

Survey type: Zero Offset VSP
Company: International Ocean Discovery Program
Well: Expedition 400, Site U1603D
Field: NW Greenland Glaciated Margin
Country: Greenland
Run:
Date: 31-Aug-2023

Recorded by:

Witnessed by:

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Introduction

<General introduction: timeline overview, key comments>

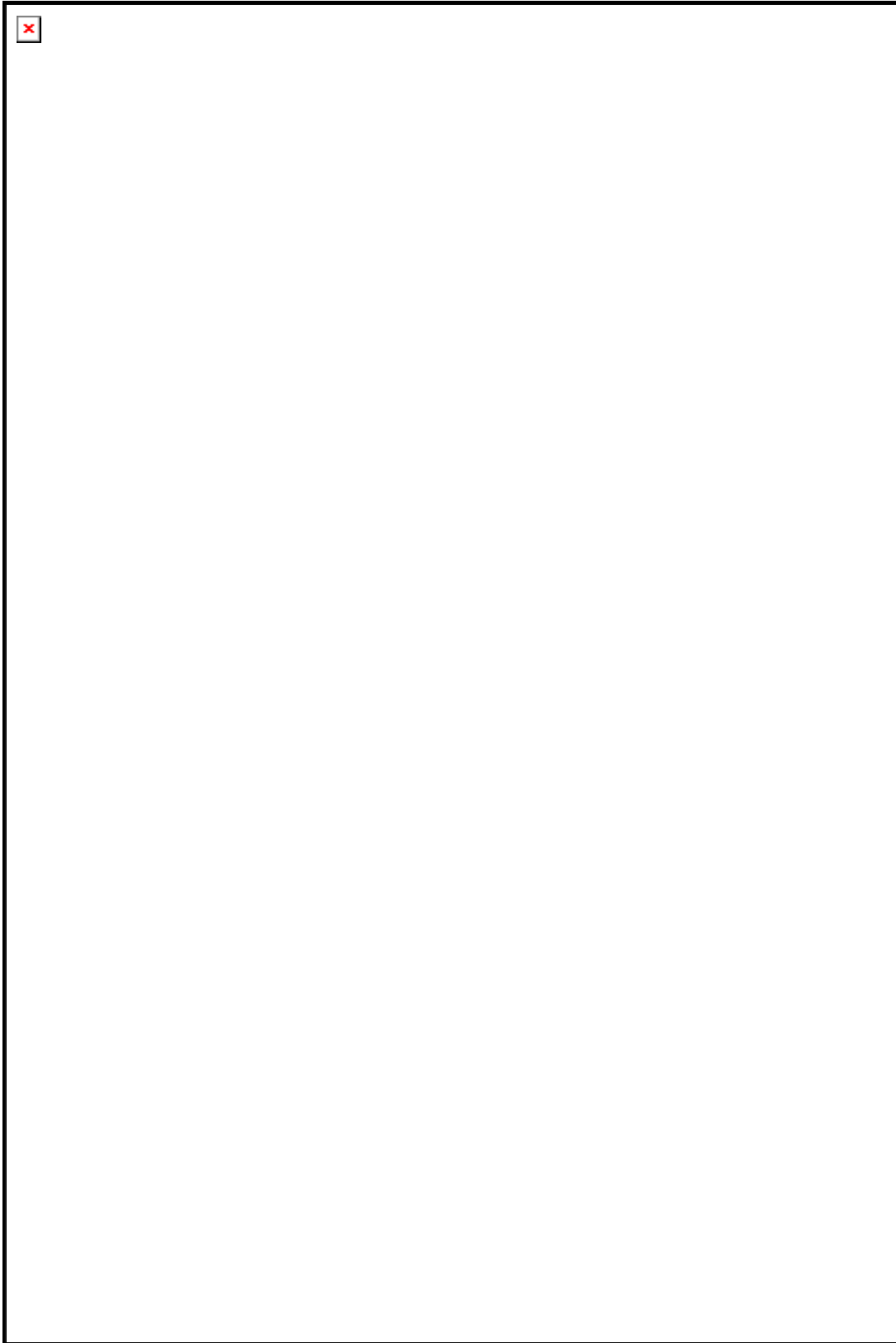
Survey Results: Zero Offset VSP

<Highlight of each survey acquired during this job...>

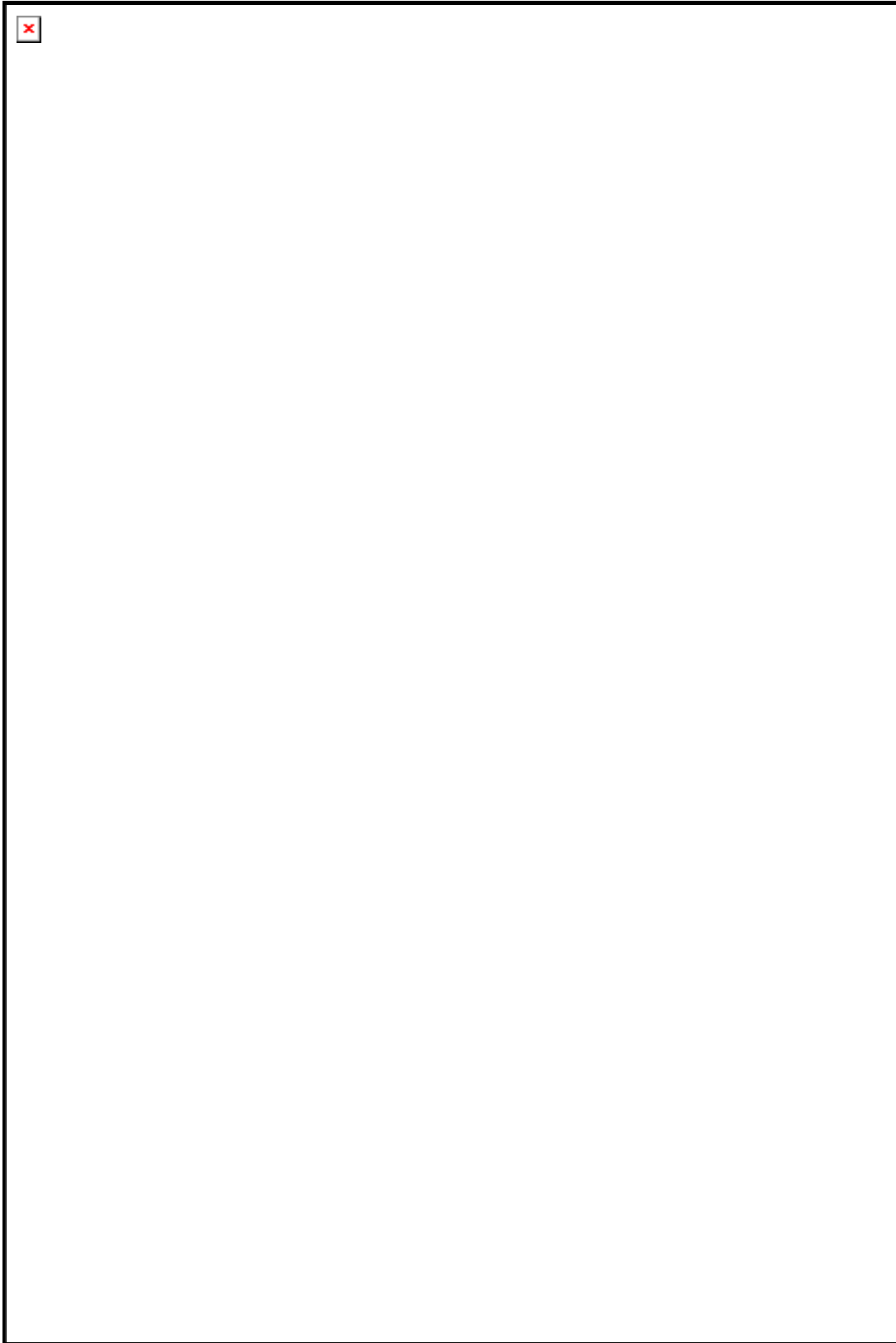
Survey Results: Walkaway VSP

Recommendations and Conclusion

Well Sketch



Tool Sketch



Well Information

Well Type	
Rig / Platform Type	
Well Reference Azimuth (Magnetic, True, or Grid North)	

Elevation Information

Water Depth	
Water Temperature	
Water Salinity	
Weathered Zone Depth	
Elevation Depth	

Sea Condition

Sea Condition	
Wave Height	
High Tide Level	
High Tide Time	
Low Tide Level	
Low Tide Time	

Velocity Information

Weathered Velocity	
Elevation Velocity	

Downhole Equipment Information

Seismic Tool Type	VSI
Combined Tool	LEH-Q/DTC-H/SGT-N/VSIT-C
Number of Shuttles	
Nominal Receiver Spacing	
Gimbaled (Y/N)	Fixed
Downhole Geophone Type	GAC-D (Geophone Accelerometer)
Sensitivity	>0.5 V/G +/- 5%
Natural Frequency	20Hz
Damping Factor	5.63
DC Resistance	1500 ohm +/-3% (@25 DegC)
Tool String Numbers	
LEH-QT	
DTC-H	
SGT-N	
AH-199	
VSPC	
VSCC	
VSII #1	
VSIS Receiver #1	
VSII #2	
VSIS Receiver #2	
VSII #3	
VSIS Receiver #3	
VSII #4	
VSIS Receiver #4	
VSII #5	
VSIS Receiver #5	
VSII #6	
VSIS Receiver #6	
VSII #7	
VSIS Receiver #7	
VSII #8	
VSIS Receiver #8	
VSIA	

General Information

Survey Type	Zero Offset VSP
Surface Recording Length	1000.0 msec
Surface Sampling Rate	1.00 msec
Downhole Recording Length	3000.0 msec
Downhole Sampling Rate	1.0 msec
Top of Survey	2099.2 m
Bottom of Survey	2225.0 m
Number of Shots	58
Number of Downhole Traces	58
Number of Downhole Traces used for Processing	58

**Stack Summary Listing (1/1) from
U1603D_WAVEFIELD_RECEIVER_GEO_Z_for_Report.ldf**

Stack Number	Measured Depth [m]	True Vertical Depth [m]	Measured Time [s]	One-way Vertical Time [s]	Two-way Vertical Time [s]	Interval Velocity [m/s]	Average Velocity [m/s]	RMS Velocity [m/s]
	0	0	0	0	0			
						1459.5		
10	2099.2	2088.2	1.3974	1.4307	2.8615		1459.5	1459.5
						-8660.8		
9	2111.1	2100.1	1.3960	1.4294	2.8587		1469.2	1435.4
						1768.8		
8	2155.2	2144.2	1.4209	1.4543	2.9086		1474.4	1441.7
						1318.9		
7	2156.7	2145.7	1.4221	1.4555	2.9109		1474.3	1441.6
						2109.1		
6	2176.5	2165.5	1.4315	1.4648	2.9297		1478.3	1446.9
						2173.2		
5	2190.6	2179.6	1.4379	1.4713	2.9426		1481.4	1450.9
						-6.6		
3	2200.0	2189.0	0.0150	0.0487	0.0974		44931.8	7973.3
						-640.5		
2	2223.1	2212.1	-0.0210	0.0127	0.0255		173807.9	15562.6
						0.0		

Shot Summary Listing (1/1)

Measured Depth [m]	Tool Number	Stack Number	Relative Bearing [deg]	Caliper [in]	Anchoring force [kg]	Shot number
2099.2	1	10	-5.1	12.2	662.4	82, 84, 85
2111.1	1	9	13.2	10.7	649.5	76, 78, 80
2155.2	1	8	3.7	10.3	745.2	69, 70, 71, 72, 74
2156.7	1	7	3.4	11.1	743.0	66
2176.5	1	6	3.6	10.9	628.4	59, 60, 61, 62, 63, 64
2190.6	1	5	3.6	12.1	668.8	52, 53, 54, 55, 56, 57, 58
2200.0	1	3	-1.2	15.5	819.8	44, 45, 46
2223.1	1	2	-29.1	15.5	838.4	34, 37, 40

Source Configuration (Air Gun)

