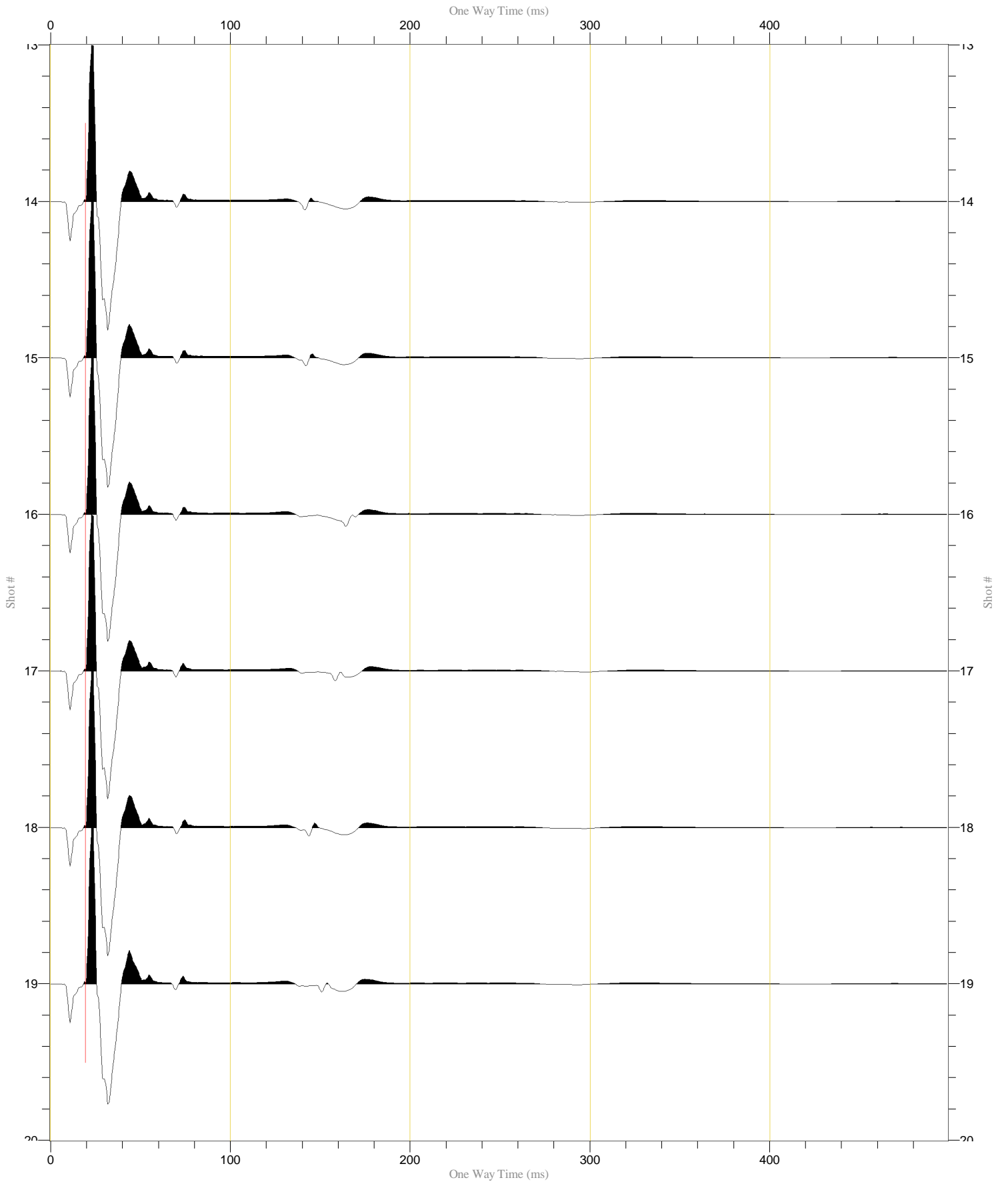
Source Sensor Signature

Normalization Trace by Trace (100%)

