

Company: L-DEO - Lamont - Doherty Earth Observatory
Vessel: Marcus G. Langseth
Client: Worthington/NSF

Project: MGL2204
Area: Guerrero Gap
Start Date: 15-May-22

Vessel Sensor Offsets

Towing Offsets

Towing Configuration

Acoustic Overhead

Gun Array Offsets

Streamer Front End

Streamer Tail End

Streamer Complete

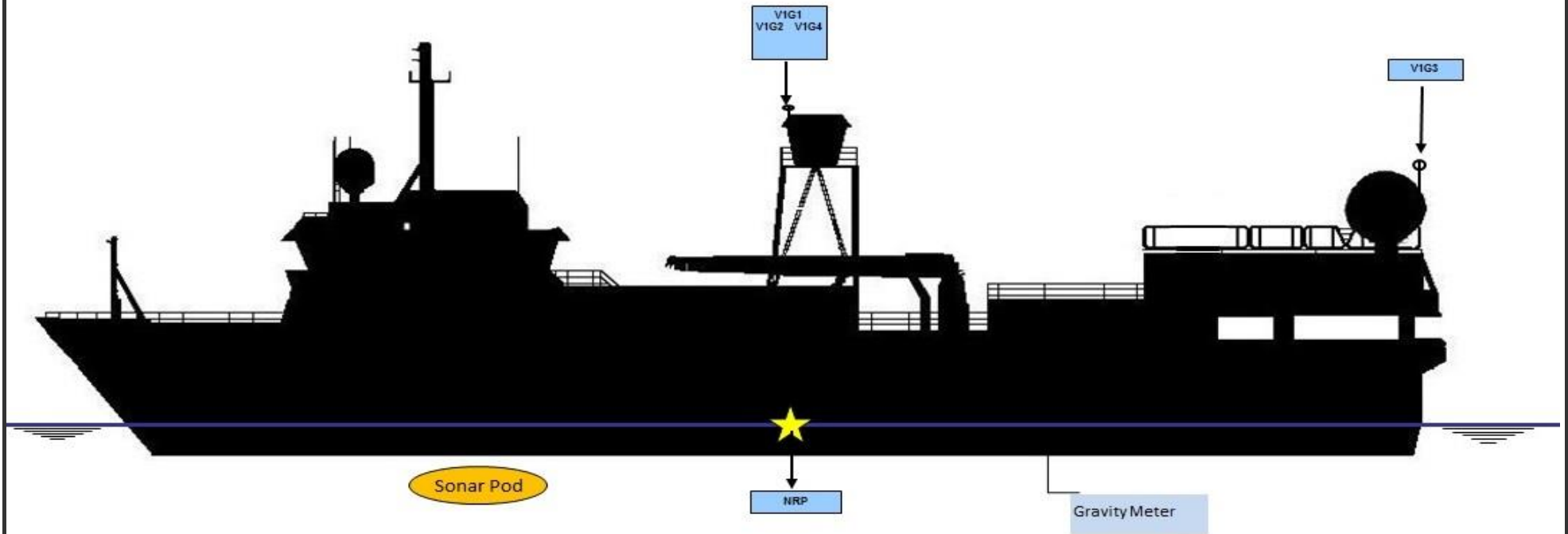
Hydrophone Offsets

Tailbuoy Offsets

Timing

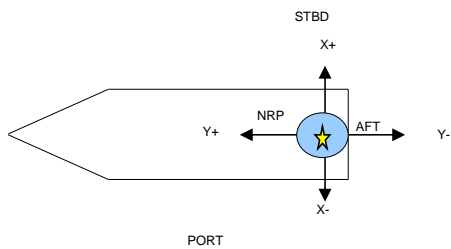


R/V Marcus G. Langseth - Vessel Sensor Offsets



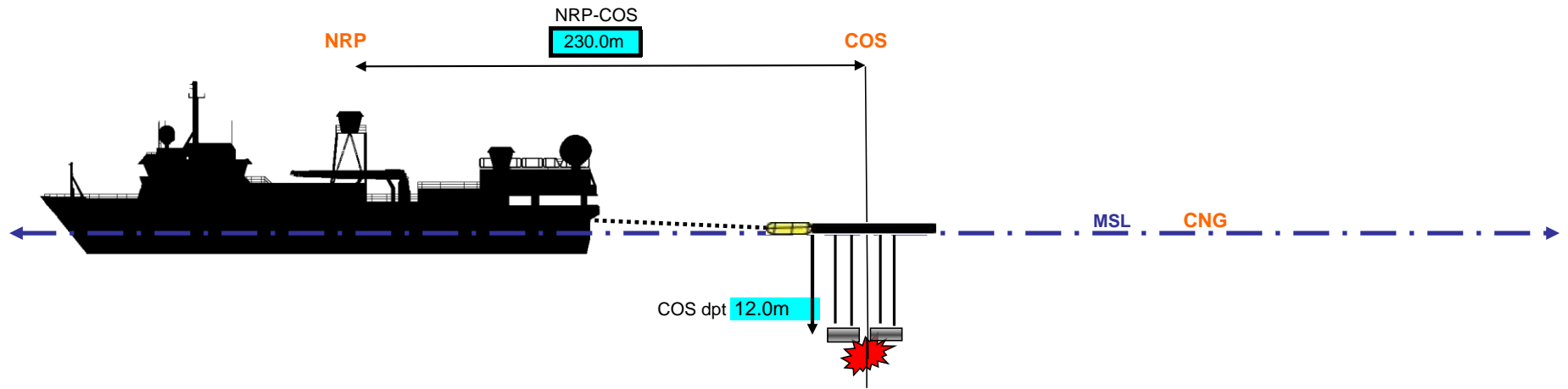
Negative values are above water line

All measurements in meters



		STBD/PORT (X)	FORE/AFT (Y)	UP/DOWN (Z)	
NRP	NAVIGATION REFERENCE POINT	0.00	0.00	0.00	
V1G1	C-Nav 3050 - MMO Tower	0.00	0.00	-16.90	
V1G2	Seapath 330	0.00	-1.50	-16.90	
V1G3	C-Nav 3050 - Stern	-2.10	-29.20	-14.50	
V1G4	Pos MV	-1.30	1.20	-16.90	
V1R1	PosNet	-1.30	0.00	-16.90	
Sonar Pod	EM122 Knudsen ADCP	0.00	20.20	7.49	
	EM122 Center Beam offset (in Spectra)	0.00	13.4	7.49	
MRU	Seapath MRU	2.30	14.16	-4.30	
BGM	Bell Gravity Meter	0.00	-13.10	1.10	

R/V Marcus G. Langseth - Towing Offsets



NRP	Nav Reference Point
COS	Centre of Source
MSL	Mean Sea Level
NRP-Stern	29.5m
NRP-COS	230.0m