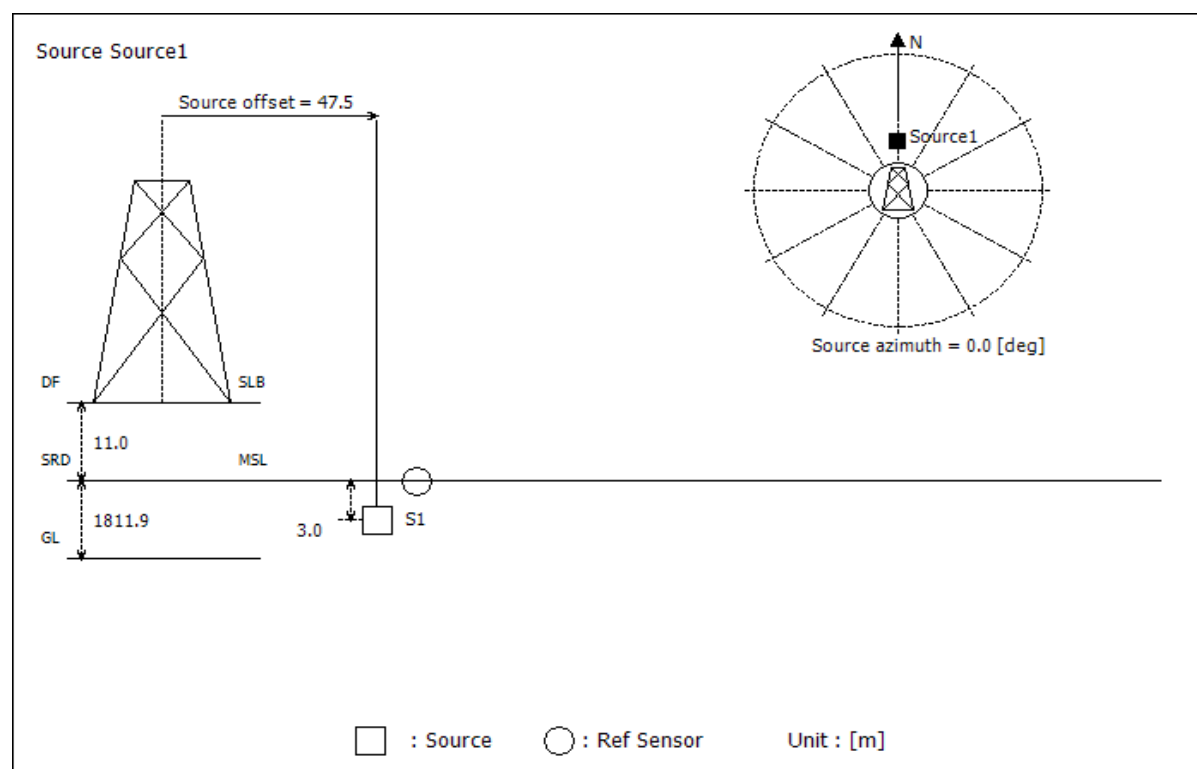
Source Location (Rig, Boat, Pit, Borehole)	
Source Group ID (A, B, C, ...)	
Source Offset (for fixed offset)	
Source Azimuth (for fixed offset)	
Source Depth from Surface	
Source Depth from Logging Zero	

Gun Controller Type	
Gun Controller Model Name	
Gun Controller Serial Number	
Gun Type	
Gun Serial Number(s)	
Gun Configuration (3 Gun Cluster, Gun Array, etc.)	
Gun Chamber Volumes	
Gun Pit/Borehole Information	
Compressor Type	
Compressor Flow Rate	
Air Regulator Pressure	

Surface Sensor Configuration

Number of Surface Reference Sensors	
Surface Recording Length	
Surface Sampling Rate	
Sensor Type (S1)	
Sensor Type (S2)	
Sensor Type (S3)	
Sensor Depth from Surface (S1)	
Sensor Depth from Surface (S2)	
Sensor Depth from Surface (S3)	
Sensor Depth from Logging Zero (S1)	
Sensor Depth from Logging Zero (S2)	
Sensor Depth from Logging Zero (S3)	
Sensor Offset from Source (S1)	
Sensor Offset from Source (S2)	
Sensor Offset from Source (S3)	

Source Geometry Sketch



Source Vessel Information

Vessel Name	
Vessel Supplier	
Seismic & Positioning Operator/Technician	
Gyrocompass Type	

Positioning Information

Positioning Contractor	
DGPS Reference Station(s)	
RTCM Supplier(s)	
Time Zone (e.g. UTC-6hours)	

Geodetic Information

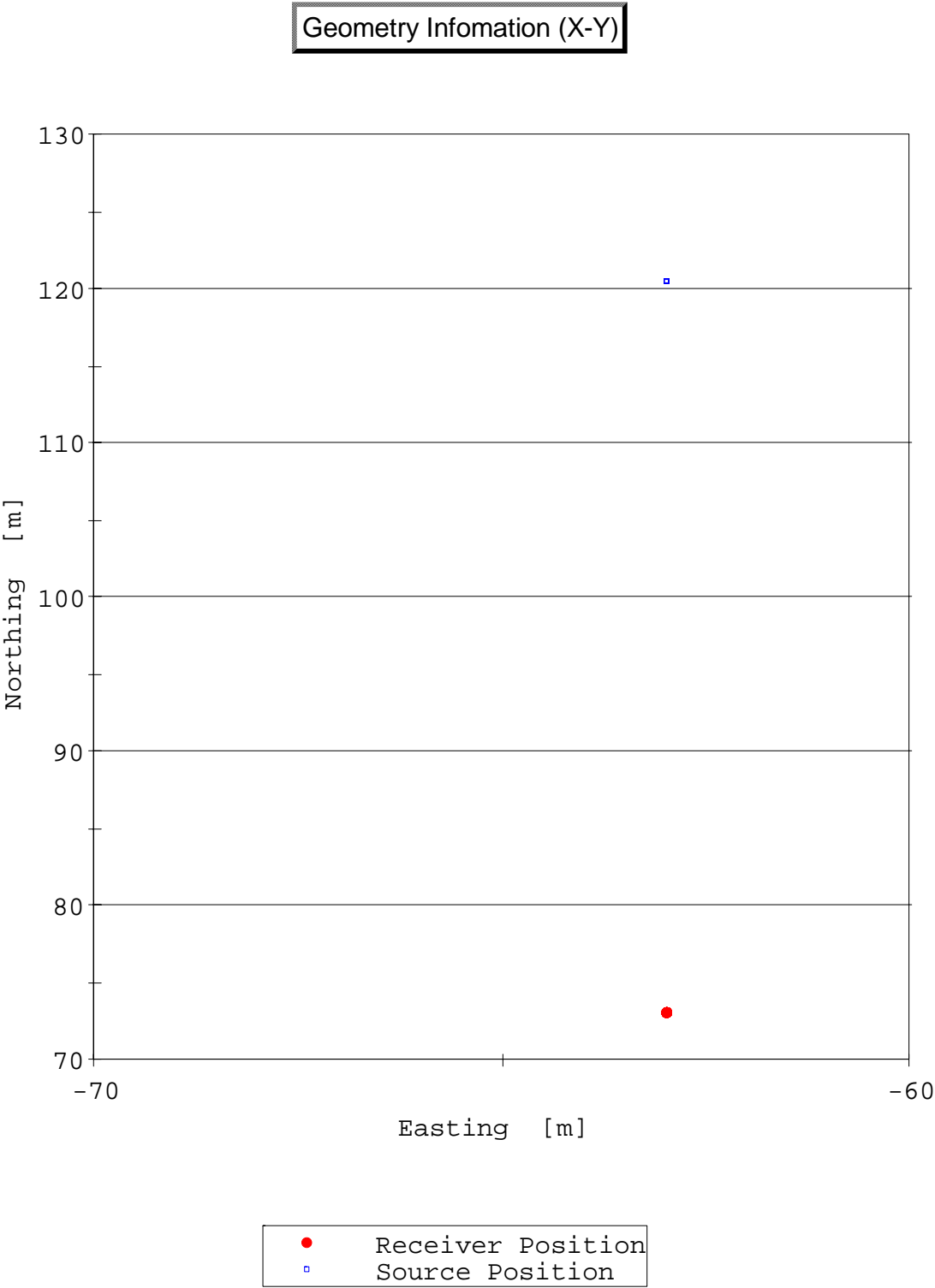
GPS Spheroid Name	WGS84
Semi-Major Axis	6378137.0
Inverse Flattening	298.257223563
Local Spheroid Name	
Semi-Major Axis	
Inverse Flattening	
Datum Name	
Datum Shift from WGS84 to Local (Bursa Wolf)	
dX	
dY	
dZ	
rX	
rY	
rZ	
Scale (ppm)	
Projection Type (TM,UTM,Lambert)	
UTM Zone (if applicable)	
Central Meridian	
Scale Factor	
Origin Latitude	
Origin Longitude	
Standard Parallel 1 (Lambert only)	
Standard Parallel 2 (Lambert only)	
False Easting	
False Northing	