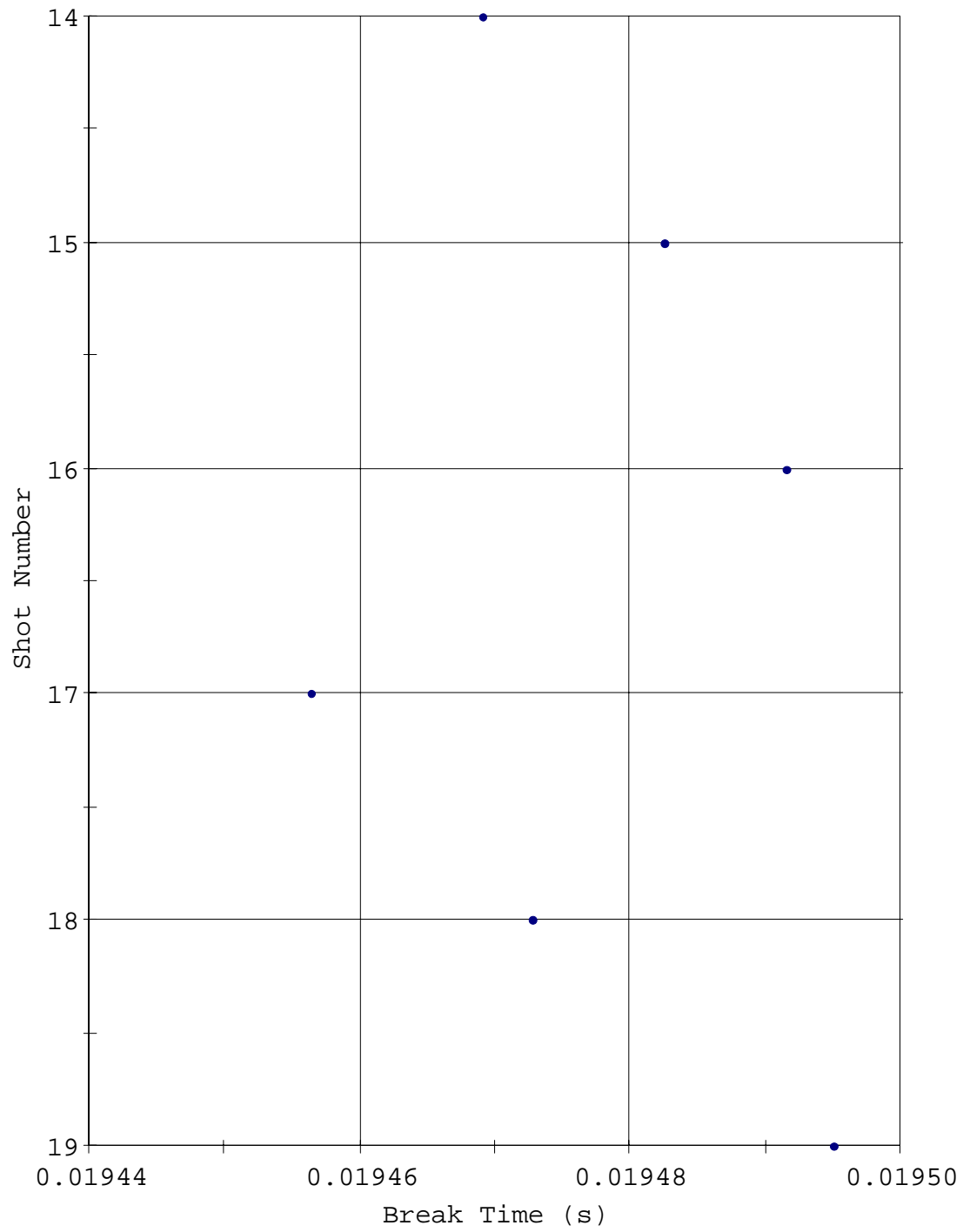
Polarity Normal

One Way Time (ms)