All measurements in meters

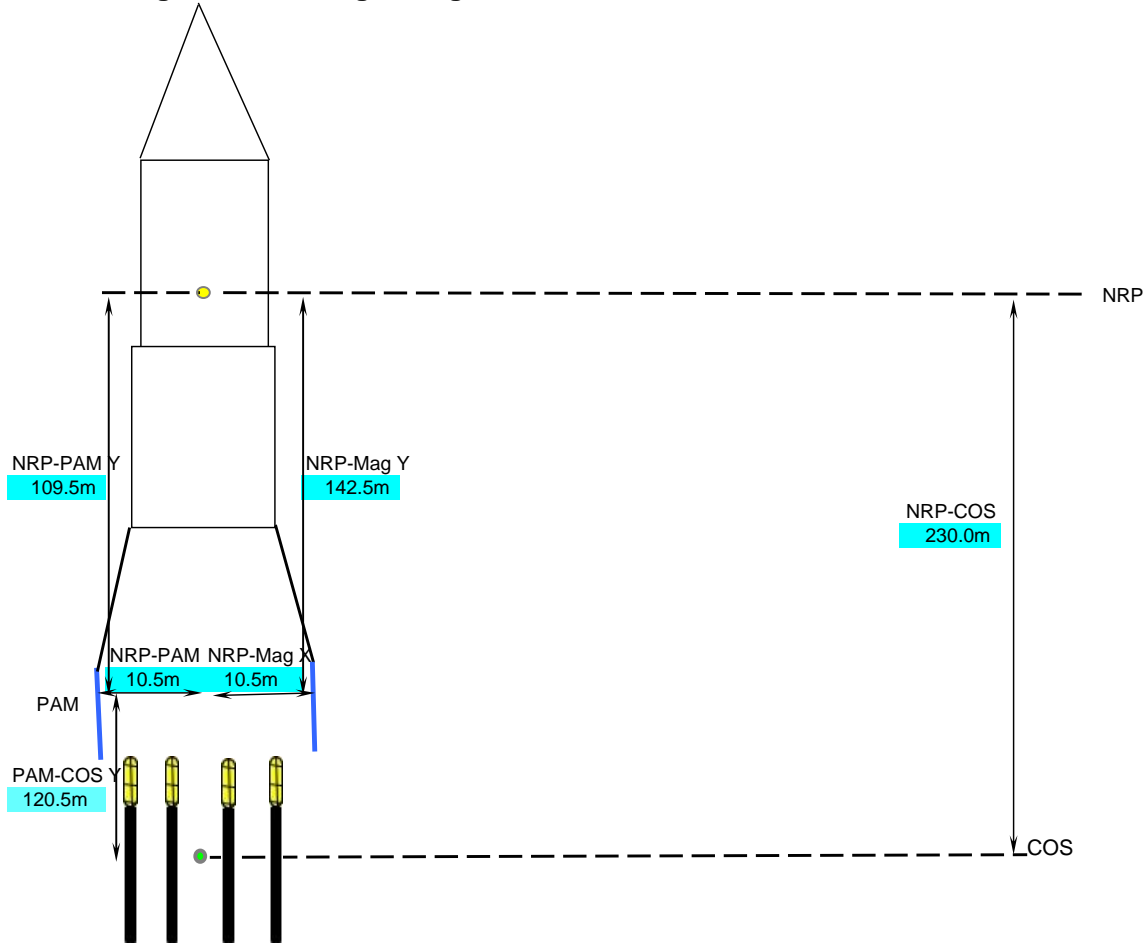


Cell contents referenced from Config_offsets tab

	# Streamers	Length	Channels	Spacing
SEAL	1	15000	1200	12.5m

# Gun Strings Used	4	Vol (in^3)	6600
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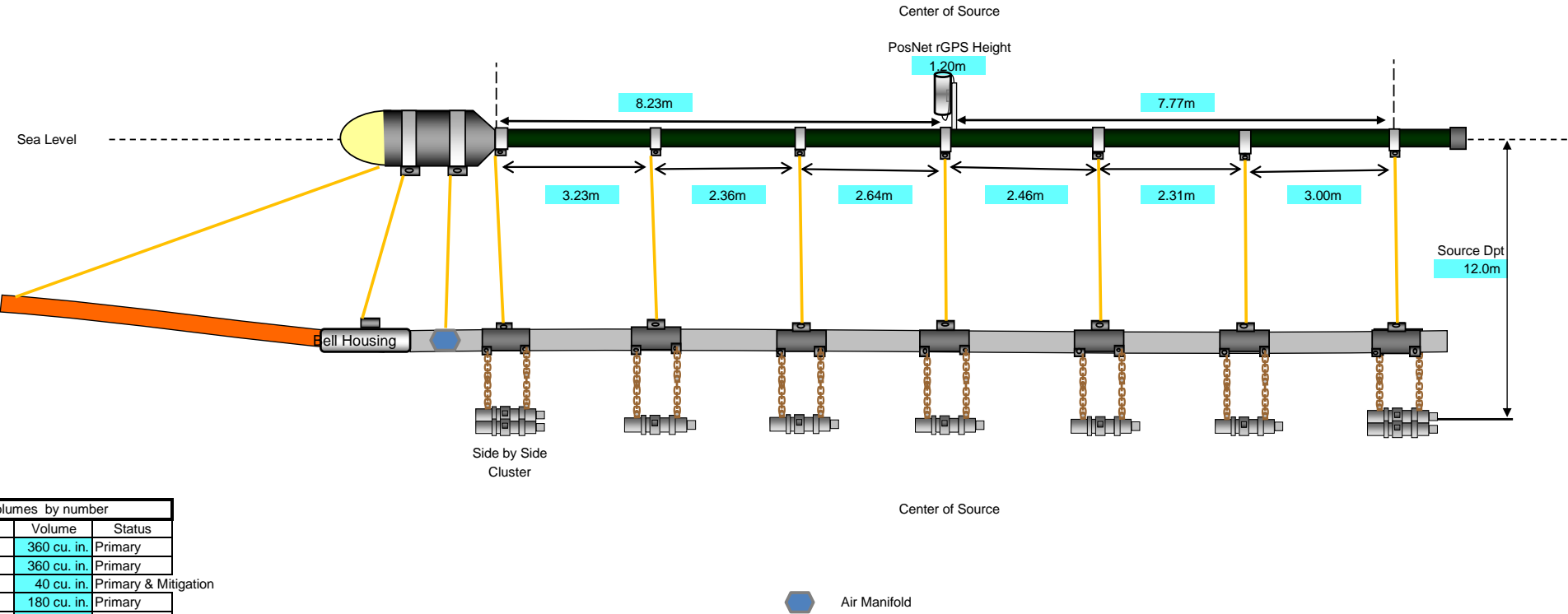
R/V Marcus G. Langseth - Towing Configuration



NOT to Scale

Cell contents referenced from Config_offsets tab

R/V Marcus G. Langseth - Gun Array Offsets



Gun volumes by number		
Gun	Volume	Status
Gun 1	360 cu. in.	Primary
Gun 2	360 cu. in.	Primary
Gun 3	40 cu. in.	Primary & Mitigation
Gun 4	180 cu. in.	Primary
Gun 5	90 cu. in.	Primary
Gun 6	120 cu. in.	Primary
Gun 7	60 cu. in.	Primary
Gun 8	220 cu. in.	Primary
Gun 9	220 cu. in.	Primary

Array total volume (without spares) is 6600 cu. in. Total volume/string (without spare) 1650 cu. in.

Guns (1 & 2) & (8 & 9) in a horizontal cluster.

Gun clusters have 0.75m between guns and hang 0.95m from center of hanger

Horizontal Clusters are 1m from gun port to gun port

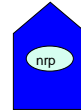
Single guns hang from hanger 1.15m

All gun volumes, numbering, locations, and offsets were inspected and verified by Chief Source Mechanic.