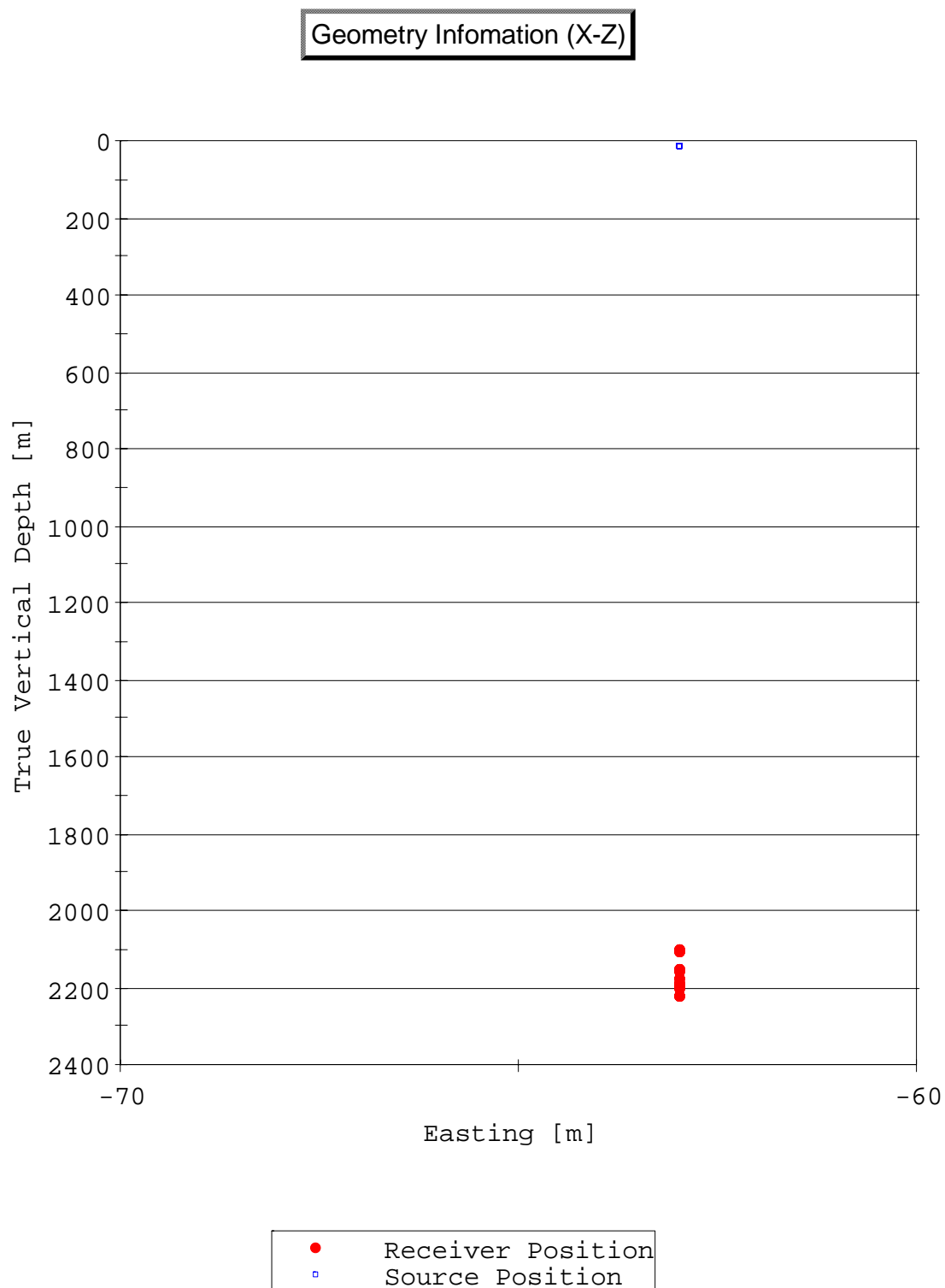
Walkaway Parameters

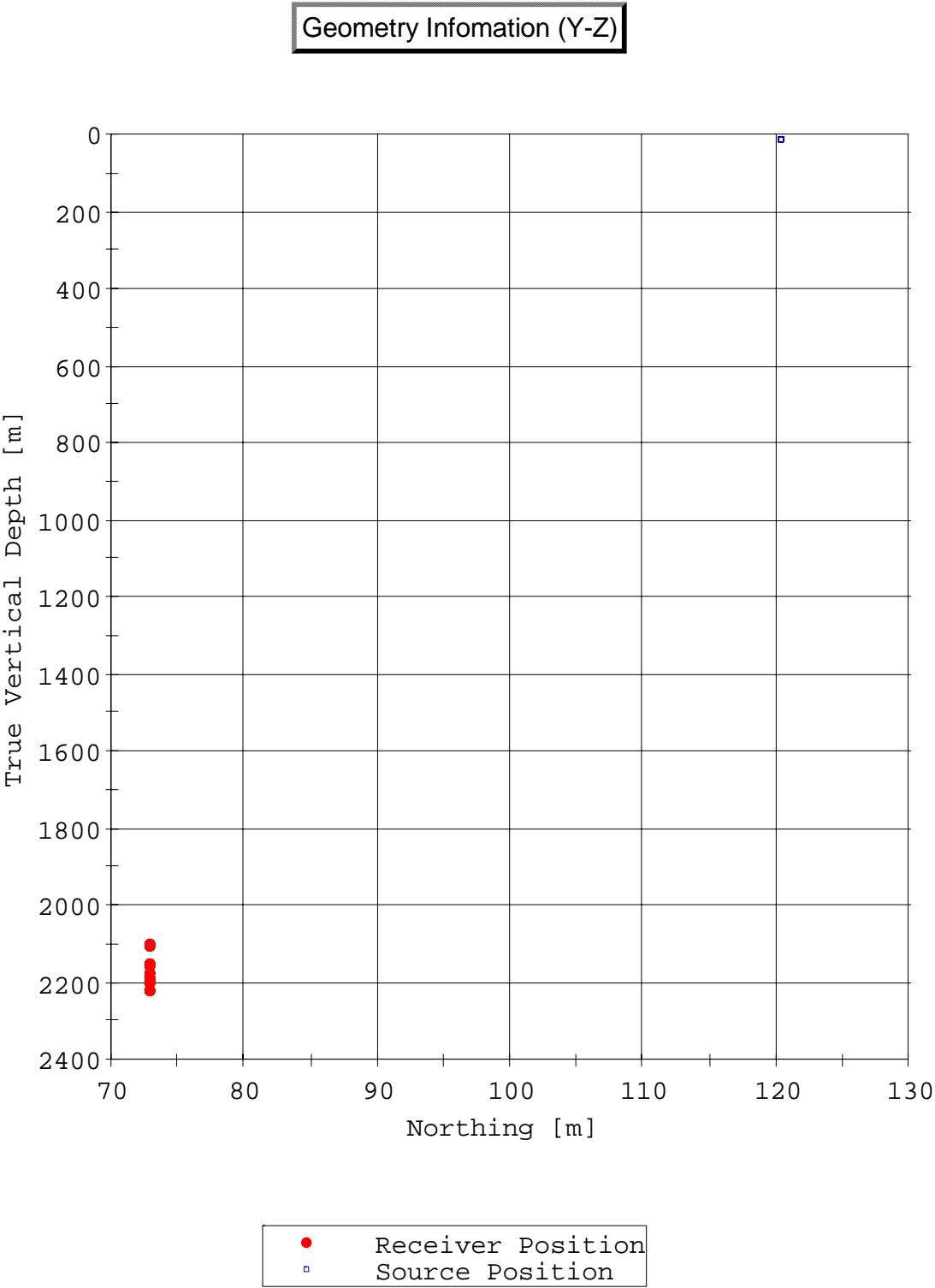
Shot Point Interval	
Cross-Line Tolerance	
In-Line Tolerance	

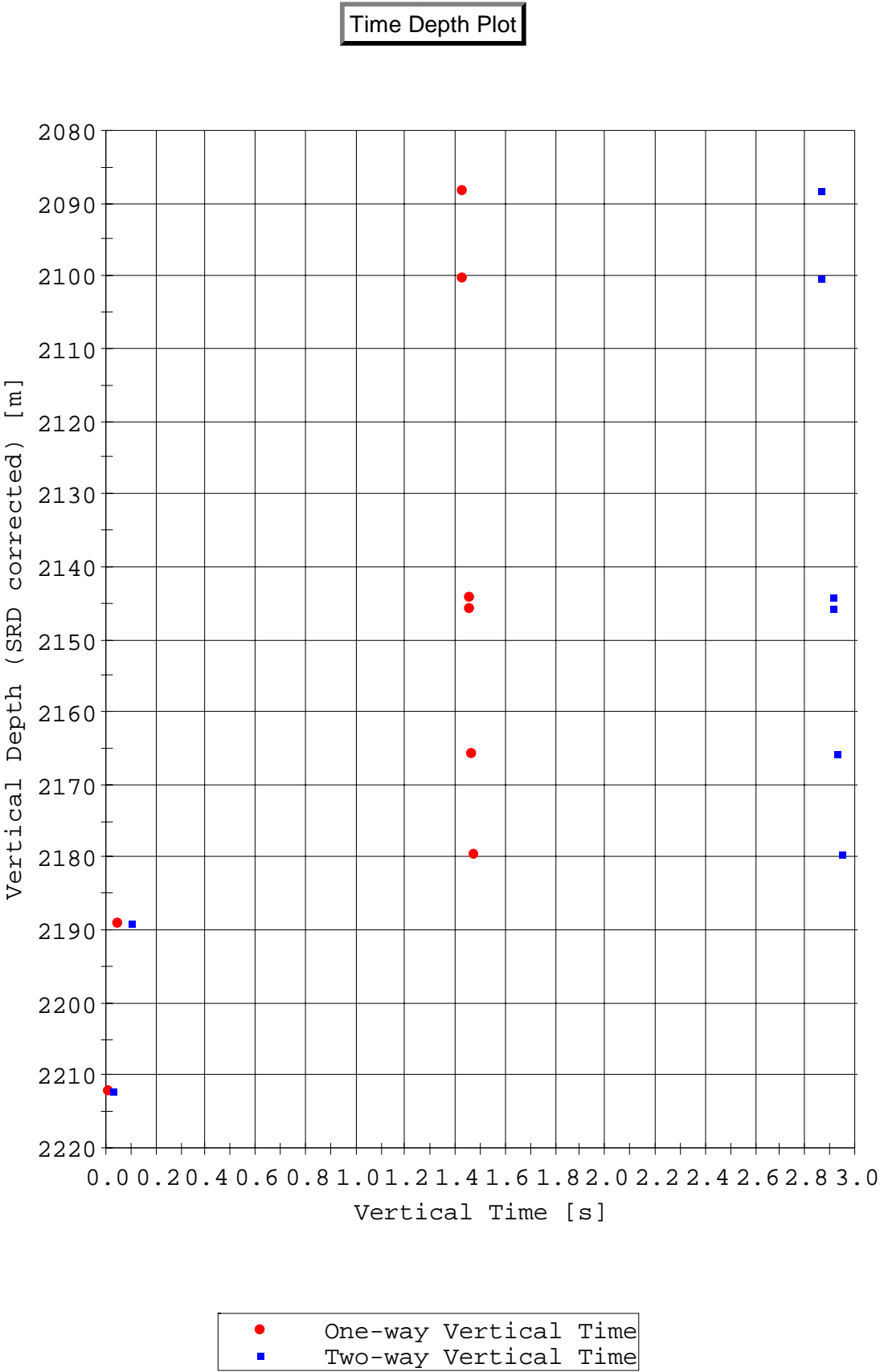
Walkabove Tolerance

Radius of Target Circle (e.g. TVD/80 or Fixed)	
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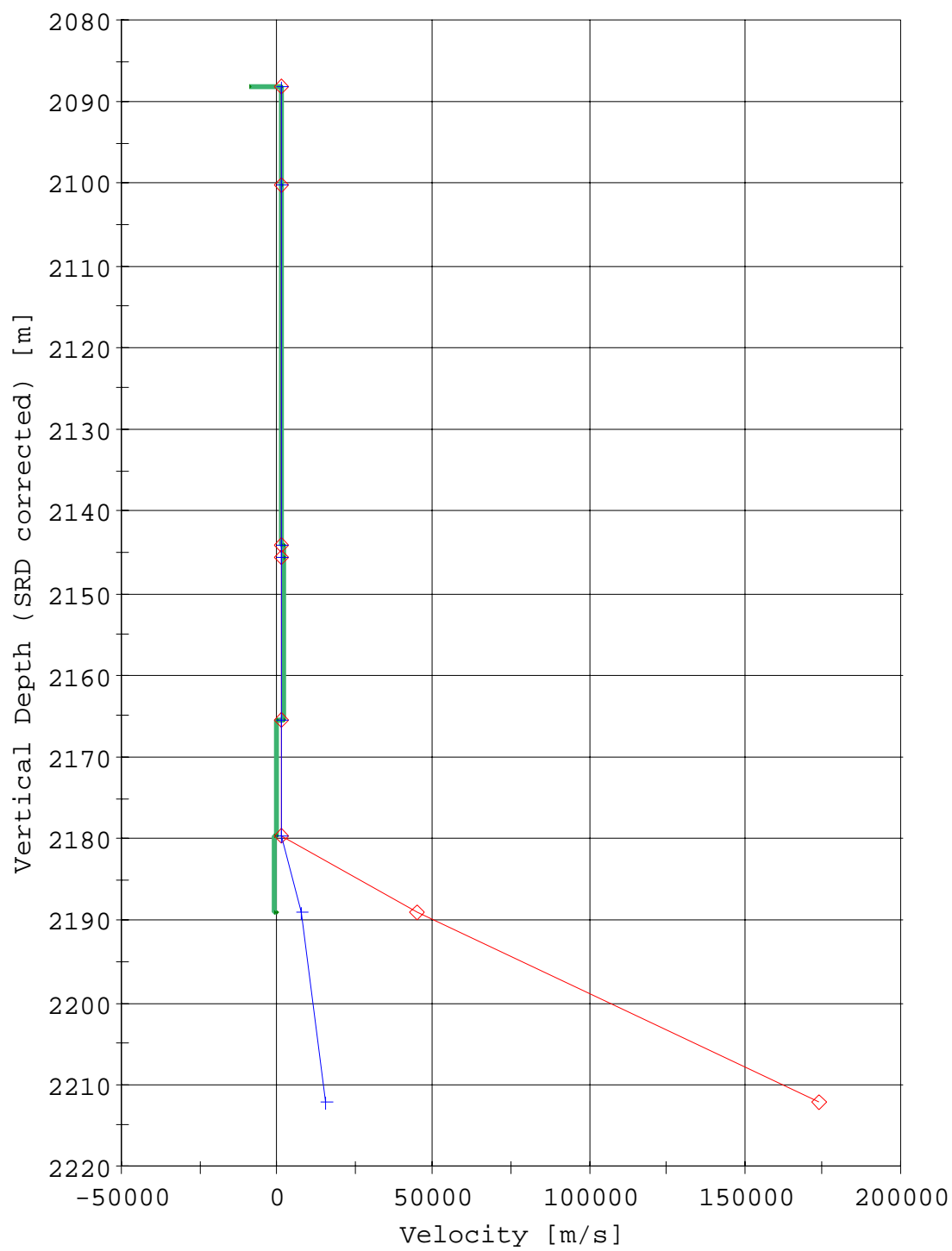








Velocity Plot



Process Flow	Parameter
<div><div><div><div><div></div></div></div><div><div><div><div></div></div></div></div></div></div>	