Scaling 35.67 cm/sec, 0.32/cm



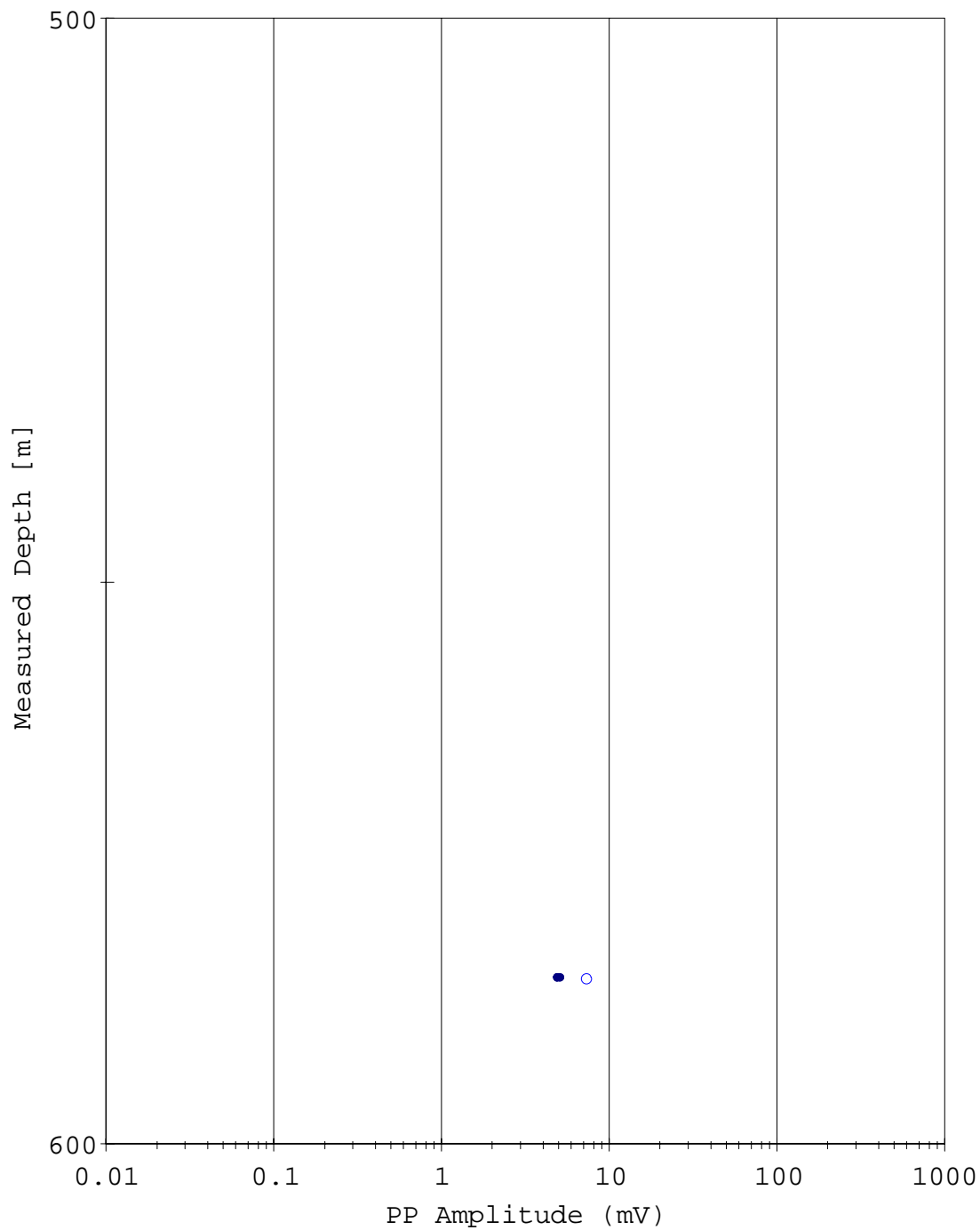
Surface Sensor QC Plot Page



• Surface Sensor Break Time

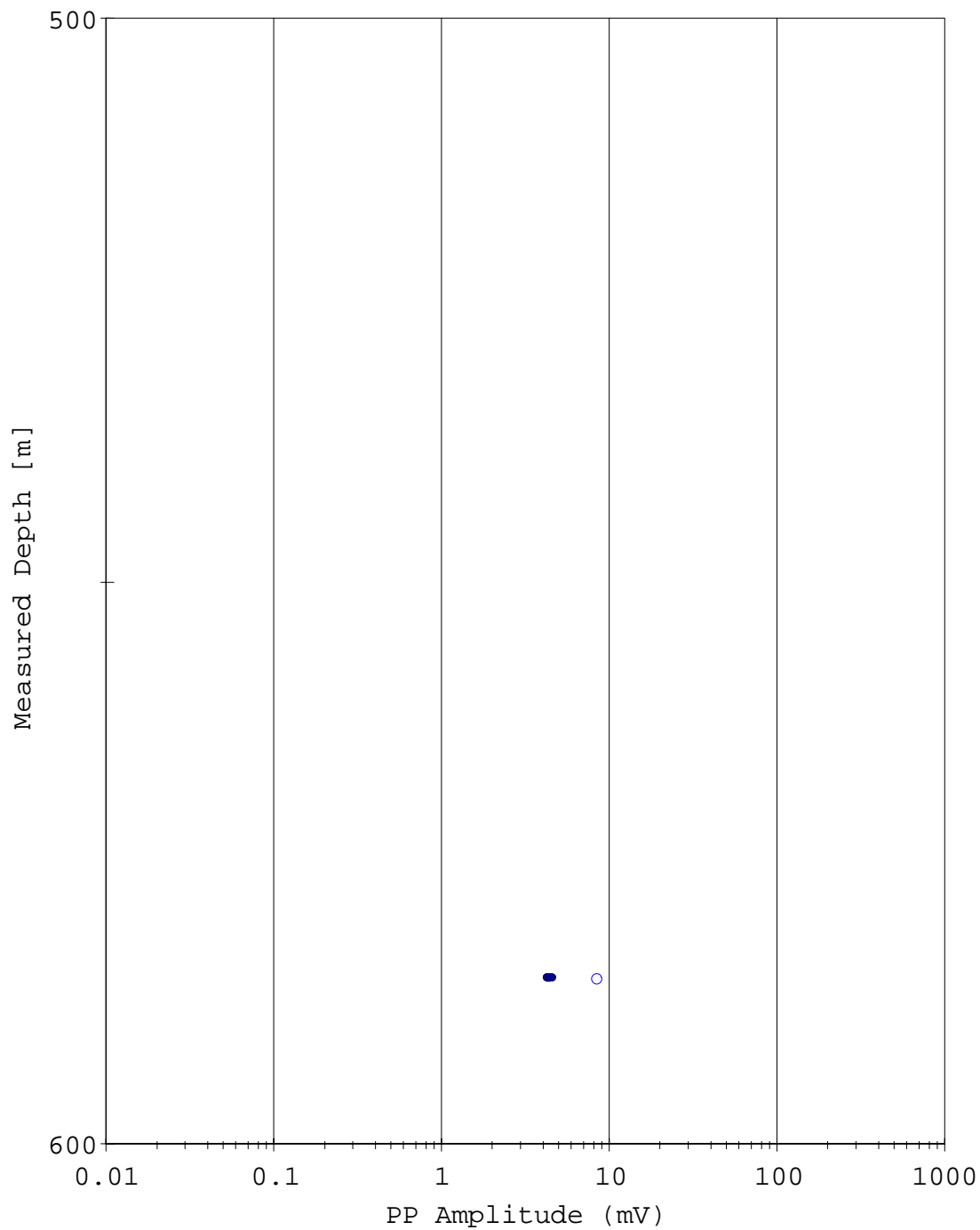


Peak To Peak Plot (X)