All measurements in meters
NOTE: drawing not to scale

Cell contents referenced from Config_offsets tab

R/V Marcus G. Langseth - Gun Configuration



Center of Source

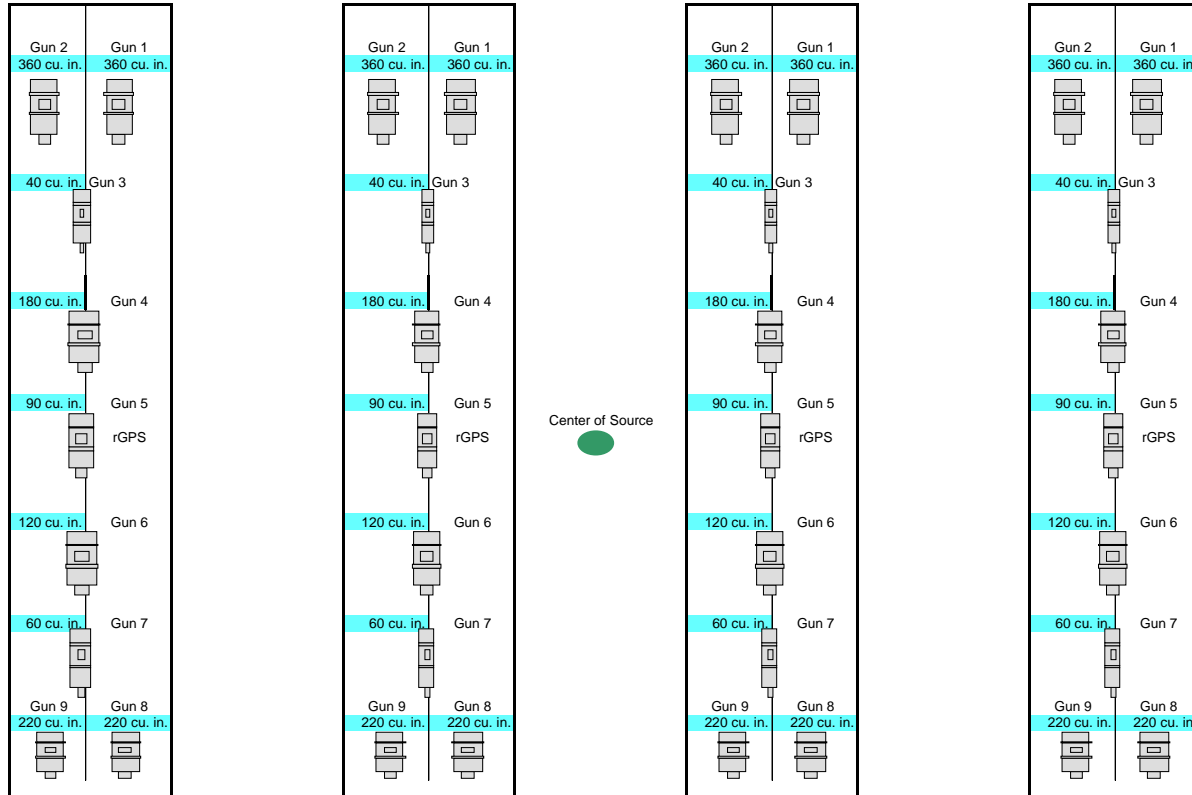
Sub array #4 6.0m Sub array #3 6.0m Sub array #2 6.0m Sub array #1

Gun Clusters
Guns 1 & 2 horizontal array
Guns 9 & 10 horizontal array

Gun Offsets relative to Center of String

	X	Y
Gun 1	0.50m	8.31m
Gun 2	-0.50m	8.31m
Gun 3	0.00m	5.03m
Gun 4	0.00m	2.60m
Gun 5	0.00m	0.00m
Gun 6	0.00m	-2.74m
Gun 7	0.00m	-5.09m
Gun 8	0.50m	-8.21m
Gun 9	-0.50m	-8.21m

All measurements in meters



From COS
8.23m

3.23m

2.36m

2.64m

0.00m

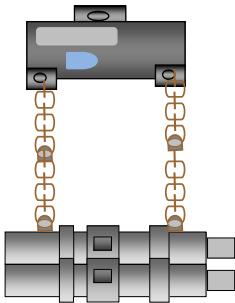
2.46m

2.31m

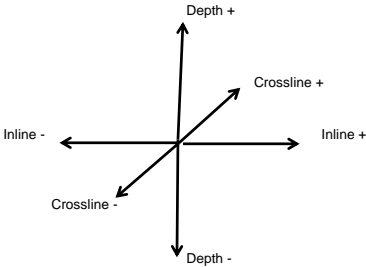
3.00m

Distances in Meters

Gun Plate



Center of ports between guns 1 and 2 is the reference point



Hydrophone Offsets

Gun String 1				
Plate	Phone	Inline	Crossline	Depth
1		N/A	N/A	N/A
2	1	3.18	0.00	0.95
3	2	5.34	0.00	0.91
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6	3	10.48	0.00	0.90
7		N/A	N/A	N/A