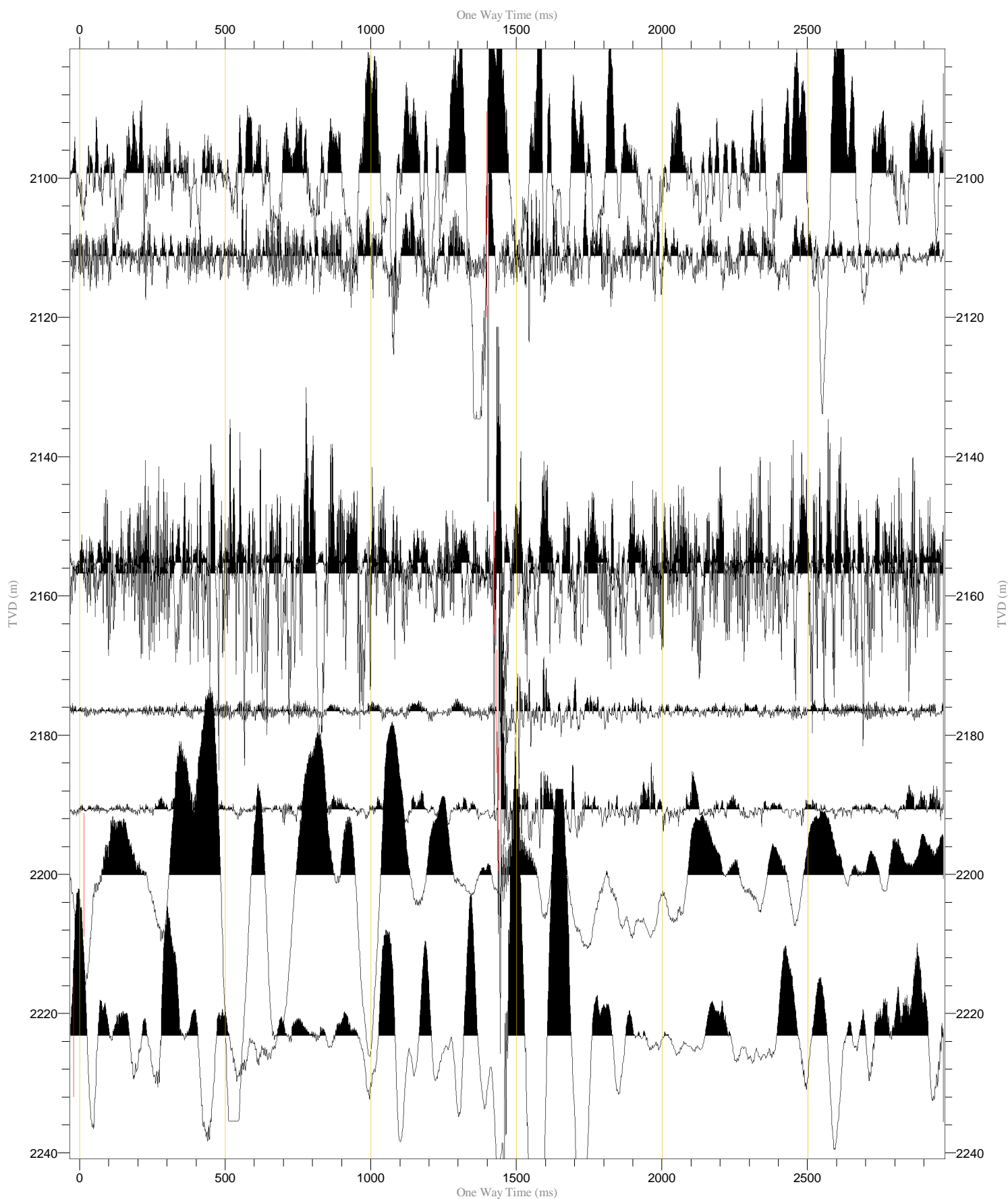
Raw Stack (Z)

Normalization Trace by Trace (250%)

Polarity Normal

One Way Time (ms)

Scaling 5.7 cm/sec, 1/730



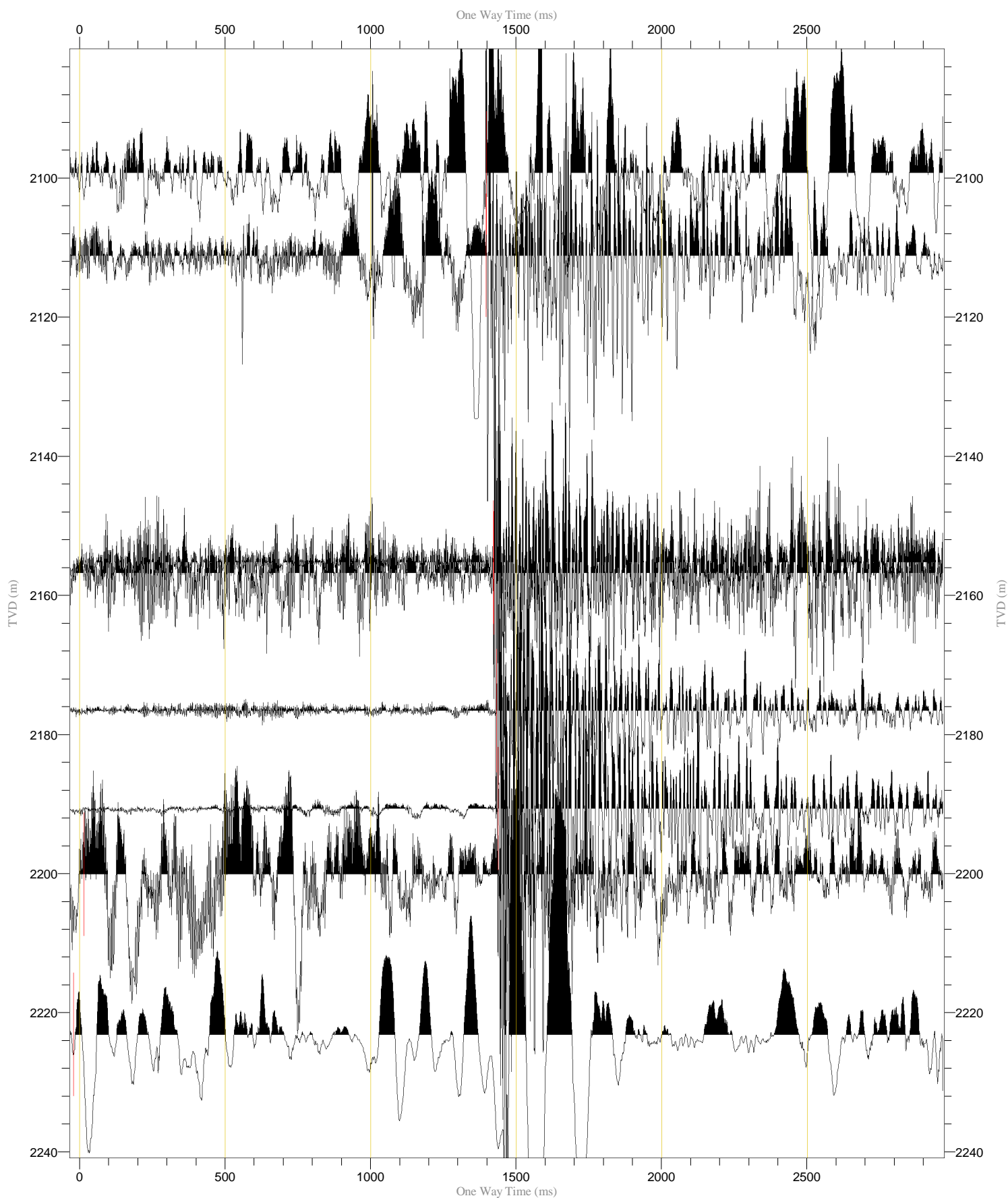
Raw Stack (X)

Normalization Trace by Trace (250%)

Polarity Normal

One Way Time (ms)

Scaling 5.7 cm/sec, 1/730



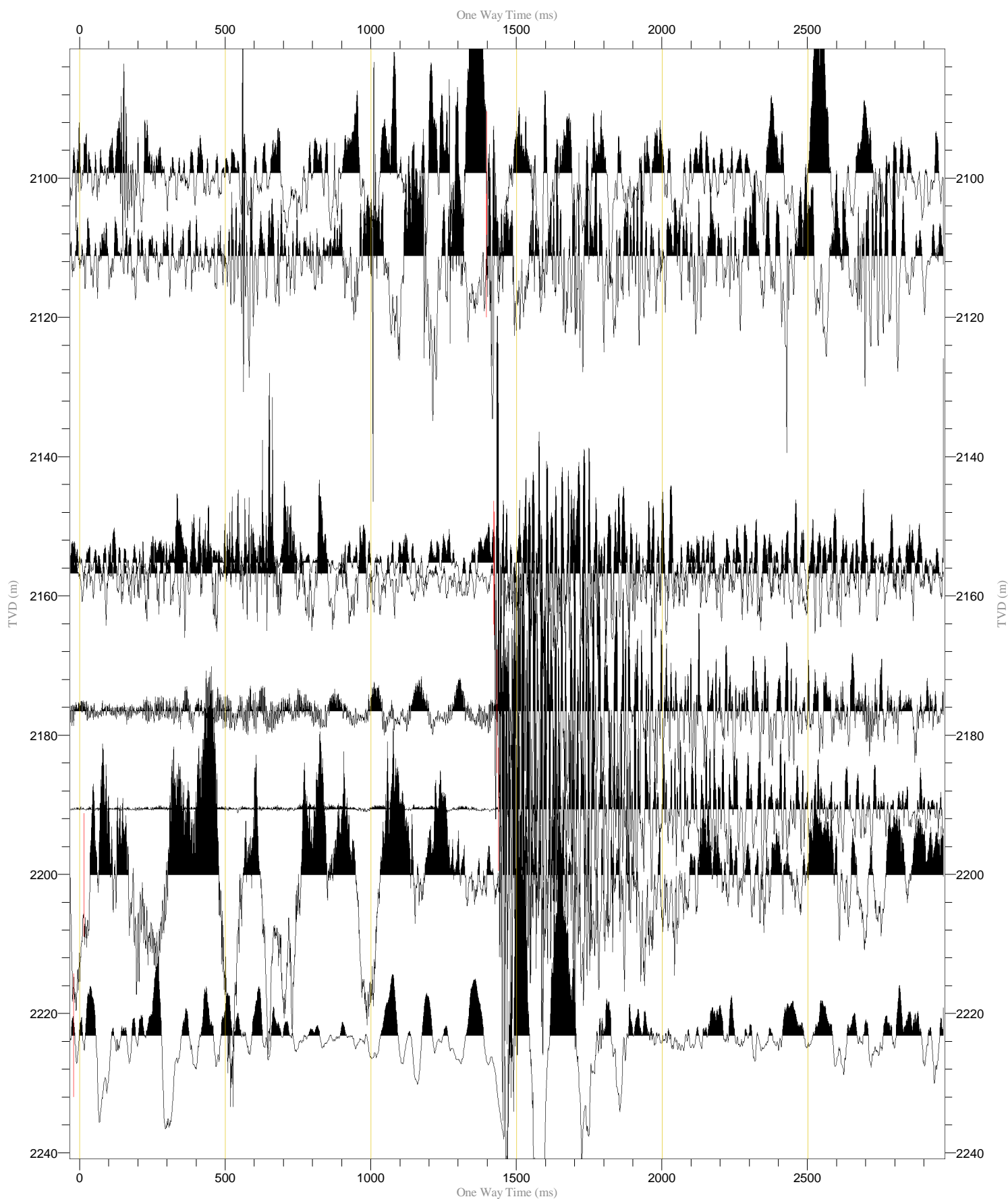
Raw Stack (Y)

Normalization Trace by Trace (250%)

Polarity Normal

One Way Time (ms)

Scaling 5.7 cm/sec, 1/730



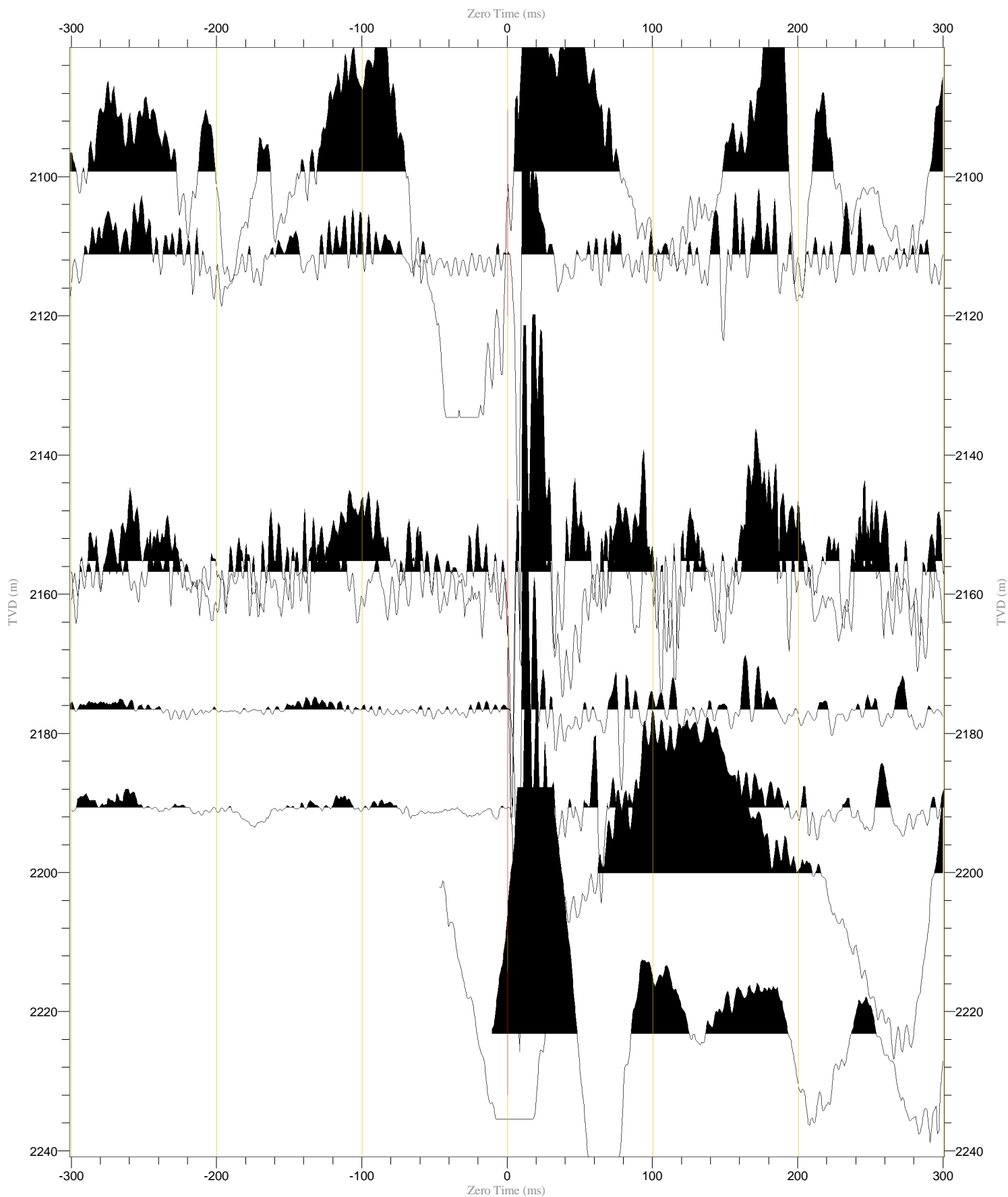
Raw Stack (Z) (Magnified)