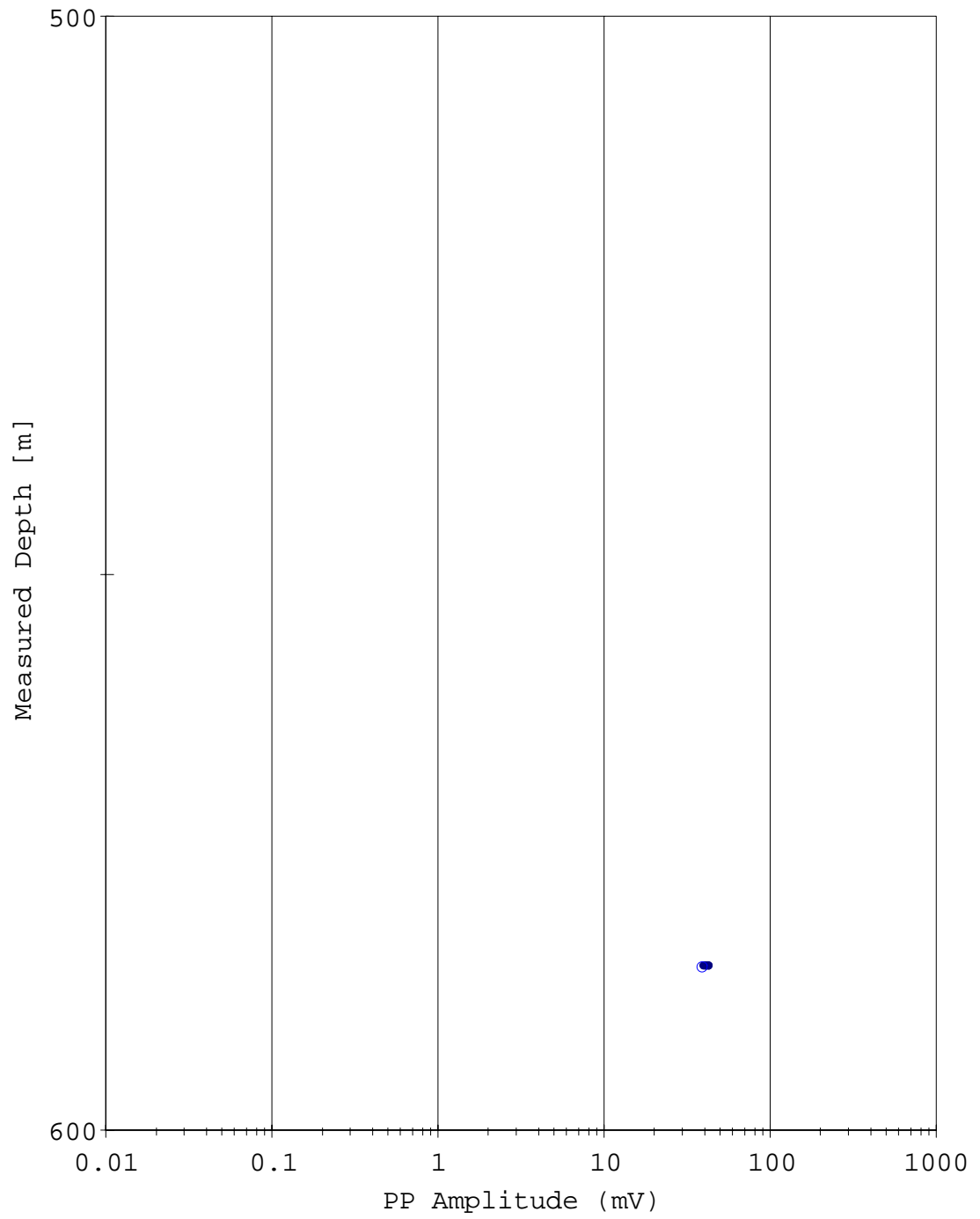
- PP Amplitude (mV) accepted for stack
- PP Amplitude (mV) rejected

Peak To Peak Plot (Y)