Gun String 2				
Plate	Phone	Inline	Crossline	Depth
1		N/A	N/A	N/A
2	1	3.05	0.00	0.93
3	2	5.48	0.00	0.96
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6	3	10.50	0.00	0.92
7		N/A	N/A	N/A

Gun String 3				
Plate	Phone	Inline	Crossline	Depth
1		N/A	N/A	N/A
2	1	3.18	0.00	0.96
3	2	5.22	0.00	0.97
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6	3	10.61	0.00	0.90
7		N/A	N/A	N/A

Gun String 4				
Plate	Phone	Inline	Crossline	Depth
1		N/A	N/A	N/A
2	1	3.50	0.00	0.96
3	2	5.53	0.00	0.97
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6	3	10.59	0.00	0.90
7		N/A	N/A	N/A

Depth Transducer Offsets

Gun String 1				
Plate	DT	Inline	Crossline	Depth
1	1	0.00	N/A	1.20
2		N/A	N/A	N/A
3	2	5.68	N/A	1.08
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6		N/A	N/A	N/A
7	3	16.28	N/A	1.23

Gun String 2				
Plate	DT	Inline	Crossline	Depth
1	1	0.00	N/A	1.23
2		N/A	N/A	N/A
3		N/A	N/A	N/A
4	2	8.00	N/A	1.20
5		N/A	N/A	N/A
6		N/A	N/A	N/A
7	3	16.08	N/A	1.30

Gun String 3				
Plate	DT	Inline	Crossline	Depth
1	1	0.00	N/A	1.23
2		N/A	N/A	N/A
3	2	5.49	N/A	1.10
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6		N/A	N/A	N/A
7	3	15.58	N/A	2.37

Gun String 4				
Plate	DT	Inline	Crossline	Depth
1	1	0.00	N/A	1.23
2		N/A	N/A	N/A
3	2	5.59	N/A	1.10
4		N/A	N/A	N/A
5		N/A	N/A	N/A
6		N/A	N/A	N/A
7	3	15.58	N/A	2.23

IAS Section	
NRP to COS Y	230
NRP to COS X	0
Source Depth	12
Shooting Depth	12
# streamer sections	100
# channels	1200
CNG Channel #	1
CPG Channel #	1200
CMCS Streamer #	
Head-in stream to tow	200000
MCSS Streamer Sep.	0
Gun volume total	6500
Volume per string	1650
# of guns used	35
# Gun Strings	1
Gun string separation	6
PAM Y from stern	80
PAM Z (outside of stern)	0
Stem to MAG Y	113
Stem to MAG Z (outside of stern rail)	3

[illegible]

Tidebuoy offsets	
RGPS height above water	1.3
TR length	2.8
TR height	1.85
RGPS ACY	1
Reddy-RGPS	2.75
Tide Log	1.55
Reddy-Tide Log	1.85
STC	25
ACY below water line	1

Streamed Offsets Summary	
NRP to CMP	339,805
COS-CNG	219,100
CNG-CFG	-14,887
NRP-Mag Y	142,900
NRP-Mag X	10,000
NRP to last valid RGPS	154,944
Total Length of Streamer section	15,000
PM-Mag Y	120,000
PM-Mag X	100,000
NRP-PM-Mag Y	109,000
NRP-PM-Mag X	10,000
NRP-CNG	-449,000

Guns	
Source: GPS-2002 V	
Bracket distance 3.3	3.73
Bracket distance 3.4	3.90
Bracket distance 3.5	2.64
Bracket distance 3.6	2.65
Bracket distance 3.7	2.13
Bracket distance 3.8	3
COMP - Accuracy V	5.61
GPS height above water line	
G1 Volume	360
G2 Volume	390
G3 Volume	45
G4 Volume	180
G5 Volume	180
G6 Volume	90
G7 Volume	120
G8 Volume	45
G9 Volume	45