Normalization Trace by Trace (250%)

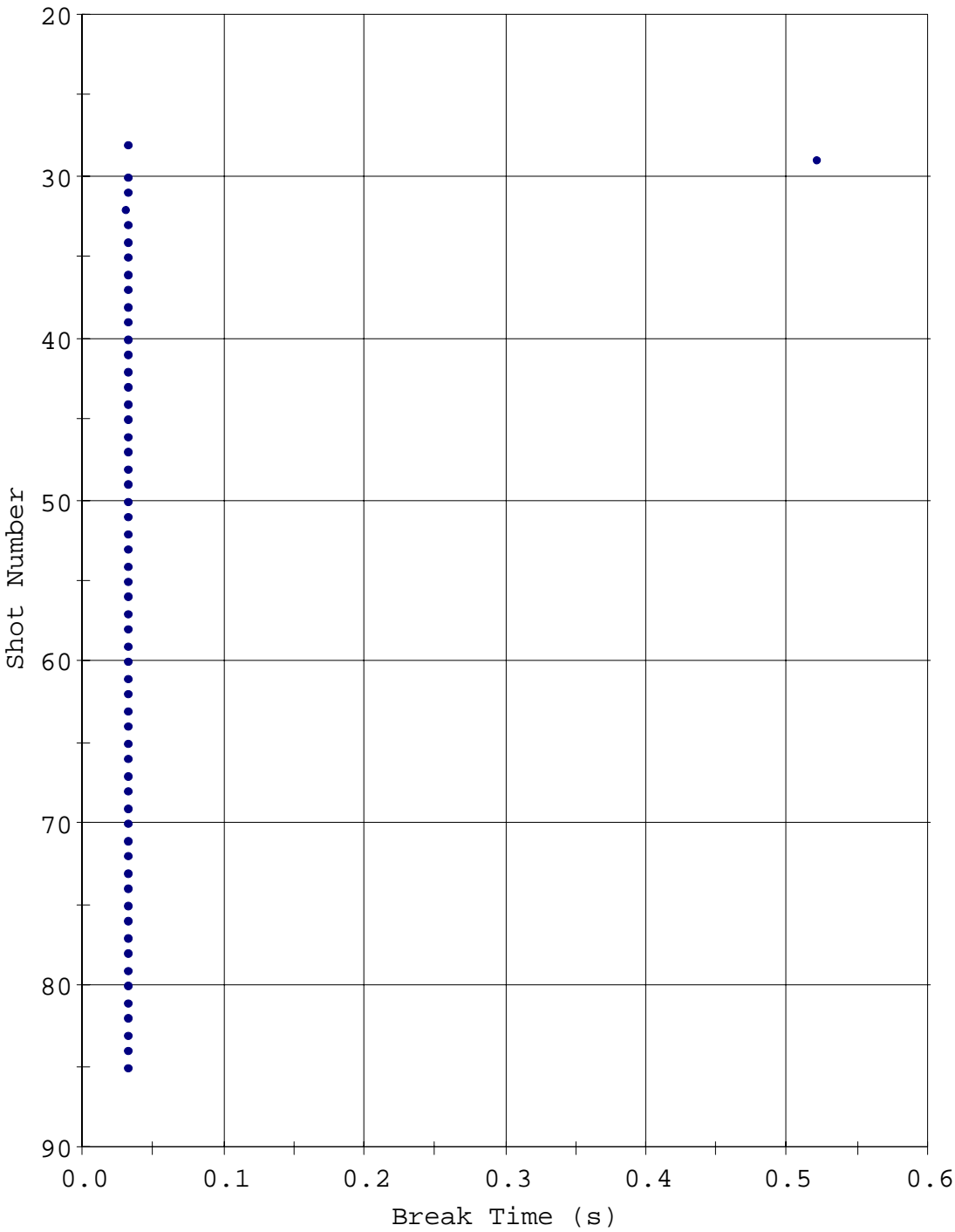
Polarity Normal

Zero Time (ms)

Scaling 28.5 cm/sec, 1/730



Surface Sensor QC Plot Page



• Surface Sensor Break Time

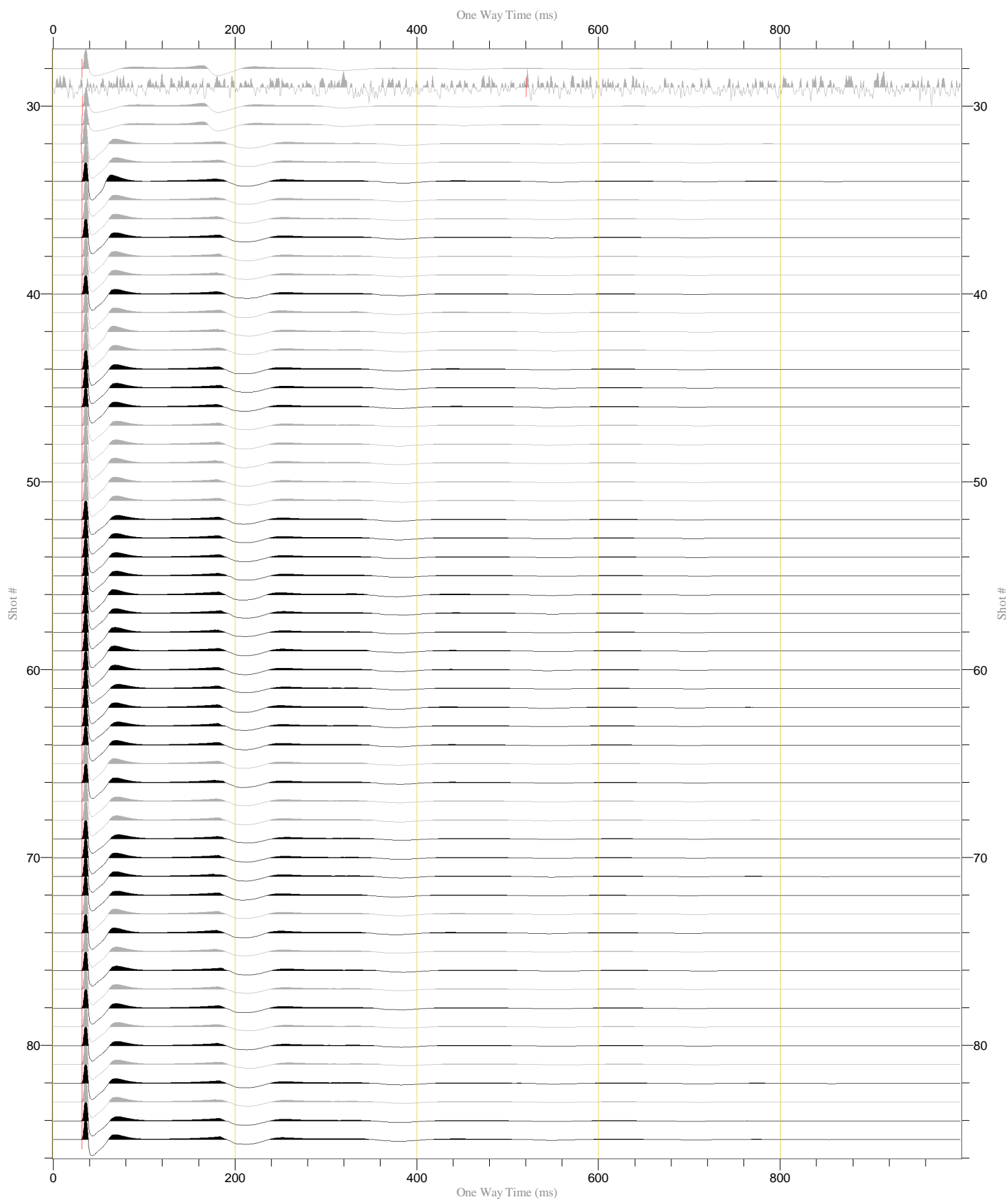
Source Sensor Signature

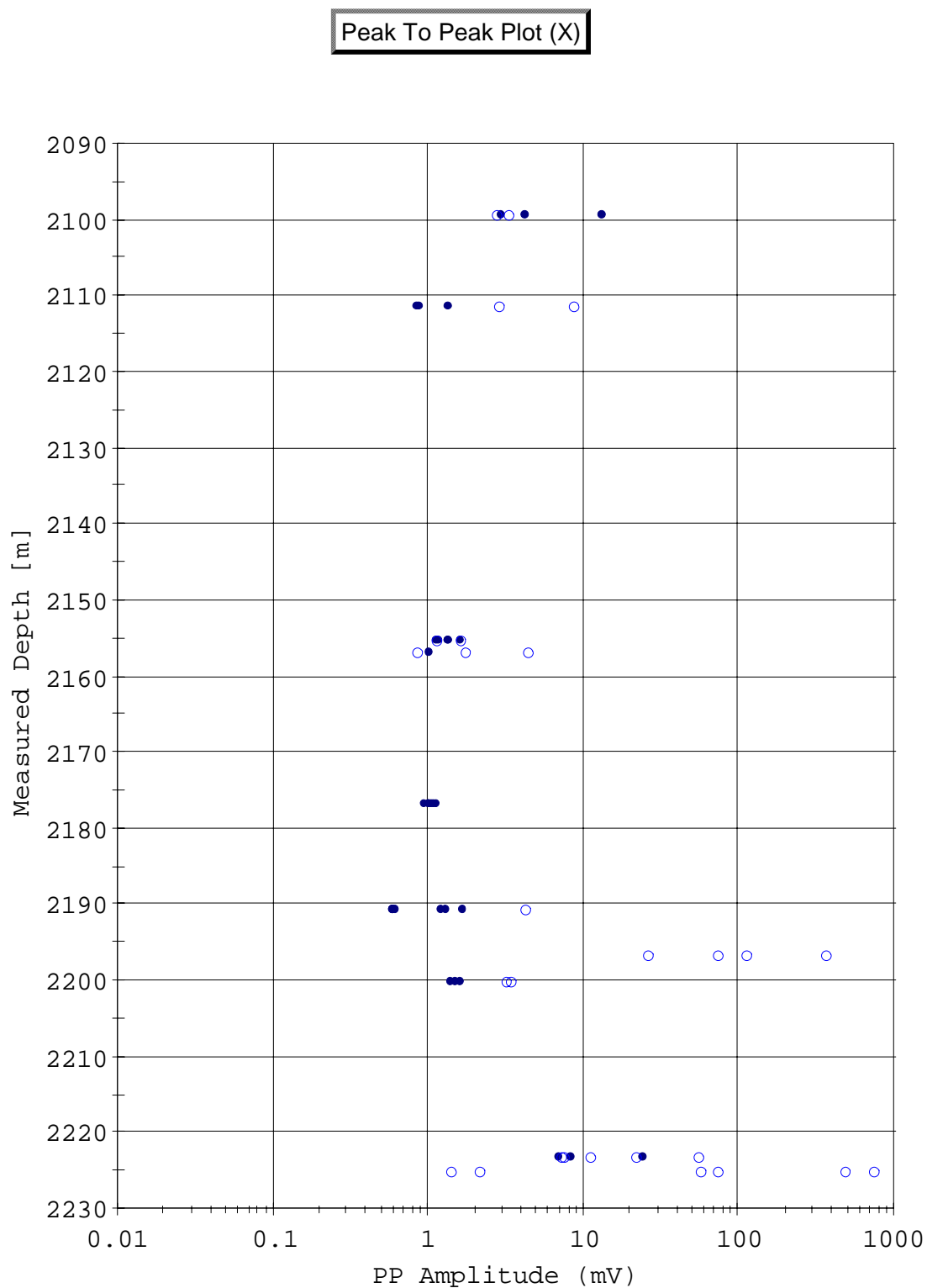
Normalization Trace by Trace (100%)