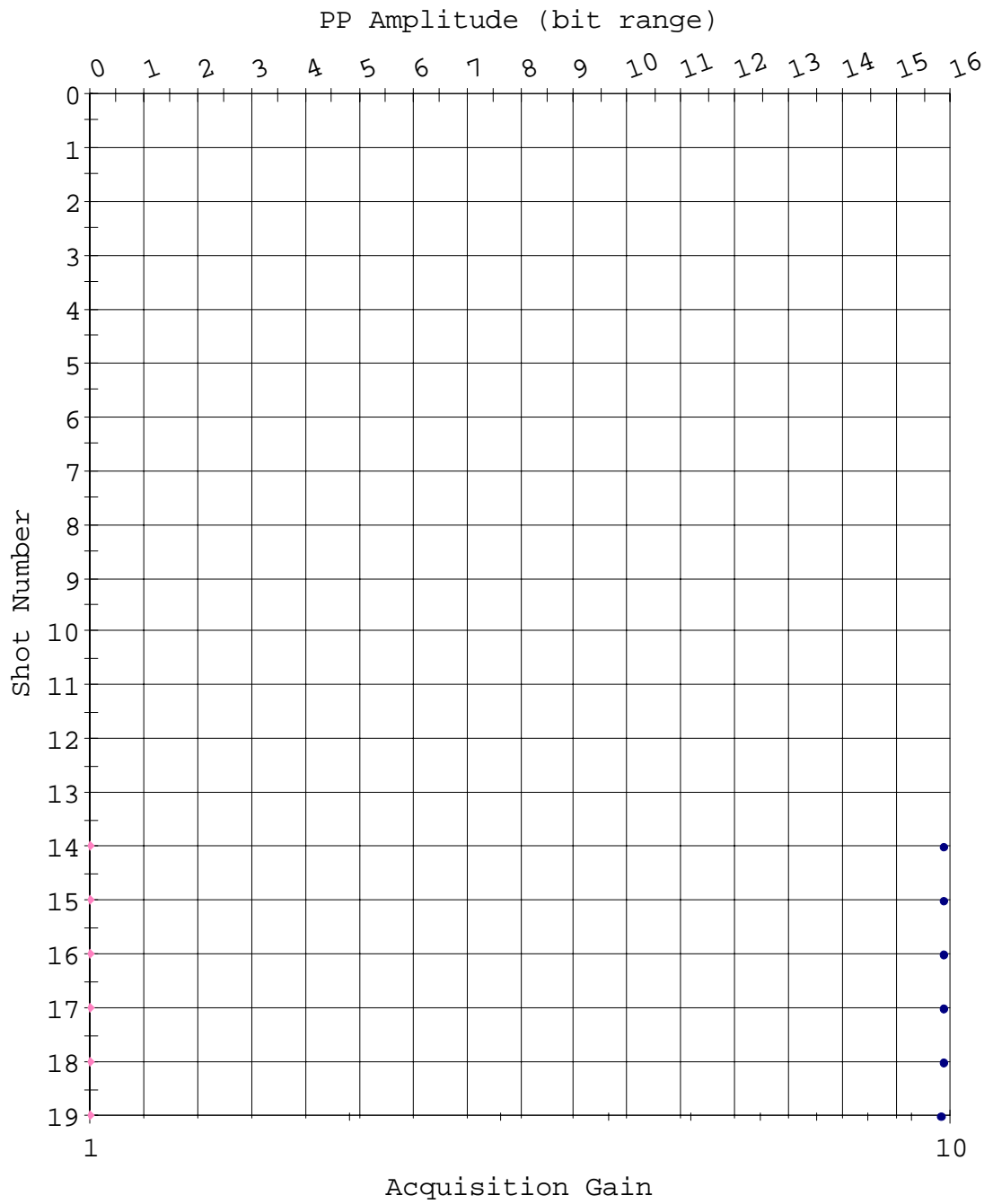
- PP Amplitude (mV) accepted for stack
- PP Amplitude (mV) rejected

Peak To Peak Plot (Z)



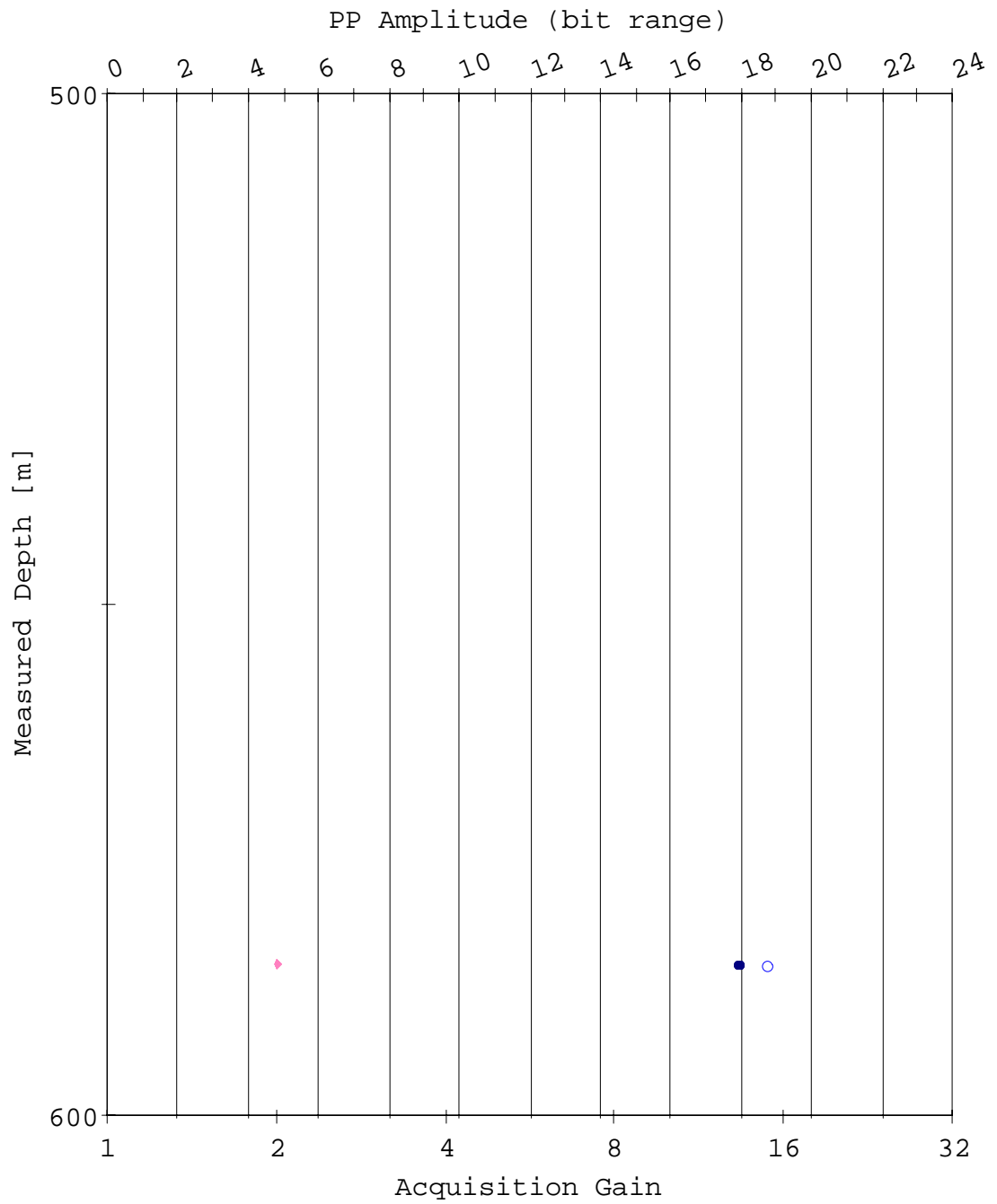
- PP Amplitude (mV) accepted for stack
- PP Amplitude (mV) rejected