Abundance referenced to CND at CDS	
1.11E4	0.14
1.12E4	0.15
1.13E4	0.44
1.14E4	0.15
1.15E4	16.90
1.16E4	127.70
1.17E4	1.02E+02
1.18E4	1.05E+02
1.19E4	1
1.20E4	1
1.21E4	1
1.22E4	1
1.23E4	1
1.24E4	1
1.25E4	1
1.26E4	1
1.27E4	1
1.28E4	1
1.29E4	1
1.30E4	1
1.31E4	1
1.32E4	1
1.33E4	1
1.34E4	1
1.35E4	1
1.36E4	1
1.37E4	1
1.38E4	1
1.39E4	1
1.40E4	1
1.41E4	1
1.42E4	1
1.43E4	1
1.44E4	1
1.45E4	1
1.46E4	1
1.47E4	1
1.48E4	1
1.49E4	1
1.50E4	1
1.51E4	1
1.52E4	1
1.53E4	1
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1.64E4	1
1.65E4	1
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1.69E4	1
1.70E4	1
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1.75E4	1
1.76E4	1
1.77E4	1
1.78E4	1
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1.80E4	1
1.81E4	1
1.82E4	1
1.83E4	1
1.84E4	1
1.85E4	1
1.86E4	1
1.87E4	1
1.88E4	1
1.89E4	1
1.90E4	1
1.91E4	1
1.92E4	1
1.93E4	1
1.94E4	1
1.95E4	1
1.96E4	1
1.97E4	1
1.98E4	1
1.99E4	1
2.00E4	1

Derived Offsets (Formula)	
Towing Offsets Tab	
NRP-COS	230
NRP-CNG	440
NRP-CMP	339.80
COS-CNG	219
CNG Channel #	1
NRP-Stem	29
Distance from Head of final section to CNG	7.1
Source Depth	12
Streamer Depth	12
Front End Length	39

Towing Configuration TAB	
MRP-COS	230
MRP-CNG	448.7
COS-CNG	219.7
MRP-Floats - CNG	0
COS-Floats - CNG	0
P-Cable	0
Streamers - CNG	0
MRP-PAM-Y	109.9
MRP-PAM-X	4
PAM-COS-Y	120.5
PAM-COS-X	10.5
# Gun Strings	4
gun volume	65000
Gun separation	0
# 2D Streamers	0
2D Streamer Ch Spacing	12.5
Number 2D Classics	1200
2D Streamer	15000
2D Streamer	0
MRP-MAG-X	10.5
MRP-MAG-Y	142.5

Accountant's Worksheet	
T-AB	
G1T1	-0.15
G2T1	-0.15
G3T1	-0.15
G4T1	-0.15
S1T1	-167.28
S1T2	-167.28
S1T3	-12322.80
S1T4	-12472.68
S1T5	1
S1T6	0
S1T7	0
S2T1	0
S2T2	0
S2T3	0
S2T4	0
S2T5	0
S2T6	0
S2T7	0
S3T1	0
S3T2	0
S3T3	0
S4T4	0
S4T5	0
S4T6	0
S4T7	0
S4T1	0
S4T2	0
S4T3	0
S4T4	0
S4T5	0
S4T6	0
S4T7	0
Grand Total: 12322.80 G1 T1: 0.15 167.28 12322.80 S1 T1: 0.15 167.28 12322.80 S1 T2: 0.15 167.28 12322.80 S1 T3: 0.15 167.28 12322.80 S1 T4: 0.15 167.28 12322.80 S1 T5: 0.15 167.28 12322.80 S1 T6: 0.15 167.28 12322.80 S1 T7: 0.15 167.28 12322.80 S2 T1: 0.15 167.28 12322.80 S2 T2: 0.15 167.28 12322.80 S2 T3: 0.15 167.28 12322.80 S2 T4: 0.15 167.28 12322.80 S2 T5: 0.15 167.28 12322.80 S2 T6: 0.15 167.28 12322.80 S2 T7: 0.15 167.28 12322.80 S3 T1: 0.15 167.28 12322.80 S3 T2: 0.15 167.28 12322.80 S3 T3: 0.15 167.28 12322.80 S3 T4: 0.15 167.28 12322.80 S3 T5: 0.15 167.28 12322.80 S3 T6: 0.15 167.28 12322.80 S3 T7: 0.15 167.28 12322.80 S4 T1: 0.15 167.28 12322.80 S4 T2: 0.15 167.28 12322.80 S4 T3: 0.15 167.28 12322.80 S4 T4: 0.15 167.28 12322.80 S4 T5: 0.15 167.28 12322.80 S4 T6: 0.15 167.28 12322.80 S4 T7: 0.15 167.28 12322.80 Grand Total: 12322.80	