Polarity Normal

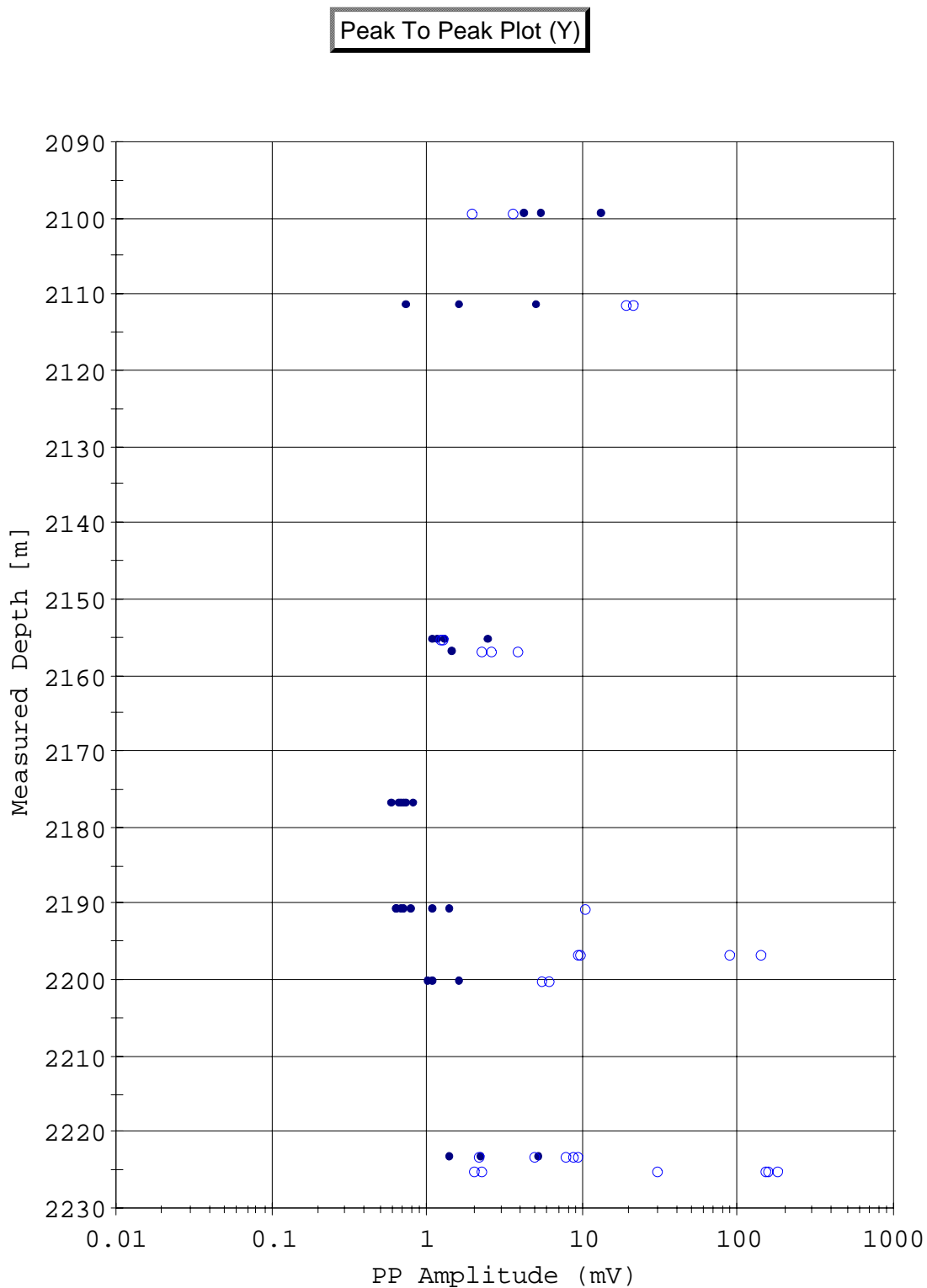
One Way Time (ms)

Scaling 17.81 cm/sec, 2.71/cm

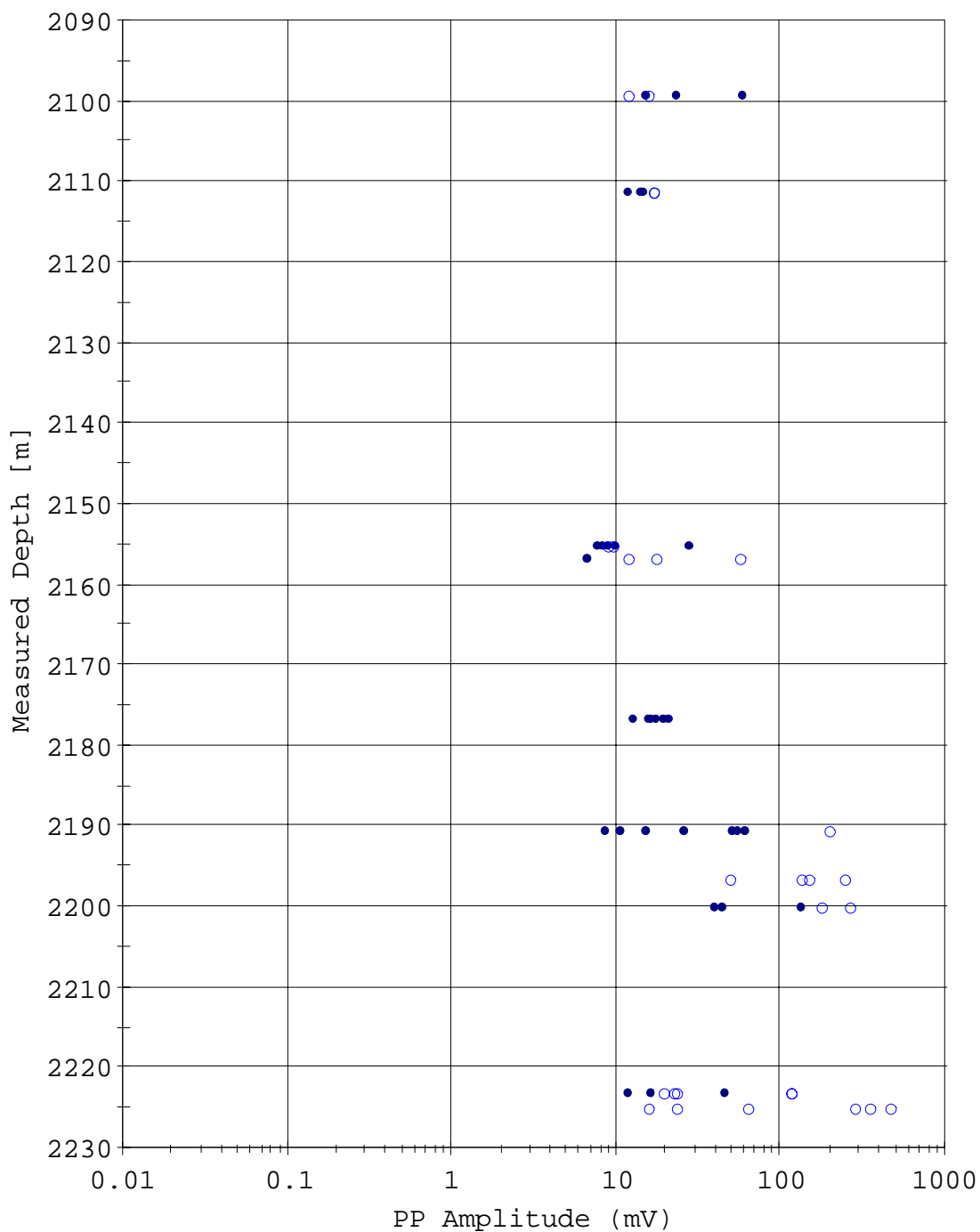




- PP Amplitude (mV) accepted for stack
- PP Amplitude (mV) rejected

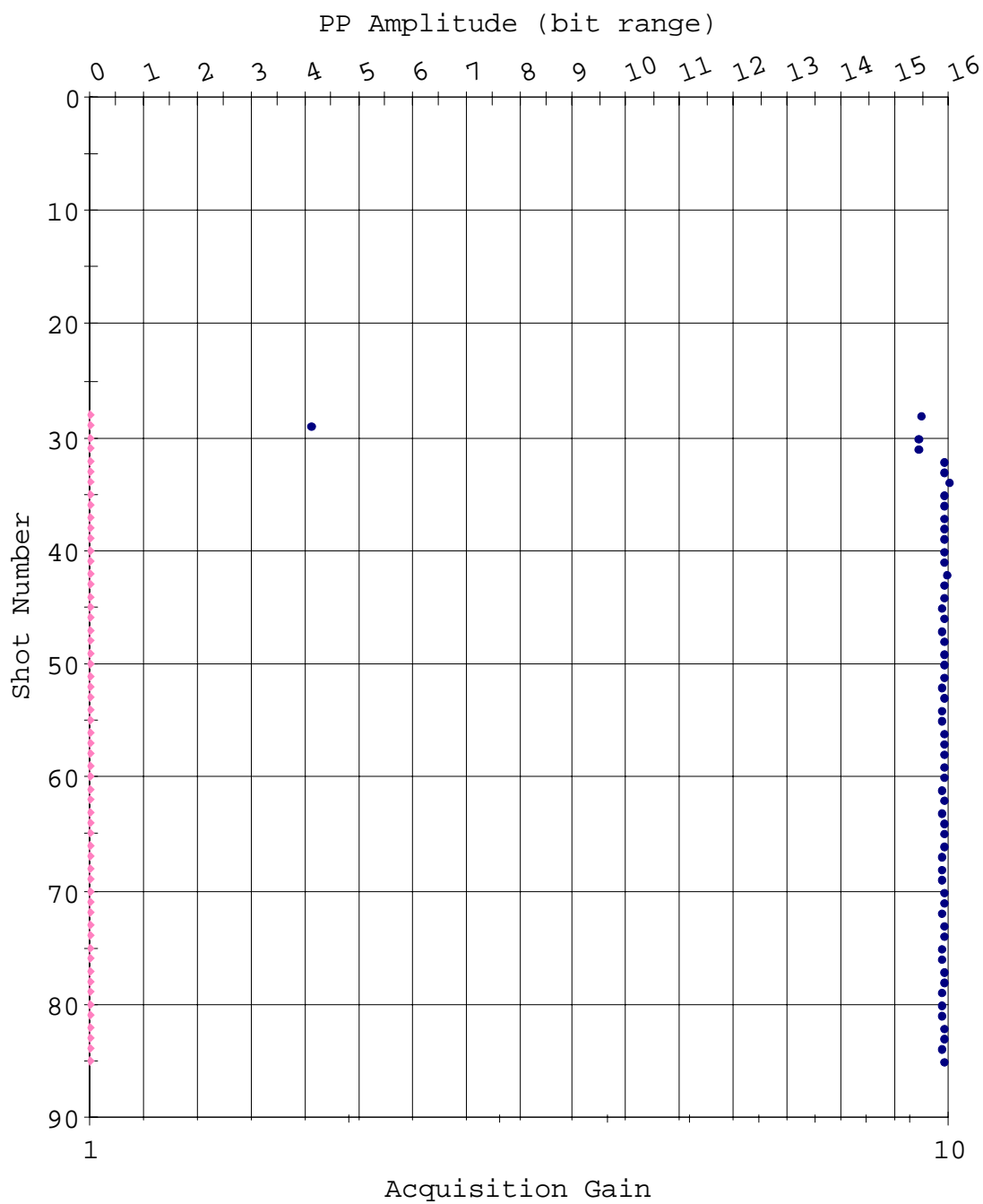


Peak To Peak Plot (Z)