Amplitude QC Plot (Surface)



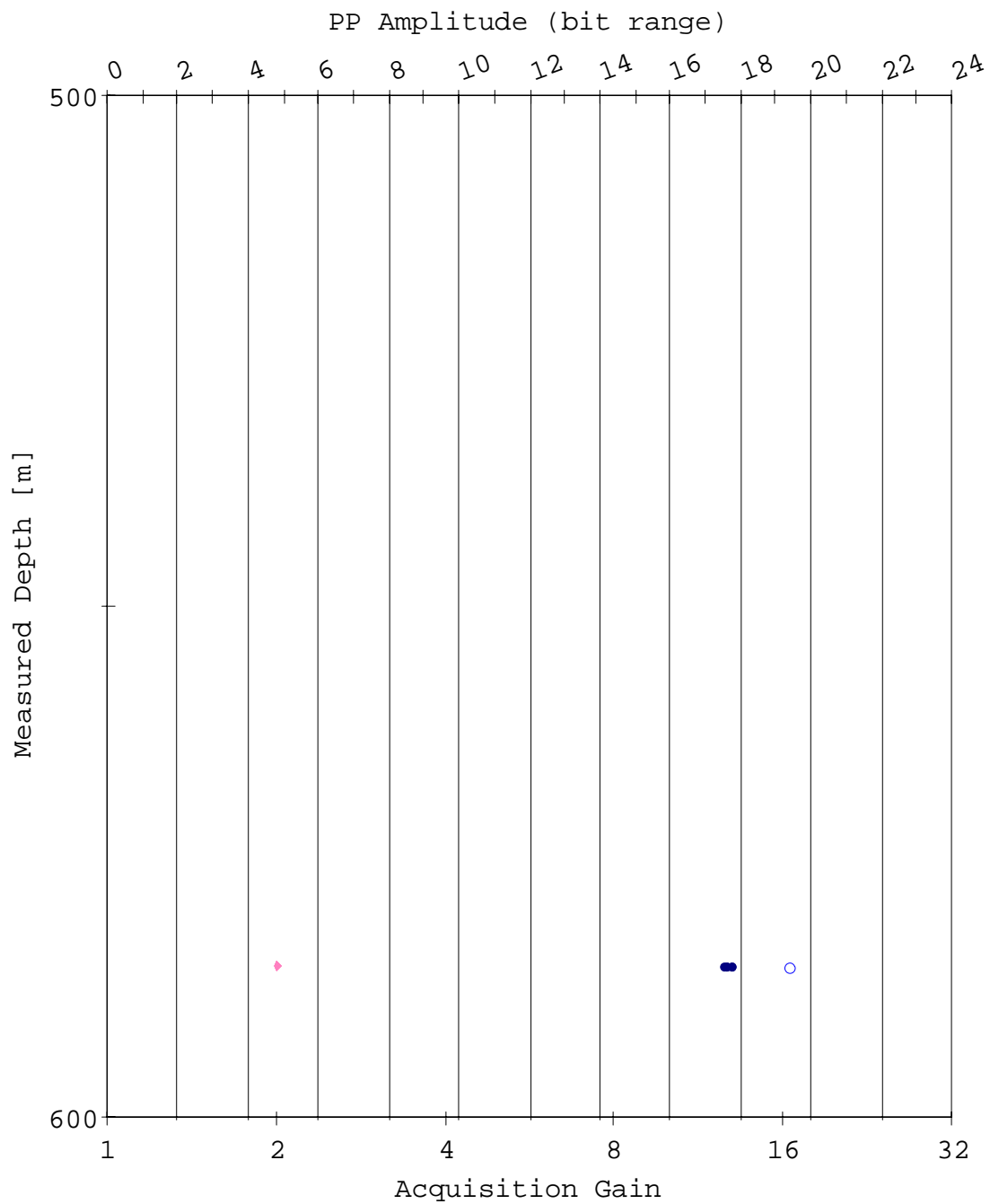
- PP Amplitude (bit range) accepted for stack
- PP Amplitude (bit range) rejected
- ◆ Acquisition Gain