Gun array offsets	
Bracket distance 1-2	1.0
Bracket distance 2-3	3.2
Bracket distance 3-4	4.0
Bracket distance 4-5	2.6
Bracket distance 5-6	2.4
Bracket distance 6-7	2.3
Bracket distance 7-8	1.0
SoundGPS-CDS V	-
CDS - Activity V	-5.4
GPS height above water	-
G1 Volume	36
G2 Volume	36
G3 Volume	4
G4 Volume	18
G5 Volume	18
G6 Volume	9
G7 Volume	12
G8 Volume	6
G9 Volume	22
G10 Volume	23
G-Depth 1	0.9
G-Depth 2	0.9
G-Depth 3	0.9
G-Depth 4	0.9
G-Depth 5	1.1
G-Depth 6	1.1
G-Depth 7	1.1
G-Depth 8	1.1
G-Depth 9	0.9
G-Depth 10	0.9
G10 to Axx X	1
G10 to Axx Y	1
G10 to Axx Z	1
End bracket in CDS	8.2
End bracket in CDS	8.2

Common Features		
Streamer Front-End		
Stream-to-point at sea	360	
Isopoint at sea to end of lead-in at land in 30 sec	12.5	
Lead-in Length	6	
Radio length	17.5	
HV/STU seconds	0.4	
HESSA Lgth	16	
Feed Coil to AB Coil	100	
Feed to Feed 50 V	7.8	
Feed Coil to CHG	-16.423	
Feed to Feed Coil	24.222	
Tail to AB Coil	25.777	
CHG Channel #		
Center of streamer to Ace	-0.3	
First Section #	1	
# channels	1200	
section length	15000	
# sections	500	
channel inductance	12.5	
First to last	14987.5	
HESSA Feed to aft	6.45	

General Effects	
Steamer Tail End	
Head to Fwd Coil	24.22
Tail to Aft Coil	25.17
Head to CPG	145.
Coil to Coil	10
TAPU 1 month	0.4
Tail 1 month	5
Tactical Length	0.
STC 1 month	20
Last active	10
# channels	120
# sections	10
total section	1500
First to last	14987
Switch Center of streamer to Aft	-0.
channel section	12.
CPG #	120
Fwd coil to CPG	121.07
CPG to transducer	81.5
Switch head to Aft	2.
Switch head to aft coil	47.

Derived Offsets	
Streamers complete	
#Sections	10
# Channels	120
First to last	14937
Total section length	1500

Channel Offsets	
Channel 1	7.82
2	20.32
3	32.82
4	45.32
5	57.82
6	70.32
7	82.82
8	95.32
9	107.82
10	120.32
11	132.82
12	145.32
# channels	12
# Active's	10
Total Channels	120

Derived Offsets	
Tailbucy offsets	
RGPS height above center	1
TB length	2
TB height	1.8
RGPS-ACX	
Bride-201448	2.2
Top Leg	1.5
Bottom Leg	1
STIC	2
ACX below	1