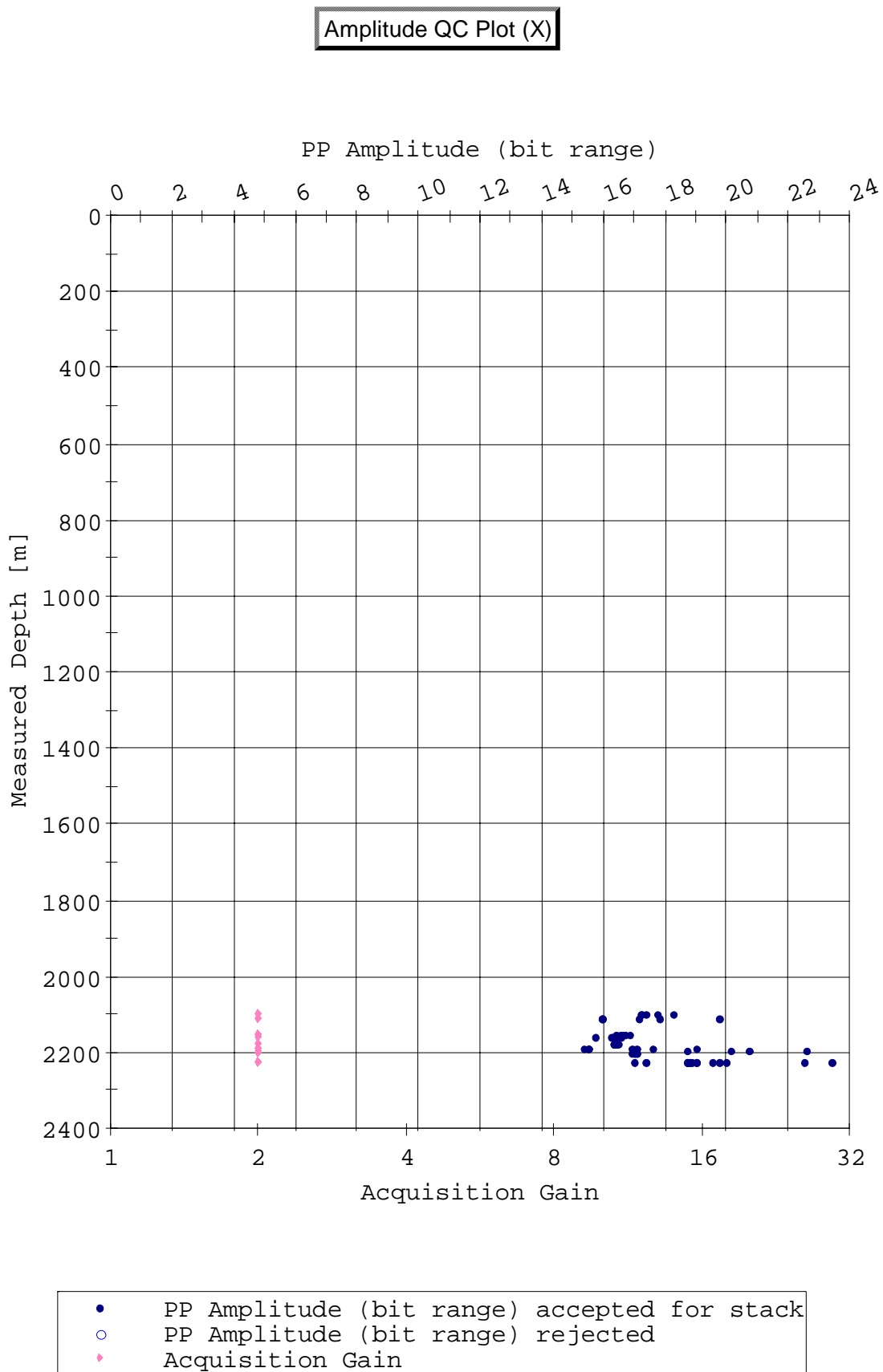


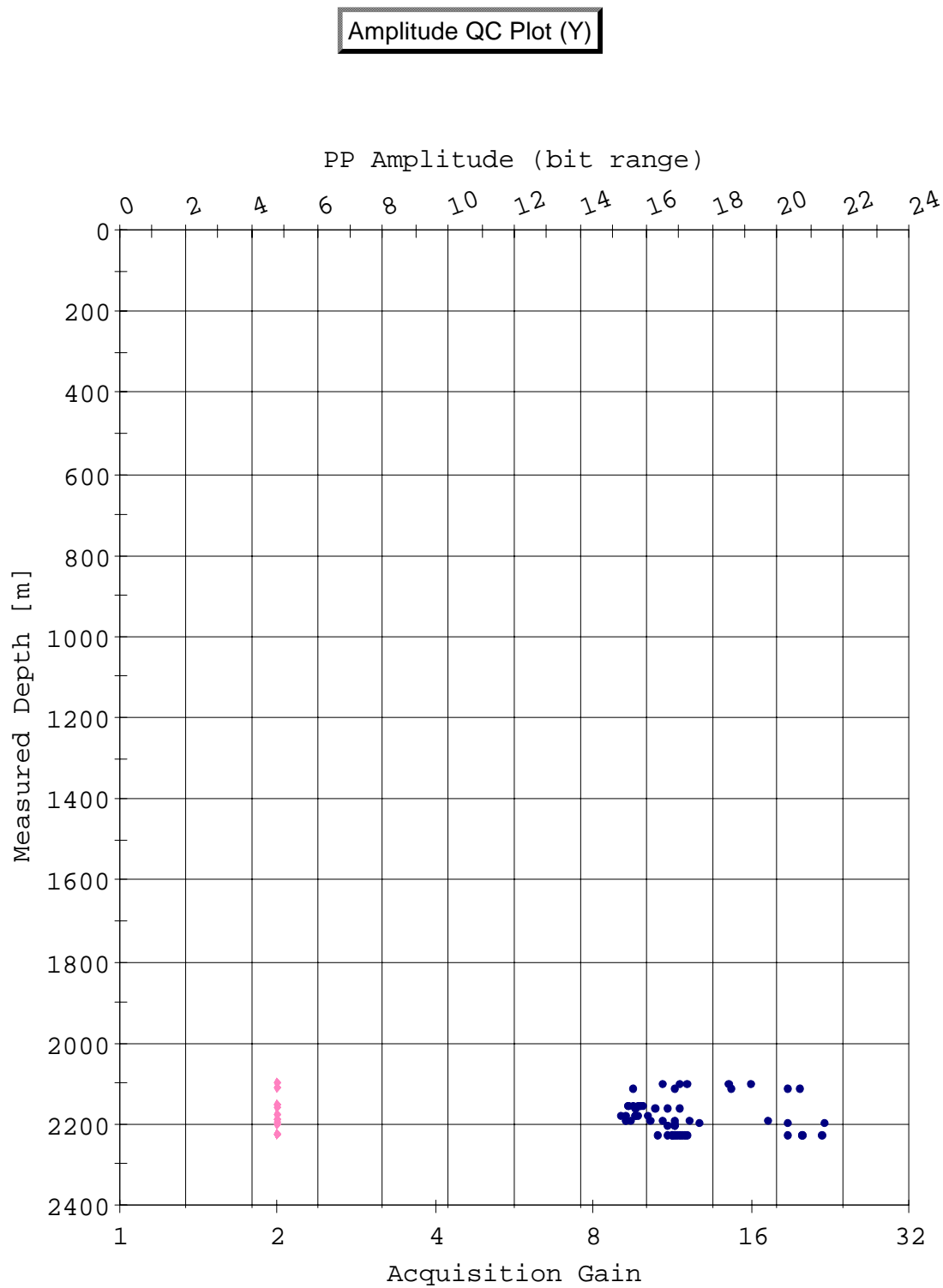
- PP Amplitude (mV) accepted for stack
- PP Amplitude (mV) rejected

Amplitude QC Plot (Surface)

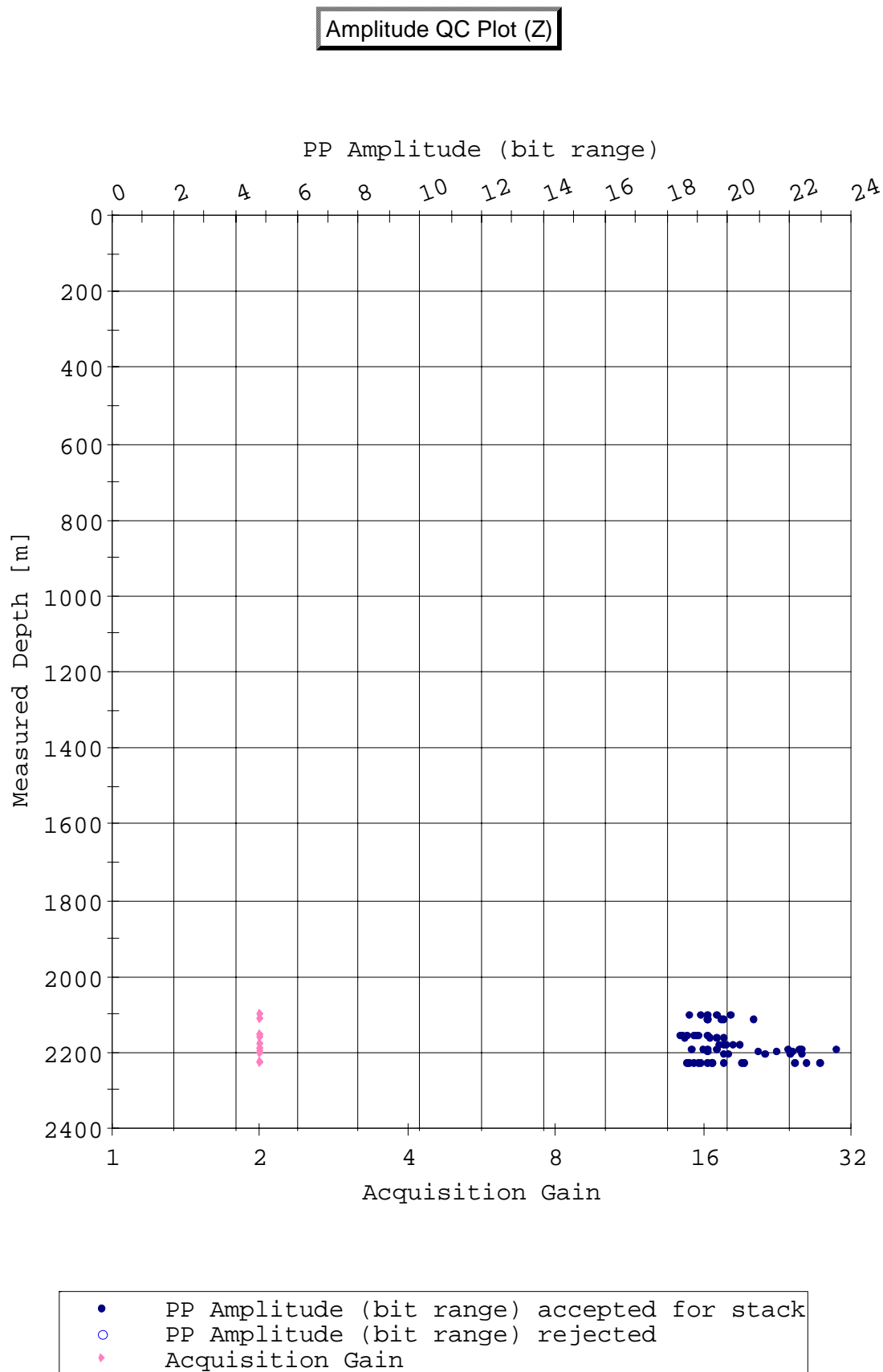


- PP Amplitude (bit range) accepted for stack
- PP Amplitude (bit range) rejected
- ◆ Acquisition Gain





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



Observer's Note (1/2)

Well depth [m]	Time(UTC)	Shot Type	Shot#	Stack#	Source	Remarks
NaN	20:24:32	ETHD	1			
NaN	20:24:42	GA01	2			
NaN	20:24:53	GA02	3			
NaN	20:25:03	GA04	4			
NaN	20:25:13	GA08	5			
NaN	20:25:23	GA16	6			
NaN	20:25:38	XTLK	7			
NaN	20:25:52	XTLK	8			
NaN	20:26:07	XTLK	9			
NaN	20:26:17	EIMP	10			
NaN	20:26:28	ENHI	11			
NaN	20:26:40	ENLO	12			
NaN	20:26:50	DRNG	13			
NaN	20:54:44	ETHD	14			
NaN	20:54:54	GA01	15			
NaN	20:55:05	GA02	16			
NaN	20:55:15	GA04	17			
NaN	20:55:25	GA08	18			
NaN	20:55:35	GA16	19			
NaN	20:55:50	XTLK	20			
NaN	20:56:04	XTLK	21			
NaN	20:56:19	XTLK	22			
NaN	20:56:29	EIMP	23			
NaN	20:56:40	ENHI	24			
NaN	20:56:52	ENLO	25			
NaN	20:57:02	DRNG	26			
2225.0	21:40:02	SHAK	27			
2225.0	21:40:30	SHOT	28	1		
2225.0	21:41:31	SHOT	29	1		
2225.0	21:42:27	SHOT	30	1		
2225.0	21:44:50	SHOT	31	1		
2225.0	21:45:50	SHOT	32	1		
2225.0	21:47:00	SHOT	33	1		
2223.1	21:52:59	SHOT	34	2		
2223.1	21:53:46	SHOT	35	2		
2223.1	21:54:19	SHOT	36	2		
2223.1	21:55:38	SHOT	37	2		
2223.1	21:56:44	SHOT	38	2		
2223.1	21:57:25	SHOT	39	2		
2223.1	21:59:02	SHOT	40	2		
2223.1	22:00:06	SHOT	41	2		
2200.0	22:06:59	SHOT	42	3		
2200.0	22:07:44	SHOT	43	3		
2200.0	22:08:22	SHOT	44	3		
2200.0	22:09:22	SHOT	45	3		
2200.0	22:10:01	SHOT	46	3		
2196.6	22:13:06	SHOT	47	4		Maybe
2196.6	22:14:14	SHOT	48	4		
2196.6	22:15:29	SHOT	49	4		
2196.6	22:16:10	SHOT	50	4		
2190.6	22:19:19	SHOT	51	5		
2190.6	22:19:54	SHOT	52	5		
2190.6	22:20:45	SHOT	53	5		
2190.6	22:22:10	SHOT	54	5		
2190.6	22:23:45	SHOT	55	5		
2190.6	22:27:14	SHOT	56	5		Best so far
2190.6	22:30:16	SHOT	57	5		
2190.6	22:31:26	SHOT	58	5		
2176.5	22:38:13	SHOT	59	6		