Amplitude QC Plot (X)



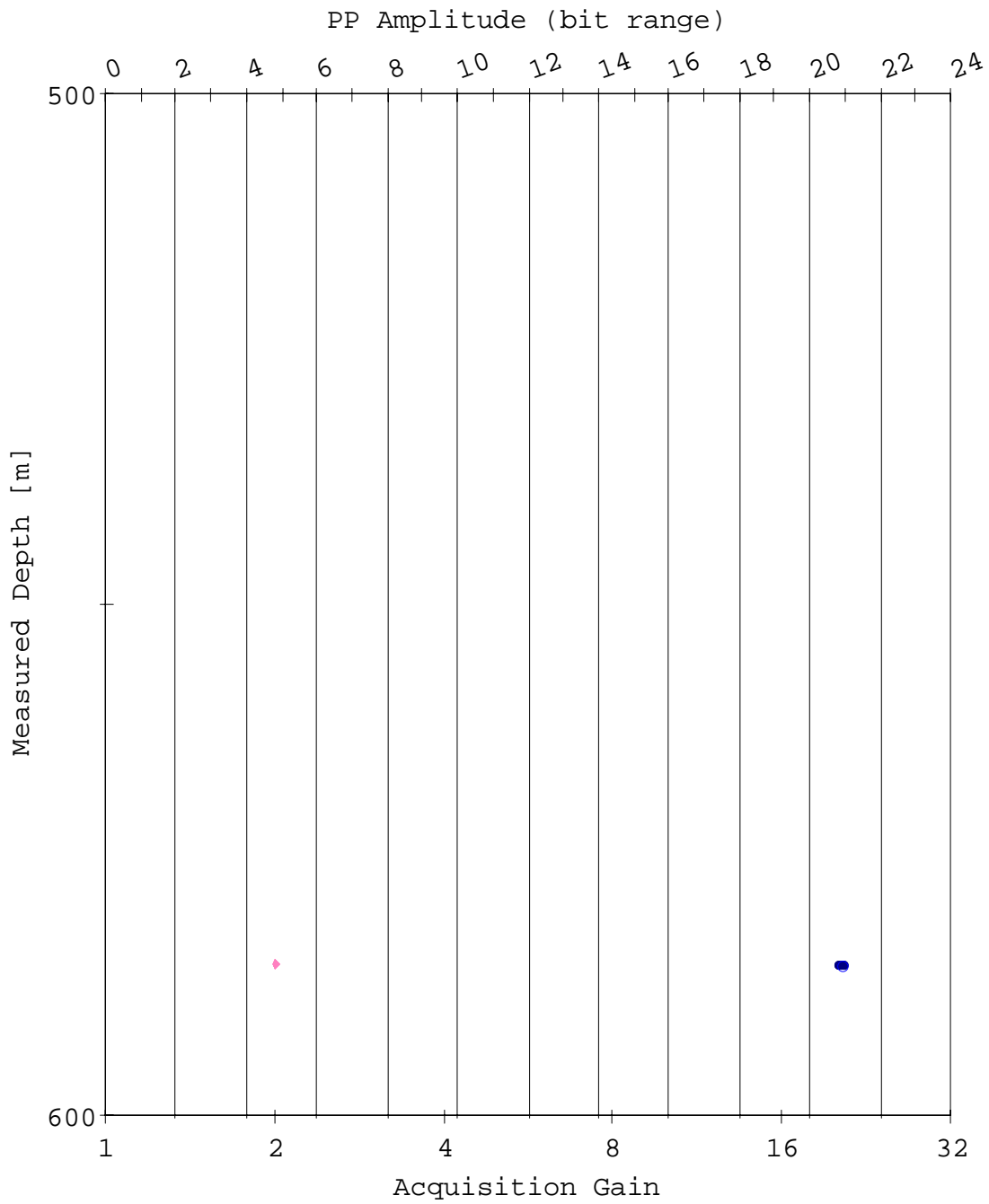
- PP Amplitude (bit range) accepted for stack
- PP Amplitude (bit range) rejected
- ◆ Acquisition Gain

Amplitude QC Plot (Y)



- PP Amplitude (bit range) accepted for stack
- PP Amplitude (bit range) rejected
- ◆ Acquisition Gain

Amplitude QC Plot (Z)



- PP Amplitude (bit range) accepted for stack
- PP Amplitude (bit range) rejected
- ◆ Acquisition Gain