Observer's Note (2/2)

Well depth [m]	Time(UTC)	Shot Type	Shot#	Stack#	Source	Remarks
2176.5	22:39:03	SHOT	60	6		
2176.5	22:39:54	SHOT	61	6		
2176.5	22:40:40	SHOT	62	6		
2176.5	22:41:24	SHOT	63	6		
2176.5	22:42:21	SHOT	64	6		
2156.7	22:47:34	SHOT	65	7		
2156.7	22:48:23	SHOT	66	7		Station 7 all bad
2156.7	22:49:04	SHOT	67	7		
2156.7	22:49:57	SHOT	68	7		
2155.2	22:54:30	SHOT	69	8		
2155.2	22:55:26	SHOT	70	8		
2155.2	22:56:25	SHOT	71	8		
2155.2	22:57:02	SHOT	72	8		
2155.2	22:58:12	SHOT	73	8		
2155.2	22:58:51	SHOT	74	8		
2155.2	22:59:42	SHOT	75	8		
2111.1	23:07:37	SHOT	76	9		
2111.1	23:08:13	SHOT	77	9		
2111.1	23:08:56	SHOT	78	9		
2111.1	23:09:55	SHOT	79	9		
2111.1	23:11:11	SHOT	80	9		
2099.2	23:17:06	SHOT	81	10		
2099.2	23:17:52	SHOT	82	10		
2099.2	23:18:32	SHOT	83	10		
2099.2	23:19:11	SHOT	84	10		
2099.2	23:19:54	SHOT	85	10		

VSI Seismic Evaluation Report							
ELECTRICAL DISTORTION TEST							
8/31/2023 6:24:32 PM (UTC-02:00)							
Shot No: 1				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Total Harmonic Distortion	1	X	-102.70	dB	-	-90.0000	PASS
Total Harmonic Distortion	1	Y	-103.97	dB	-	-90.0000	PASS
Total Harmonic Distortion	1	Z	-103.75	dB	-	-90.0000	PASS
AMPLIFIER GAIN x2 TEST							
8/31/2023 6:24:42 PM (UTC-02:00)							
Shot No: 2				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.00	dB	-0.5000	0.5000	PASS
AMPLIFIER GAIN x4 TEST							
8/31/2023 6:24:53 PM (UTC-02:00)							
Shot No: 3				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.00	dB	-0.5000	0.5000	PASS
AMPLIFIER GAIN x8 TEST							
8/31/2023 6:25:03 PM (UTC-02:00)							
Shot No: 4				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.00	dB	-0.5000	0.5000	PASS
AMPLIFIER GAIN x16 TEST							
8/31/2023 6:25:13 PM (UTC-02:00)							
Shot No: 5				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.01	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.01	dB	-0.5000	0.5000	PASS
AMPLIFIER GAIN x32 TEST							
8/31/2023 6:25:23 PM (UTC-02:00)							
Shot No: 6				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.16	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.14	dB	-0.5000	0.5000	PASS

Gain Step Accuracy	1	Z	0.01	dB	-0.5000	0.5000	PASS
CROSS TALK X TEST							
8/31/2023 6:25:38 PM (UTC-02:00)							
Shot No: 7				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Cross Talk X-Y	1	-	-100.75	dB	-	-90.00000	PASS
Cross Talk X-Z	1	-	-99.10	dB	-	-90.00000	PASS
CROSS TALK Y TEST							
8/31/2023 6:25:52 PM (UTC-02:00)							
Shot No: 8				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Cross Talk Y-Z	1	-	-98.32	dB	-	-90.00000	PASS
Cross Talk Y-X	1	-	-99.84	dB	-	-90.00000	PASS
CROSS TALK Z TEST							
8/31/2023 6:26:07 PM (UTC-02:00)							
Shot No: 9				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Cross Talk Z-X	1	-	-97.37	dB	-	-90.00000	PASS
Cross Talk X-Y	1	-	-96.96	dB	-	-90.00000	PASS
IMPULSE RESPONSE TEST							
8/31/2023 6:26:17 PM (UTC-02:00)							
Shot No: 10				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Amplitude (0.3Hz)	1	X	30.15	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	X	-10.72	dB	-5.0000	-	FAIL
Impulse Amplitude	1	X	573.69	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	X	0.00	degree	-	-	-
Amplitude (0.3Hz)	1	Y	-1.76	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	Y	-3.67	dB	-5.0000	-	PASS
Impulse Amplitude	1	Y	574.82	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	Y	-111.14	degree	-	-	-
Amplitude (0.3Hz)	1	Z	-1.72	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	Z	-3.67	dB	-5.0000	-	PASS
Impulse Amplitude	1	Z	574.42	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	Z	-111.48	degree	-	-	-
ELECTRICAL NOISE HIGH TEST							
8/31/2023 6:26:28 PM (UTC-02:00)							
Shot No: 11				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
DC Offset	1	X	-25.27	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	X	0.12	micro V	-	0.5000	PASS
Noise Peak	1	X	0.47	micro V	-	2.0000	PASS
DC Offset	1	Y	-25.50	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Y	0.12	micro V	-	0.5000	PASS
Noise Peak	1	Y	0.41	micro V	-	2.0000	PASS
DC Offset	1	Z	-25.00	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Z	0.12	micro V	-	0.5000	PASS
Noise Peak	1	Z	0.40	micro V	-	2.0000	PASS
ELECTRICAL NOISE LOW TEST							
8/31/2023 6:26:40 PM (UTC-02:00)							
Shot No: 12				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
DC Offset	1	X	-25.39	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	X	0.12	micro V	-	0.5000	PASS
Noise Peak	1	X	0.43	micro V	-	2.0000	PASS
DC Offset	1	Y	-25.53	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Y	0.12	micro V	-	0.5000	PASS

Noise Peak	1	Y	0.43	micro V	-	2.0000	PASS
DC Offset	1	Z	-25.39	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Z	0.12	micro V	-	0.5000	PASS
Noise Peak	1	Z	0.39	micro V	-	2.0000	PASS

SYSTEM DYNAMIC RANGE TEST**8/31/2023 6:26:50 PM (UTC-02:00)****Shot No: 13****Station Depth: None**

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
System Dynamic Range	1	X	107.37	dB	103.0000	-	PASS
System Dynamic Range	1	Y	107.19	dB	103.0000	-	PASS
System Dynamic Range	1	Z	107.00	dB	103.0000	-	PASS

ELECTRICAL DISTORTION TEST**8/31/2023 6:54:44 PM (UTC-02:00)****Shot No: 14****Station Depth: None**

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Total Harmonic Distortion	1	X	-102.59	dB	-	-90.0000	PASS
Total Harmonic Distortion	1	Y	-104.15	dB	-	-90.0000	PASS
Total Harmonic Distortion	1	Z	-104.16	dB	-	-90.0000	PASS

AMPLIFIER GAIN x2 TEST**8/31/2023 6:54:54 PM (UTC-02:00)****Shot No: 15****Station Depth: None**

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.00	dB	-0.5000	0.5000	PASS

AMPLIFIER GAIN x4 TEST**8/31/2023 6:55:05 PM (UTC-02:00)****Shot No: 16****Station Depth: None**

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.00	dB	-0.5000	0.5000	PASS

AMPLIFIER GAIN x8 TEST**8/31/2023 6:55:15 PM (UTC-02:00)****Shot No: 17****Station Depth: None**

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.00	dB	-0.5000	0.5000	PASS

AMPLIFIER GAIN x16 TEST**8/31/2023 6:55:25 PM (UTC-02:00)****Shot No: 18****Station Depth: None**

Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.01	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.15	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.14	dB	-0.5000	0.5000	PASS

Gain Step Accuracy	1	Z	0.01	dB	-0.5000	0.5000	PASS
AMPLIFIER GAIN x32 TEST							
8/31/2023 6:55:35 PM (UTC-02:00)							
Shot No: 19				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Gain Accuracy	1	X	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	X	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Y	0.16	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Y	0.00	dB	-0.5000	0.5000	PASS
Gain Accuracy	1	Z	0.14	dB	-0.5000	0.5000	PASS
Gain Step Accuracy	1	Z	0.01	dB	-0.5000	0.5000	PASS
CROSS TALK X TEST							
8/31/2023 6:55:50 PM (UTC-02:00)							
Shot No: 20				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Cross Talk X-Y	1	-	-100.73	dB	-	-90.00000	PASS
Cross Talk X-Z	1	-	-99.06	dB	-	-90.00000	PASS
CROSS TALK Y TEST							
8/31/2023 6:56:04 PM (UTC-02:00)							
Shot No: 21				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Cross Talk Y-Z	1	-	-98.51	dB	-	-90.00000	PASS
Cross Talk Y-X	1	-	-100.05	dB	-	-90.00000	PASS
CROSS TALK Z TEST							
8/31/2023 6:56:19 PM (UTC-02:00)							
Shot No: 22				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Cross Talk Z-X	1	-	-97.35	dB	-	-90.00000	PASS
Cross Talk X-Y	1	-	-97.02	dB	-	-90.00000	PASS
IMPULSE RESPONSE TEST							
8/31/2023 6:56:29 PM (UTC-02:00)							
Shot No: 23				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
Amplitude (0.3Hz)	1	X	-1.64	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	X	-3.68	dB	-5.0000	-	PASS
Impulse Amplitude	1	X	574.33	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	X	0.00	degree	-	-	-
Amplitude (0.3Hz)	1	Y	-1.73	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	Y	-3.68	dB	-5.0000	-	PASS
Impulse Amplitude	1	Y	574.85	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	Y	0.86	degree	-	-	-
Amplitude (0.3Hz)	1	Z	-1.70	dB	-5.0000	-	PASS
Amplitude (400Hz)	1	Z	-3.68	dB	-5.0000	-	PASS
Impulse Amplitude	1	Z	574.45	milli V	-	-	-
Phase Diff. at 0.3Hz from X1	1	Z	0.53	degree	-	-	-
ELECTRICAL NOISE HIGH TEST							
8/31/2023 6:56:40 PM (UTC-02:00)							
Shot No: 24				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
DC Offset	1	X	-25.02	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	X	0.11	micro V	-	0.5000	PASS
Noise Peak	1	X	0.36	micro V	-	2.0000	PASS
DC Offset	1	Y	-25.49	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Y	0.12	micro V	-	0.5000	PASS
Noise Peak	1	Y	0.43	micro V	-	2.0000	PASS
DC Offset	1	Z	-25.01	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Z	0.12	micro V	-	0.5000	PASS

Noise Peak	1	Z	0.40	micro V	-	2.0000	PASS
ELECTRICAL NOISE LOW TEST							
8/31/2023 6:56:52 PM (UTC-02:00)							
Shot No: 25				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
DC Offset	1	X	-25.39	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	X	0.12	micro V	-	0.5000	PASS
Noise Peak	1	X	0.39	micro V	-	2.0000	PASS
DC Offset	1	Y	-25.53	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Y	0.12	micro V	-	0.5000	PASS
Noise Peak	1	Y	0.43	micro V	-	2.0000	PASS
DC Offset	1	Z	-25.39	milli V	-100.0000	100.0000	PASS
RMS Noise Level	1	Z	0.12	micro V	-	0.5000	PASS
Noise Peak	1	Z	0.44	micro V	-	2.0000	PASS
SYSTEM DYNAMIC RANGE TEST							
8/31/2023 6:57:02 PM (UTC-02:00)							
Shot No: 26				Station Depth: None			
Evaluation Item	Shuttle	Channel	Value	Unit	Lower Limit	Upper Limit	Result
System Dynamic Range	1	X	106.04	dB	103.0000	-	PASS
System Dynamic Range	1	Y	105.71	dB	103.0000	-	PASS
System Dynamic Range	1	Z	106.47	dB	103.0000	-	PASS