**Calibration and Check Summary**


Measurement	Nominal	Master	Before	After	Change	Limit	Units
<b>Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration</b>							
Before: 15-Sep-2015 6:46							
EDTC Z-Axis Acceleration	9.810	N/A	9.816	N/A	N/A	N/A	M/S2
<b>Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration</b>							
Before: Calibration out of date 5-Aug-2015 7:56 After: Calibration out of date 5-Aug-2015 9:33							
Gamma Ray (Jig – Bkg)	152.3	N/A	152.3	152.9	0.5175	13.85	GAPI
Gamma Ray (Calibrated)	165.0	N/A	164.0	164.6	0.5571	15.00	GAPI

**Enhanced DTS Cartridge / Equipment Identification**

<b>Primary Equipment:</b>		
EDTC Gamma Ray Detector	EDTG – A/B	8305
Enhanced DTS Cartridge	EDTC – B	8317
<b>Auxiliary Equipment:</b>		
EDTC Housing	EDTH – B	8303

**Enhanced DTS Cartridge Wellsite Calibration**

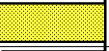





**EDTC Accelerometer Calibration**

Phase	EDTC Z-Axis Acceleration M/S2	Value
Before		9.816
	9.610 (Minimum)      9.810 (Nominal)      10.01 (Maximum)	

Before: 15-Sep-2015 6:46

**Enhanced DTS Cartridge Wellsite Calibration**

**Detector Calibration**

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig – Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		9.594	Before		152.3	Before		164.0
After		10.26	After		152.9	After		164.6
	0 (Minimum)      30.00 (Nominal)      120.0 (Maximum)			138.5 (Minimum)      152.3 (Nominal)      166.2 (Maximum)			150.0 (Minimum)      165.0 (Nominal)      180.0 (Maximum)	

Before: Calibration out of date 5-Aug-2015 7:56      After: Calibration out of date 5-Aug-2015 9:33



## VSI Seismic Evaluation Report

### ELECTRICAL NOISE LOW TEST

2015/09/15 11:28:04

Shot No: 1

Station Depth: 0.00 m

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
DC Offset	1	X	-25.4585	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	X	0.1223	micro V	-	0.5000	PASS
Noise Peak	1	X	0.5339	micro V	-	2.0000	PASS
DC Offset	1	Y	-25.2500	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Y	0.1238	micro V	-	0.5000	PASS
Noise Peak	1	Y	0.4938	micro V	-	2.0000	PASS
DC Offset	1	Z	-25.3616	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Z	0.1207	micro V	-	0.5000	PASS
Noise Peak	1	Z	0.4191	micro V	-	2.0000	PASS

### ELECTRICAL NOISE HIGH TEST

2015/09/15 11:28:27

Shot No: 2

Station Depth: 0.00 m

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
DC Offset	1	X	-25.4154	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	X	0.1232	micro V	-	0.5000	PASS
Noise Peak	1	X	0.4732	micro V	-	2.0000	PASS
DC Offset	1	Y	-24.8869	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Y	0.1260	micro V	-	0.5000	PASS
Noise Peak	1	Y	0.5422	micro V	-	2.0000	PASS
DC Offset	1	Z	-24.9281	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Z	0.1232	micro V	-	0.5000	PASS
Noise Peak	1	Z	0.4430	micro V	-	2.0000	PASS

### ELECTRICAL DISTORTION TEST

2015/09/15 11:28:37

Shot No: 3

Station Depth: 0.00 m

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Total Harmonic Distortion	1	X	-104.2662	dB	-	-90.0000	PASS
Total Harmonic Distortion	1	Y	-110.4749	dB	-	-90.0000	PASS
Total Harmonic Distortion	1	Z	-111.0014	dB	-	-90.0000	PASS

### SYSTEM DYNAMIC RANGE TEST

2015/09/15 11:28:51

Shot No: 4

Station Depth: 0.00 m

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
System Dynamic Range	1	X	107.7705	dB	103.0000	-	PASS
System Dynamic Range	1	Y	108.1058	dB	103.0000	-	PASS
System Dynamic Range	1	Z	107.7327	dB	103.0000	-	PASS

### AMPLIFIER GAIN 2 TEST

2015/09/15 11:29:06

Shot No: 5

Station Depth: 0.00 m

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.1383	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.0000	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.1424	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.0000	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.1428	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.0000	dB	-0.5000	0.5000	PASS

### AMPLIFIER GAIN 4 TEST

2015/09/15 11:29:16

Shot No: 6

Station Depth: 0.00 m

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.1349	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.0034	dB	-0.5000	0.5000	PASS



Amplitude (0.3Hz)	1	X	-1.6051	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	X	-3.5792	dB	-5.0000	-	PASS
Impulse Amplitude	1	X	573.7719	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	X	0.0000	degree	-	-	-
Amplitude (0.3Hz)	1	Y	-1.5305	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	Y	-3.5779	dB	-5.0000	-	PASS
Impulse Amplitude	1	Y	574.3520	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	Y	-0.8570	degree	-	-	-
Amplitude (0.3Hz)	1	Z	-1.6388	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	Z	-3.5781	dB	-5.0000	-	PASS
Impulse Amplitude	1	Z	574.2589	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	Z	0.1699	degree	-	-	-